I/O Highway 407 & Trafalgar Road, Oakville, ON

Transportation Impact Study

Paradigm Transportation Solutions Limited

2026-01
210156

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Project Summary

Project Number:

210156

Date and Version:

2026-01
5.0.1

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I/O Highway 407 & Trafalgar Road, Oakville, ON
Transportation Impact Study



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Executive Summary

Content

Paradigm Transportation Solutions Limited (Paradigm) was retained to conduct this Transportation Impact Study (TIS) for a proposed mixed-use development located at on both sides of Trafalgar Road south of Highway 407 in Oakville, Ontario.

This study determines the impacts of the development traffic on the surrounding road network and identifies the recommended improvements to accommodate the site generated traffic.

Development Concept

The subject site (Trafalgar Lands) is located on both sides of Trafalgar Road south of Highway 407 and north of Burnhamthorpe. The Trafalgar Lands are approximately 53 hectares (131 acres). The east parcel (east of Trafalgar Road) is approximately 33 hectares (81.5 acres), and the west parcel (west of Trafalgar Road) is approximately 20 hectares (49.5 acres).

The ultimate development mix and intensity will be subject to future development applications and supported by Traffic Impact Studies specific to the proposed development subject to those applications.

The Environmental Study Report for Trafalgar Road (Regional Road 3) Improvements Class Environmental Assessment Study from Cornwall Road to Highway 407, Town of Oakville (April 2015), contemplates future dedicated bus lines along the Trafalgar Road, with future transit stops at the William Halton Parkway intersection.

The Illustrative Concept Plans prepared in support of the Official Plan Amendment Application show a conceptual road network and pedestrian connectivity throughout the area subject to the application to the Trafalgar Road Corridor and to the Future Highway 407 Transitway Station. It is recommended that future development applications shall be designed to ensure that the long-term transit plans, including the future Trafalgar Road Bus Rapid Transit (BRT) and the Highway 407 Transit Way are integrated with local transit services.

Conclusions

Based on the investigations carried out, it is concluded that:

- **Existing Traffic Operations:** Capacity issues are identified along the Trafalgar Road corridor. Trafalgar Road has over

30,000 vehicles per day near the Highway 407 Ramp terminal which reflects the higher end of the capacity of an arterial road.

- **Estimated Site Generated Traffic:** Based on the illustrative concept plan, the subject site, following 2031 build-out, is estimated to generate approximately 917 vehicle trips during the AM peak hour and 1,196 vehicle trips during the PM peak hour. Following 2036 build-out, it is estimated to generate a total of 2,465 vehicle trips during the AM peak hour and 3,176 vehicle trips during the PM peak hour. Following 2041 build-out, it is estimated to generate a total of 2,658 vehicle trips during the AM peak hour and 3,411 vehicle trips during the trips during the PM peak hour.
- **Background Traffic Operations:** As the traffic volumes increase at the study area intersections, capacity issues continue along Trafalgar Road. Under the 2031, 2036 and 2041 background horizon years, Trafalgar Road, near the Highway 407 ramp terminal, is forecast to have more than 39,000 and 50,000 vehicles per day.
- **Total Traffic Operations:** The capacity deficiencies identified under background conditions will continue to occur with the addition of site generated traffic. With the addition of the site generated traffic for the 2031, 2036 and 2041 total horizon years, Trafalgar Road, near the Highway 407 ramp terminal, is forecast to have more than 50,000 and 68,000 vehicles per day, respectively.

Recommendations

Based on the findings of this study, it is recommended that:

- When each parcel is pursuing Zoning Bylaw Amendment or Site Plan Application, that detailed Transportation Impact Study and Transit Facilities Plan be prepared as part of submission.
- That Halton Region and the Town of Oakville monitor the future traffic volumes along the Trafalgar Road corridor and optimize the signal timings accordingly. The need for improvements at the study area intersections are noted to occur with or without the development of the subject site.
- That Halton Region and the Town of Oakville prioritize public transit and active transportation modes along the Trafalgar Road corridor to reduce the need for single-occupant vehicles.

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1 Introduction

1.1 Overview

Paradigm Transportation Solutions Limited (Paradigm) was retained to undertake a Transportation Impact Study for a proposed mixed-use development in the area of Trafalgar Road and Highway 407, the Town of Oakville, Ontario.

The subject site is located on the both the east and west side of Trafalgar Road, between Highway 407 and Burnhamthorpe Road, as shown in **Figure 1.1**. The proposed development is to consist of residential and employment land uses.

1.2 Purpose and Scope

This study determines the impacts of the additional traffic generated by the development on the surrounding road network and the remedial measures necessary, if any, to accommodate future traffic in a satisfactory manner. The scope of this study includes:

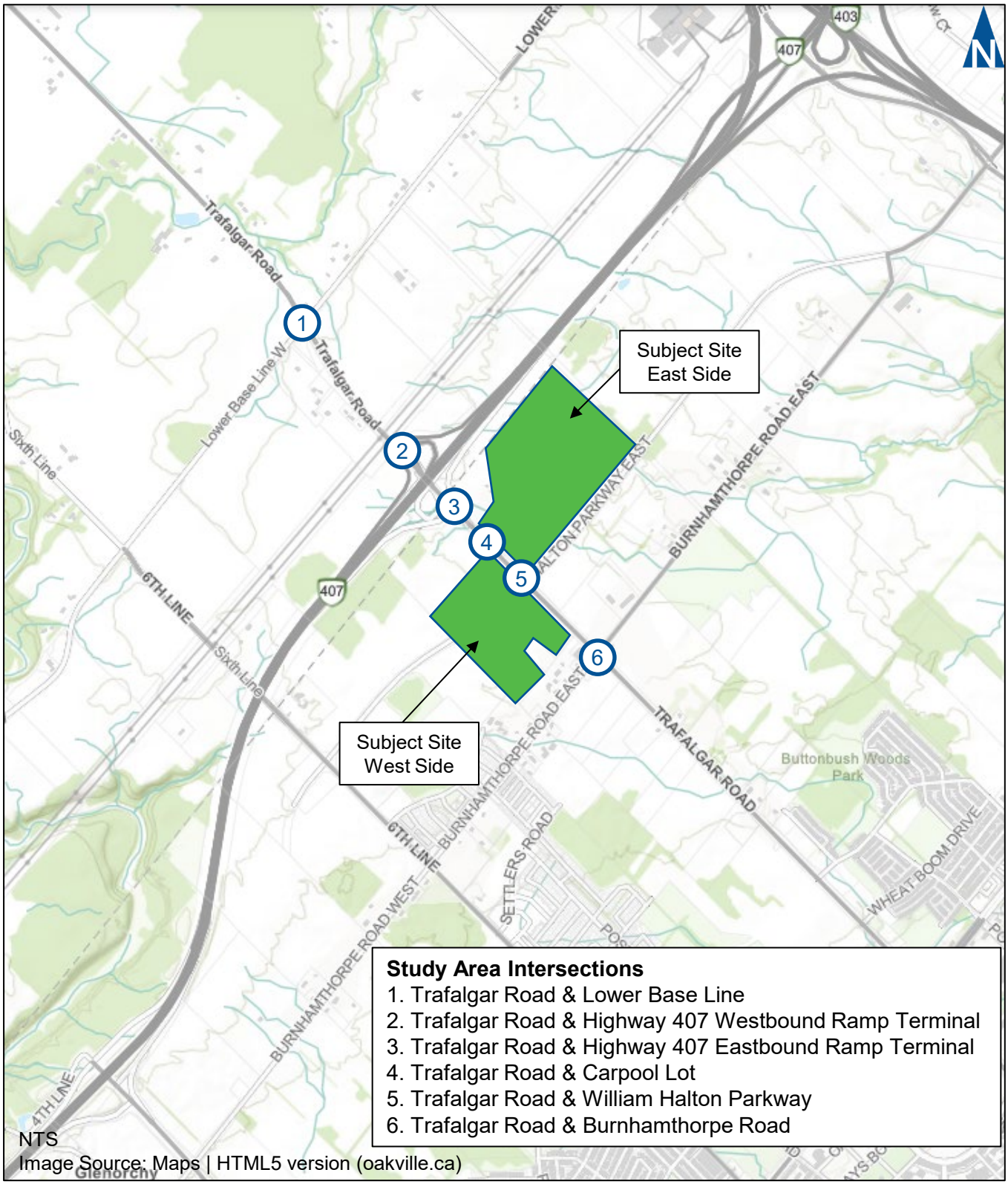
- Assessments of the current traffic and site conditions within the study area
- Estimates of background traffic growth
- Estimates of the additional traffic generated by the planned expansion
- Analyses of the impact(s) of the future traffic on the surrounding road network for the 2031, 2036, and 2041 horizon years (10, 15 and 20 years from date of study is commissioned); and

Recommendations necessary to mitigate the site generated traffic in a satisfactory manner.

The study scope was developed in consultation with the Town of Oakville, Halton Region, and the Ministry of Transportation, Ontario (MTO) in June 2021. **Appendix A** contains the pre-study consultation material and responses from the review agencies.

The study has been completed using Halton Region Transportation Impact Study Guidelines[1] and the North Oakville Transportation Impact Study Reference[2].

[1] Transportation Impact Study Guidelines, Halton Region, January 2015
[2] North Oakville Terms of Reference for Transportation Impact Study and Transportation Functional Design Studies, Oakville



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Site Location

1.3 Study Area Intersections

The intersections that have been identified for assessment in this study and approved by the review agencies staff are as follows:

- Trafalgar Road (RR3) and Lower Base Line (signalized);
- Trafalgar Road (RR3) and Highway 407 Westbound Off-Ramp Terminal (signalized);
- Trafalgar Road (RR3) and Highway 407 Eastbound Off-Ramp Terminal (signalized);
- Trafalgar Road (RR3) and the GO Carpool Lot (signalized);
- Trafalgar Road (RR3) and William Halton Parkway (signalized); and
- Trafalgar Road (RR3) and Burnhamthorpe Road (RR27) (signalized).

2 Existing Conditions

This section documents current traffic conditions, operational deficiencies, and constraints experienced by the public travelling at the intersections within the study area. The operational deficiencies and constraints identified at this stage will be fundamental to the process of defining the required remedial measures.

2.1 Road Characteristics

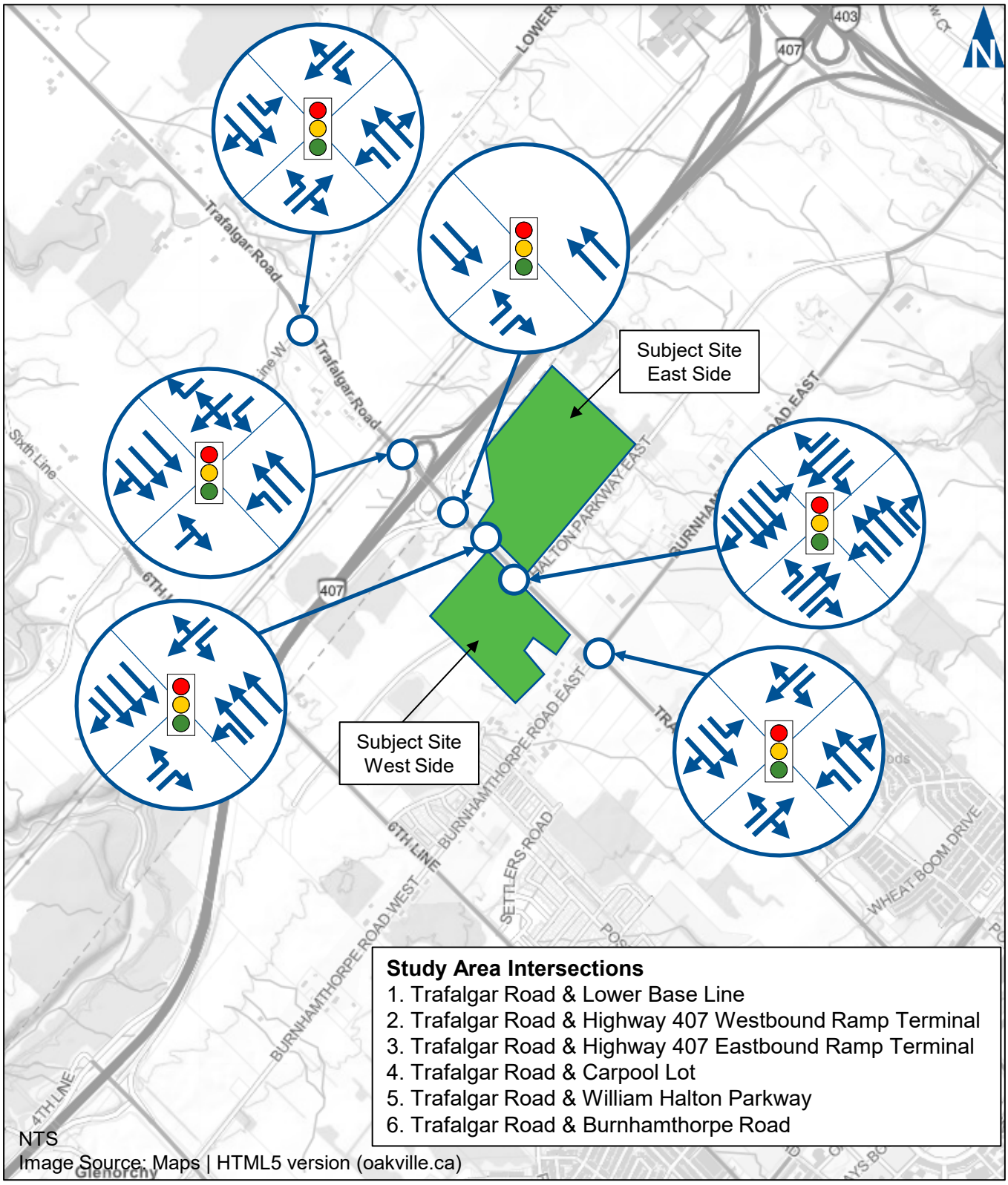
The following MTO roads near the subject site include:

- **Highway 407** is an east-west tolled limited access highway with a posted speed limit of 100 km/h.

The following Halton Region roads near the subject site include:

- **Trafalgar Road (Regional Road 3)** – is a major north-south undivided arterial roadway running from Lakeshore Road East to the north of the northern Halton Region boundary. In the study area it has a four-lane rural cross-section from Lower Base Line to the Highway 407 Ramp Eastbound Off-Ramp terminal. From south of the Highway 407 Eastbound Off-Ramp terminal, Trafalgar Road widens to a six-lane cross-section to south of William Halton Parkway where is merges back to a four-lane cross-section. The posted speed limit is 80 kilometers per hour; and
- **William Halton Parkway** is an east-west arterial roadway running from Ninth Line to Sixth Line. In the study area it has a four-lane cross-section with a posted speed limit of 60 km/h.

Figure 2.1 details the existing traffic control and lane configurations at the study area intersections.



Existing Lane Configuration & Traffic Control

2.2 Transit Service

GO Transit[3] operates several routes through the Highway 407/Trafalgar Road GO Carpool Lot that travel between Oakville to Oshawa and Hamilton to Pickering via Highway 407. The routes are:

Route 40 (Hamilton/Richmond Hill/Pearson Express) operates with 24-hour service seven days a week with headways every 30 to 60 minutes.

Route 41/47 (Hamilton/Pickering) operates weekday service from 05:24 AM to 02:05AM with headways approximately every 30 minutes, and weekend service from 05:24 AM to 02:05AM with headways approximately every 60 minutes; and

Route 46/56 (Oshawa/Oakville) operates weekday service from 05:29 AM to 01:05AM with headways approximately every 30 minutes. There is no weekend service for this route.

Metrolinx, which is the Provincial Crown agency that manages and integrates road and public transport in the Golden Horseshoe region, has identified a regional rapid transit corridor[4] along Trafalgar Road from Midtown Oakville to Highway 401 in their future plans. This rapid transit corridor is likely to consist of either Bus Rapid Transit (BRT) or Light Rail Transit (LRT). The Trafalgar Road corridor is to be expanded northward to Milton in the longer 25-year plan. Provision of long-term rapid transit along Trafalgar Road would improve service through the study area and would promote multi-modal travel within the area.

In addition to the Trafalgar Road corridor, a Highway 407 Transitway[5] is also proposed. The 407 Transitway will be a separated bus rapid transit corridor along the length of Highway 407 with stops at specific locations. It will allow buses to run unimpeded by general traffic with higher frequency of routes.

Oakville Transit[6] operates one route along Trafalgar Road to the Highway 407/Trafalgar Road GO Carpool Lot. Route 1 (Trafalgar) operates between the Oakville GO Station and the Highway 407 GO Carpool lot with seven-day service between 05:58 AM and 11:51 PM with headways approximately every 60 minutes.

---

3 Full Schedules | Trip Planning | GO Transit

4 The Big Move, Transforming Transportation in the Greater Toronto and Hamilton Area, Metrolinx, 2008/Metrolinx, Greater Golden Horseshoe Transportation Master Plan - 2041

5 407 Transitway - Brant Street to Winston Churchill Boulevard

6 1 Trafalgar (oakvilletransit.ca)

The Highway 407/Trafalgar Road GO Carpool Lot will be located centrally in the proposed development. This will provide excellent access to higher order transit for future residents and visitors of the subject lands.

Route schedules are subject to change based on regular reviews by the transit agencies.

2.3 Active Transportation

2.3.1 Pedestrian

Within the study area, multi-use paths are provided on Trafalgar Road from approximately 100 metres south of William Halton Parkway to the GO Carpool Lot intersections. Along William Halton Parkway, there is a sidewalk provided on the north side and a multi-use path along the southside of the roadway. No other sidewalks or multi-use paths are provided along the study area roadways.

2.3.2 Cycling

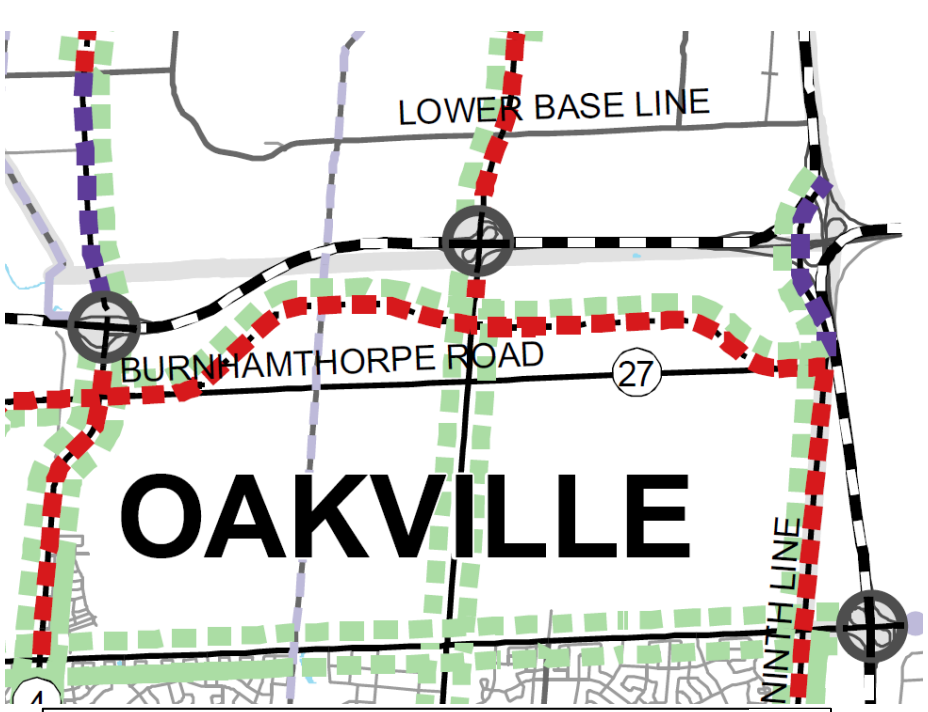
Within the study area, on-street cycle lanes are provided on both sides of William Halton Parkway. Other than the multi-use paths noted above, there are no other dedicated cycling facilities in the study area. Except for Highway 407, cyclists are permitted to ride on the roadways within the study area.

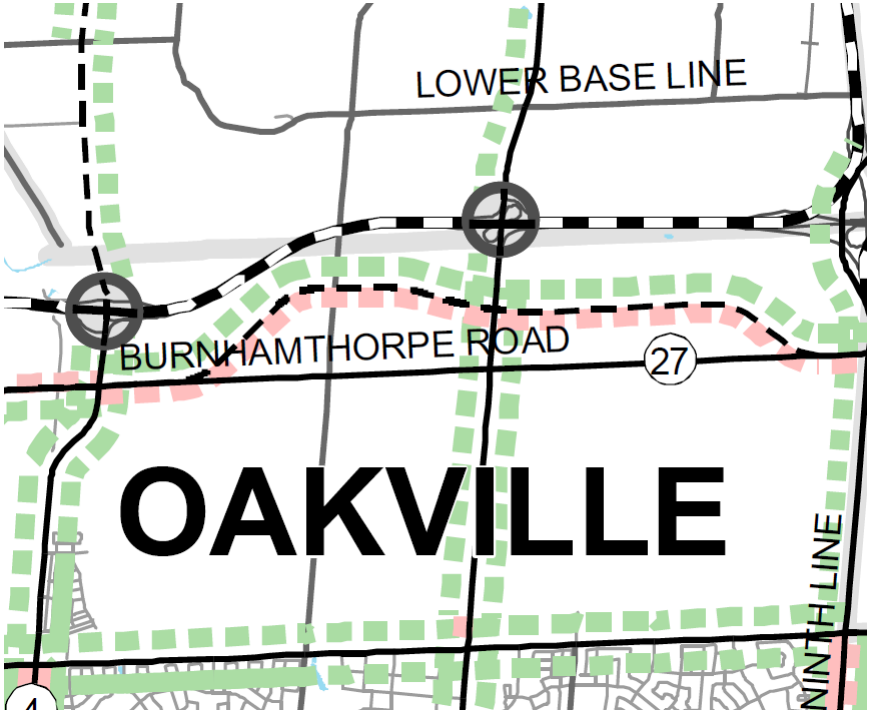
2.3.3 Proposed Network

The Halton Region Active Transportation Master Plan[7] identifies multi-use paths along both sides of Trafalgar Road through the study area. On-street cycle lanes are identified on Trafalgar Road from William Halton Parkway northwards.

Figure 2.2 illustrates the proposed cycling and walking infrastructure in the study area.

[7] Halton Region Active Transportation Master Plan, Map 3 Proposed Regional Cycling Network & Map 4 Proposed Regional Walking Network, IBI Group, April 2015





Legend

Proposed Regional Bike Network
- Buffered Bike Lanes
- Bike Lanes
- Boulevard Multi-Use Trail
- Paved Shoulders
- Interchange Improvement*

Existing Regional Bike Network
- Bike Lane
- Boulevard Trail
- Waterfront Trail

Existing and Proposed Major Transit Stations**
- Mobility Hub
- Major Transit Stations
- Proposed GO Stations

Routes not on Regional Roads
- Existing Routes that are Regionally Significant
- Planned Routes that are Regionally Significant
- Proposed Routes that are Regionally Significant
- Greenbelt Cycling Route

Legend

Proposed Regional Walk Network
- Sidewalk
- Boulevard Multi-Use Trail
- Interchange Improvement*
- Bruce Trail Crossing

Routes not on Regional Roads
- Existing Routes that are Regionally Significant
- Planned Routes that are Regionally Significant
- Proposed Routes that are Regionally Significant

Existing Regional Walk Network
- Sidewalk
- Boulevard Multi-Use Trail
- Bruce Trail
- Waterfront Trail

Existing and Proposed Major Transit Stations**
- Mobility Hub
- Existing GO Stations
- Proposed GO Stations

NTS

Image Source: Halton Region Active Transportation Master Plan, Appendix H Existing & Proposed Regional Cycling & Walking Maps

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Proposed Active Transportation Network

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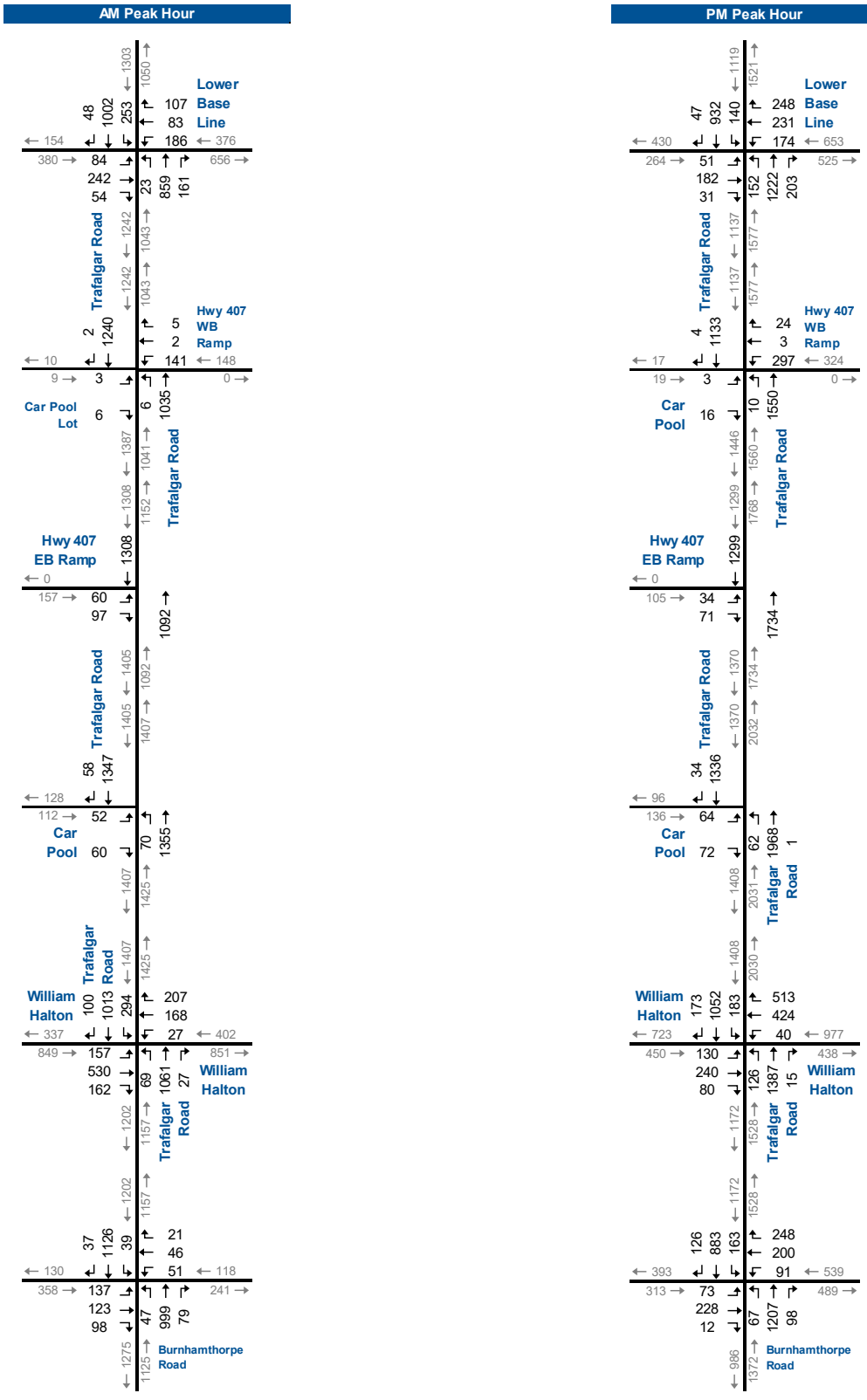
Figure 2.2

2.4 Traffic Volumes

To assess intersection operations, turning movement counts are used to quantify the movement of vehicles through the area. Existing traffic data at an intersection or on a road section forms the foundation for the analysis. The counts are usually taken during peak periods at an intersection to complete the level of service analysis under its worst-case operating conditions.

The existing traffic conditions in the study area were established through turning movement counts counted by Paradigm at the study area intersections on Wednesday 19 November 2025.

Figure 2.3 illustrate the Base Year AM and PM peak hour traffic volumes. **Appendix B** contains the observed traffic counts and signal timing plans for the study area intersections.



Base Year Traffic Volumes

IO Trafalgar & 407 Oakville, ON TIS
210156/210157

Figure 2.3

2.4.1 Daily Volumes

Table 2.1 shows the daily traffic volumes on the study area road network. The daily traffic volumes ere derived from the Base Year PM peak hour traffic volumes shown in **Figure 2.3**. Typical Traffic Engineering standards to calculate daily traffic volumes assume PM peak hour volumes to be 10 per cent of total daily traffic.

The Transportation Association of Canada (TAC)[8] identifies less than 12,000 vehicles per day for rural arterial roads and between 5,000 -and 20,000 vehicles per day for urban minor arterial and 10,000 and 30,000 vehicles per day for urban major arterial roads.

Based on the existing volumes, Trafalgar Road exceeds the rural arterial threshold and is approaching/exceeding the urban arterial threshold. Lower Base Line and Burnhamthorpe Road are approaching the rural threshold from Trafalgar Road eastwards. William Halton Parkway is above the rural TAC threshold from Trafalgar Road eastwards.

TABLE 2.1: DAILY TRAFFIC VOLUMES

Road Section		Two-Way	TAC Threshold	
From	To	Daily Traffic*	Rural**	Urban***
Trafalgar Road				
North	Lower Base Line	26,400	< 12,000	10,000 - 30,000
Lower Base Line	Highway 407 WB Off-Ramp	27,140	< 12,000	10,000 - 30,000
Highway 407 WB Off-Ramp	Highway 407 EB Off-Ramp	32,140	< 12,000	10,000 - 30,000
Highway 407 EB Off-Ramp	GO Carpool Lot	34,020	< 12,000	10,000 - 30,000
GO Carpool Lot	William Halton Parkway	34,380	< 12,000	10,000 - 30,000
William Halton Parkway	Burnhamthorpe Road	27,000	< 12,000	10,000 - 30,000
Burnhamthorpe Road	South	23,680	< 12,000	10,000 - 30,000
Lower Base Line				
Trafalgar Road	East	11,780	< 12,000	5,000 - 20,000
Trafalgar Road	West	6,940	< 12,000	5,000 - 20,000
William Halton Parkway				
Trafalgar Road	East	14,150	< 12,000	10,000 - 30,000
Trafalgar Road	West	11,730	< 12,000	10,000 - 30,000
Burnhamthorpe Road				
Trafalgar Road	East	10,280	< 12,000	5,000 - 20,000
Trafalgar Road	West	7,060	< 12,000	5,000 - 20,000

* PM peak hour x 10

** TAC Table 2.6.4: Classification of Rural Roads

*** TAC Table 2.6.5: Classificaiton of Urban Roads

[8] Transportation Association of Canada, Geometric Design Guide for Canadian Roads, Table 2.6.5: Characteristics of Urban Roads, June 2017

2.5 Traffic Operations

Intersection level of service (LOS) is a recognized method of quantifying the average delay experienced by drivers at intersections. It is based on the delay experienced by individual vehicles executing the various movements. The delay is related to the number of vehicles intending to make a particular movement, compared to the estimated capacity for that movement. The capacity is based on several criteria related to the opposing traffic flows and intersection geometry.

The highest possible rating is LOS A, under which the average total delay is equal or less than 10.0 seconds per vehicle. When the average delay exceeds 80 seconds for signalized intersections, 50 seconds for unsignalized intersections or when the volume to capacity ratio is greater than 1.0, the movement is classed as LOS F and remedial measures are usually implemented if they are feasible. LOS E is usually used as a guideline for the determination of road improvement needs on through lanes, while LOS F may be acceptable for left-turn movements at peak times, depending on delays.

The operations of the intersections in the study area were evaluated using the existing lane configuration, traffic control, existing traffic volumes and signal timings. The intersection analysis considered three separate measures of performance:

- The LOS for each turning movement
- The volume to capacity ratio (v/c) for each movement; and
- The 95th percentile queue lengths estimated using Synchro.

Synchro 12 assessed the traffic conditions and performance. In accordance with the Halton Region's TIS Guidelines and MTO Guidelines, the following criteria were used in the determination of critical movements:

Under the Region's TIS Guidelines, the following criteria indicate critical conditions and signify that mitigation measures may need to be considered:

- At signalized intersections,
  - Overall intersection operations, through movements, or shared through/turning movements increased to 0.85 or above.
  - V/C ratios for exclusive movements increased to 0.95 or above; or

- Queues for an individual movement are projected to exceed turning lane storage.

- At unsignalized intersections,
  - LOS, based on average delay per vehicle, on individual movements exceeds LOS “D”; or
  - The estimated 95th percentile length for an individual movement exceeds the available queue storage.

The MTO’s Traffic Impact Study Guidelines identifies the following thresholds for critical movements for MTO controlled intersections:

- Movements with a volume to capacity ratio greater than 0.85; and
- v/c ratio for terminal ramp approaches greater than 0.75.

Table 2.2 summarizes the base year level of service conditions and notes:

- **Trafalgar Road and Lower Base Line:**
  - Overall – v/c ratio of 0.95 during AM peak hour and greater than 1.00 during PM peak hour;
  - Eastbound left-turn with LOS F and v/c ratio greater than 1.00 during AM peak hour;
  - Eastbound through/right-turn – LOS E and v/c ratio of 0.85 during AM peak hour;
  - Westbound left-turn – LOS F, v/c greater than 1.00 during AM peak hour;
  - Westbound through-right turn – LOS E and v/c ratio of 0.93 during PM peak hour;
  - Northbound left-turn – LOS E, v/c ratio of 0.91 during PM peak hour;
  - Northbound through/right-turn – LOS E and v/c ratio of 0.99 during the AM peak hour and LOS E and v/c ratio greater than 1.00 during PM peak hour; and
  - Southbound left-turn – LOS E, v/c ratio of 0.96, and queue exceeds storage during AM peak hour.
- **Trafalgar Road and Highway 407 Eastbound Off-Ramp:**
  - Northbound through – LOS E and v/c ratio greater than 1.00 during the PM peak hour.
- **Trafalgar Road and William Halton Parkway:**

- Westbound right-turn – LOS F, v/c ratios greater than 1.00, and queue exceeds storage PM peak hour;
- Southbound left-turn – LOS F and v/c ratio greater than 1.00 during AM peak hour. LOS E and v/c ratio of 0.92 during the PM peak hour.

- Trafalgar Road and Burnhamthorpe Road:
  - Overall – v/c ratio of 0.99 the PM peak hour;
  - Eastbound left-turn – queue exceeds storage in AM peak hour. LOS F, v/c ratio greater than 1.00, and queue exceeds storage in PM peak hour
  - Westbound left-turn – queue exceeds storage in AM and PM peak hours;
  - Westbound through/right-turn – LOS F and v/c ratio greater than 1.00 during PM peak hour; and
  - Northbound through/right-turn – LOS D and v/c ratio of 0.95 during AM peak hour. LOS D and v/c ratio of 0.90 during PM peak hour; and
  - Southbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during PM peak hour.

Appendix C contains the Synchro reports.

TABLE 2.2A: BASE YEAR TRAFFIC OPERATIONS (AM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Trafalgar Rd & Lower Base Line	TCS	LOS	D	E	>	D	F	C	>	F	C	E	>	E	E	C	>	C	D
			Delay	38	58	>	54	179	29	>	106	31	60	>	60	78	20	>	31	53
			V/C	0.36	0.85	>		1.24	0.34	>		0.26	0.99	>		0.96	0.66	>		0.95
			Q	34	103	>		76	47	>		12	178	>		108	125	>		
			Stor.	45	-	>		110	-	>		90	-	>		90	-	>		
			Avail.	11	-	>		34	-	>		78	-	>		-18	-	>		
	Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off	TCS	LOS	<	D	>	D	D	D	D	D	A	A		A		B	A	B	B
			Delay	<	36	>	36	43	46	36	44	6	6		6		11	6	11	12
			V/C	<	0.02	>		0.54	0.61	0.01		0.11	0.46				0.62	0.00		0.56
			Q	<	0	>		29	19	0		1	69				126	0		
			Stor.	<	-	>		-	-	60		65	-				-	15		
			Avail.	<	-	>		-	-	60		64	-				-	15		
	Trafalgar Rd & Hwy 407 EB Off	TCS	LOS	B		B	B						B		B		C		C	B
			Delay	16		18	17						15		15		20		20	18
			V/C	0.15		0.27							0.76				0.88			0.52
			Q	13		18							74				100			
	Trafalgar Rd & South Carpool Lot	TCS	LOS	C		C	C					D	B		B		B	A	B	B
			Delay	21		21	21					36	10		12		11	7	10	12
			V/C	0.17		0.14						0.66	0.54				0.55	0.04		0.51
			Q	15		13						30	55				55	4		
			Stor.	-		-						50	-				-	30		
			Avail.	-		-						20	-				-	26		
	Trafalgar Rd & William Halton Parkway	TCS	LOS	D	D	D	D	D	D	D	D	B	C	B	C	F	C	B	D	D
			Delay	37	47	39	43	39	43	46	44	16	25	17	24	163	23	18	54	42
			V/C	0.50	0.65	0.12		0.21	0.27	0.39		0.30	0.50	0.02		1.26	0.47	0.08		0.80
			Q	54	100	14		12	32	28		17	104	0		122	98	10		
			Stor.	100	-	100		100	-	150		150	-	75		-	-	-		
			Avail.	46	-	86		88	-	122		133	-	75		-	-	-		
	Trafalgar Rd & Burnhamthorpe Rd	TCS	LOS	C	C	>	C	C	C	>	C	D	D	>	D	C	C	>	C	D
			Delay	30	30	>	30	28	26	>	27	48	53	>	53	22	23	>	23	36
			V/C	0.35	0.40	>		0.25	0.15	>		0.56	0.95	>		0.20	0.69	>		0.75
			Q	44	57	>		18	19	>		22	194	>		10	142	>		
			Stor.	30	-	>		15	-	>		60	-	>		60	-	>		
			Avail.	-14	-	>		-3	-	>		38	-	>		50	-	>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
< / > - Shared with through movement

TABLE 2.2B: BASE YEAR TRAFFIC OPERATIONS (PM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Trafalgar Rd & Lower Base Line	TCS	LOS	F	D	>	E	C	E	>	D	E	E	>	E	D	B	>	C	D
			Delay	172	42	>	68	34	60	>	54	78	70	>	70	47	18	>	22	52
			V/C	1.05	0.58	>		0.62	0.93	>		0.91	1.04	>		0.71	0.56	>		1.04
			Q	39	80	>		51	153	>		84	258	>		49	108	>		
			Stor.	45	-	>		110	-	>		90	-	>		90	-	>		
			Avail.	6	-	>		59	-	>		6	-	>		41	-	>		
	Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off	TCS	LOS	<	C	>	C	D	D	C	D	A	B		B		B	A	B	B
			Delay	<	34	>	34	48	52	34	49	7	11		11		12	7	12	16
			V/C	<	0.02	>		0.70	0.75	0.02		0.09	0.68				0.56	0.00		0.70
			Q	<	0	>		58	22	0		2	159				128	0		
			Stor.	<	-	>		-	-	60		65	-				-	15		
			Avail.	<	-	>		-	-	60		63	-				-	15		
	Trafalgar Rd & Hwy 407 EB Off	TCS	LOS	B		B	B						E		E		B		B	D
			Delay	16		17	17						61		61		20		20	42
			V/C	0.08		0.13							1.07				0.82			0.63
			Q	9		14							194				111			
	Trafalgar Rd & South Carpool Lot	TCS	LOS	C		C	C					B	A		B		A	A	A	B
			Delay	34		31	33					18	10		10		8	5	8	10
			V/C	0.34		0.17						0.50	0.63				0.44	0.03		0.53
			Q	21		15						16	88				52	2		
			Stor.	-		-						50	-				-	30		
			Avail.	-		-						34	-				-	28		
	Trafalgar Rd & William Halton Parkway	TCS	LOS	D	D	D	D	C	D	F	F	C	C	C	C	E	C	C	C	D
			Delay	36	40	37	38	35	45	116	82	24	35	23	34	77	30	24	35	46
			V/C	0.52	0.25	0.06		0.15	0.52	1.07		0.59	0.71	0.01		0.92	0.55	0.12		0.81
			Q	46	43	13		16	79	196		29	151	0		87	105	14		
			Stor.	100	-	100		100	-	150		150	-	75		-	-	-		
			Avail.	54	-	87		84	-	-46		121	-	75		-	-	-		
	Trafalgar Rd & Burnhamthorpe Rd	TCS	LOS	F	D	>	F	E	F	>	F	C	D	>	C	F	B	>	D	E
			Delay	298	42	>	94	56	143	>	129	23	35	>	34	212	13	>	49	61
			V/C	1.40	0.67	>		0.73	1.17	>		0.37	0.90	>		1.31	0.52	>		0.99
			Q	58	79	>		46	160	>		22	193	>		67	89	>		
			Stor.	30	-	>		15	-	>		60	-	>		60	-	>		
			Avail.	-28	-	>		-31	-	>		38	-	>		-7	-	>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
< / > - Shared with through movement

3 Development Concept

3.1 Development Description

The subject site (Trafalgar Lands) is located on both sides of Trafalgar Road south of Highway 407 and north of Burnhamthorpe. The Trafalgar Lands are approximately 53 hectares (131 acres). The east parcel (east of Trafalgar Road) is approximately 33 hectares (81.5 acres), and the west parcel (west of Trafalgar Road) is approximately 20 hectares (49.5 acres).

The ultimate development mix and intensity will be subject to future development applications and supported by Traffic Impact Studies specific to the proposed development subject to those applications. It is noted that the development shown in the development concepts were prepared for illustrative purposes only and would be subject to detailed Draft Plan of Subdivision, Zoning By-law amendment, and Site Plan applications.

Table 3.1 summarizes the site statistics. **Figure 3.1** illustrates the concept plan.

For the 2031 horizon year, it is assumed that Blocks 1, 2, and 3 will be developed. For the 2036 horizon year, it is assumed Blocks 4 through 14 would be developed. For the 2041 horizon year it is assumed that all remaining blocks will be developed.

Vehicle access is proposed by eight new municipal roadways that run in a grid pattern over the lands. Based on discussions with regional staff, the proposed intersection to Trafalgar Road south of William Halton Parkway, and the two intersections to William Halton Parkway to the immediate west and east of Trafalgar Road are to be right-in/right-out only intersections.

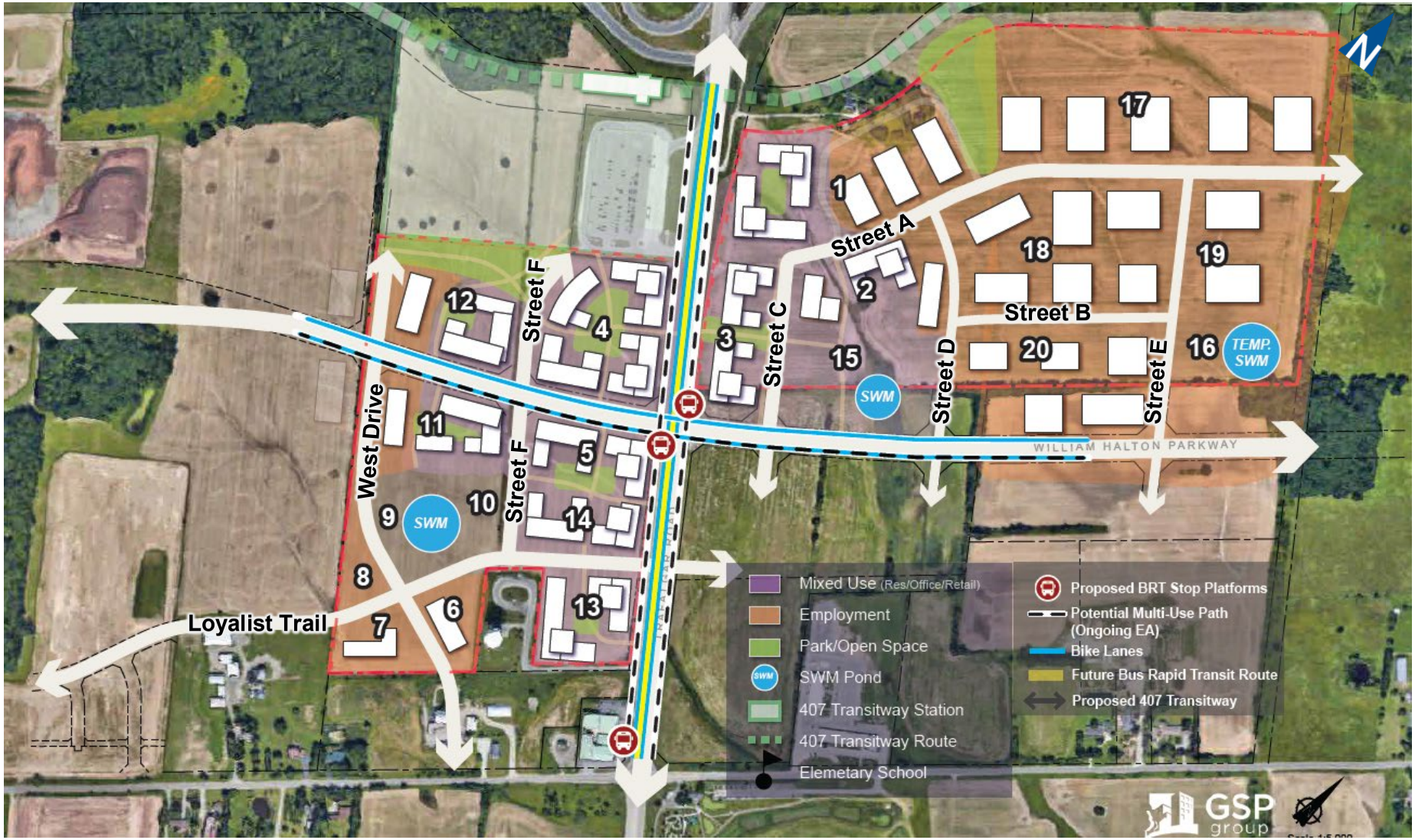
A connection to Trafalgar Road at the existing GO Carpool Lot has been removed due to potential impacts to the Highway 407 Eastbound Ramp Terminal.

These properties are intended to be sold for future development. The ultimate development mix and intensity will be subject to future development applications and supported by Traffic Impact Studies specific to the proposed development subject to those applications.

TABLE 3.1: SITE STATISTICS

Block	Land Use	Res Units	Emp GFA (m^2)	Emp GFA (ft^2)
1	Mixed	810	40,500	435,938
2	Mixed	700	4,700	50,590
3	Residential	1,650	-	-
4	Residential	2,100	-	-
5	Residendtial	1,120	-	-
6	Employment	-	7,400	79,653
7	Employment	-	7,200	77,500
8	Employment	-	5,200	55,972
9	SWM	-	-	-
10	SWM			
11	Mixed	450	3,040	32,722
12	Mixed	780	5,200	55,972
13	Mixed	1,140	1,580	17,007
14	Residential/School	710	1,080	11,625
15	SWM	-	-	-
16	SWM	-	-	-
17	Employment	-	87,000	936,460
18	Employment	-	47,300	509,133
19	Employment	-	30,200	325,070
20	Employment	-	20,300	218,507
Total		**9,460**	**260,700**	**2,806,151**

SWM - Storm Water Management



paradigm TRANSPORTATION SOLUTIONS LIMITED

Illustrative Concept Plan

IO Trafalgar & 407 Oakville, ON TIS
210156/210157

Figure 3.1

3.2 Trip Generation

The Institute of Transportation Engineers (ITE) Trip Generation[9] methods predict the site trip generation. The following land use codes were used to estimate the site's trip generation:

- LUC 222 – Multifamily Housing, High-Rise (Dwelling Units);
- LUC 710 – General Office Building (GFA/1,000 sq.ft.);
- LUC 520 – Elementary School (Employees);
- LUC 820 – Shopping Center, >150K (GFA/1,000 sq.ft.)
- LUC 821 – Shopping Plaza, 40-150k (GFA/1,000 sq.ft.); and
- LUC 822 – Strip Retail Plaza, <40k (GFA/1,000 sq.ft.).

The highest generated trips by either using the average rate or the linear equation was used to estimate the trip generation to represent a conservative estimate.

For the Elementary School land use, it was assumed that 70% of trips to/from the school would be bussed, cycle or walk trips.

A transit modal split of 12% along with an active transportation modal split of 5% and transportation demand management reduction of 3% (for a total of 20%) was used. These rates have been used in other studies in Halton Region.

Table 3.2 summarizes the estimated trip generation. **Appendix D** contains the detailed trip generation calculations.

For the 2031 horizon year, Blocks 1, 2, and 3 are forecast to generate approximately 917 AM peak hour trips and 1,196 PM peak hour trips. For the 2036 horizon year, Blocks 4 through 14 are forecast to generate approximately 1,548 AM peak hour trips and 1,980 PM peak hour trips. For the 2041 horizon year, the remaining blocks are forecast to generate 193 AM peak hour trips and 235 PM peak hour trips.

The total forecast trip generation is approximately 2,658 AM peak hour trips and 3,411 PM peak hour trips.

[9] Institute of Transportation Engineers, *Trip Generation Manual,* 12th ed., (Washington, DC: ITE, 2025).



TABLE 3.2: TRIP GENERATION SUMMARY

Block	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
1	342	134	476	232	402	634
2	83	94	177	113	105	218
3	77	187	264	210	134	344
2031 Sub-Total	*502*	*415*	*917*	*555*	*641*	*1,196*
4	98	238	336	266	170	436
5	52	127	179	142	90	232
6	84	26	110	42	80	122
7	80	25	105	41	77	118
8	59	18	77	31	58	89
9	-	-	-	-	-	-
10	-	-	-	-	-	-
11	52	61	113	72	67	139
12	93	105	198	127	117	244
13	60	138	198	156	102	258
14	41	191	232	188	154	342
2036 Sub-Total	*619*	*929*	*1,548*	*1,065*	*915*	*1,980*
15	-	-	-	-	-	-
16	-	-	-	-	-	-
17	69	26	95	31	81	112
18	38	11	49	17	44	61
19	24	7	31	11	28	39
20	14	4	18	6	17	23
2041 Sub-Total	*145*	*48*	*193*	*65*	*170*	*235*
Total	**1,266**	**1,392**	**2,658**	**1,685**	**1,726**	**3,411**

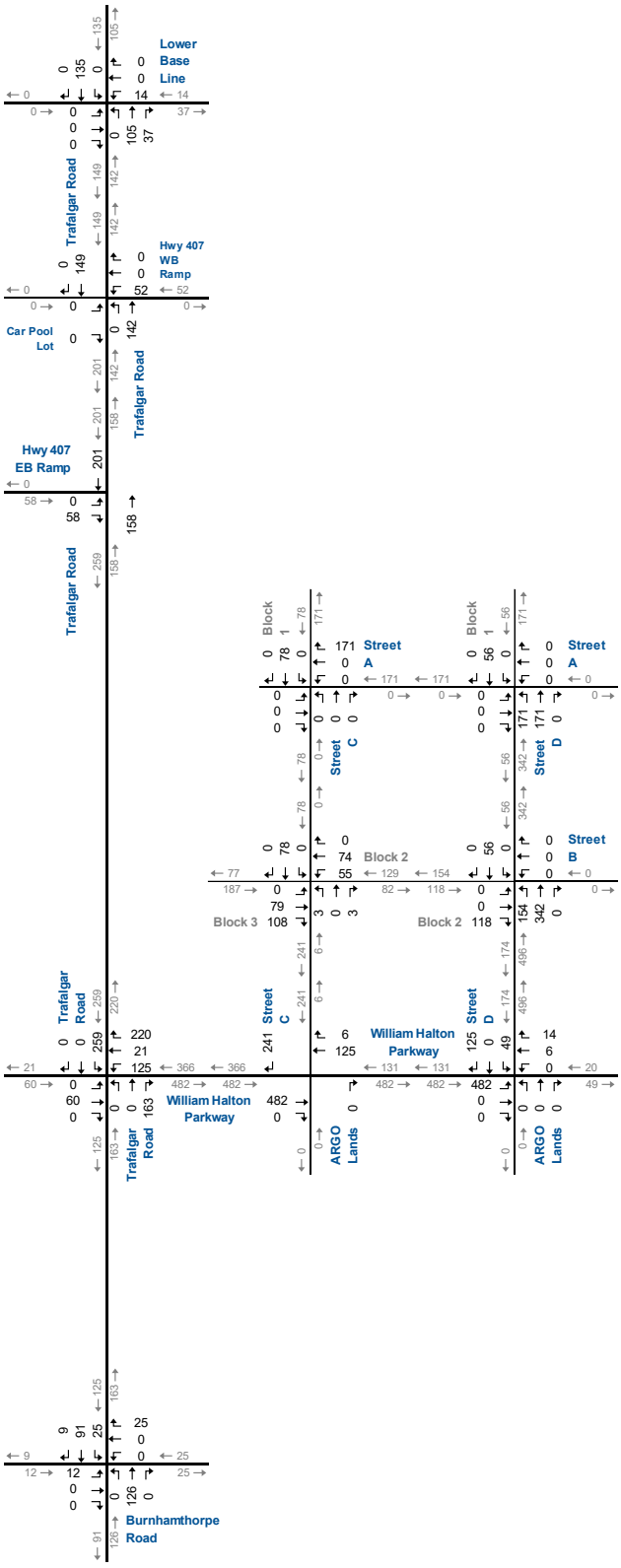
3.3 Trip Distribution and Assignment

The site generated trips were assigned to the road network based on the existing distribution at the study area intersections. The distribution between Burnhamthorpe Road and William Halton Parkway were switched to account for the more arterial nature of William Halton Parkway compared to Burnhamthorpe Road. **Table 3.4** summarizes the estimated site trip distribution.

TABLE 3.4: TRIP DISTRIBUTION

Origin / Destination		AM Peak hour		PM Peak hour	
		Inbound	Outbound	Inbound	Outbound
North	Trafalgar Road	27%	25%	20%	25%
East	Lower Base Line	3%	9%	6%	8%
	Highway 407	10%	15%	14%	9%
	William Halton Parkway	4%	12%	11%	8%
	Burnhamthorpe Road	5%	6%	9%	5%
South	Trafalgar Road	25%	22%	25%	17%
West	Lower Base Line	0%	0%	0%	2%
	Highway 407	12%	4%	7%	14%
	William Halton Parkway	12%	5%	5%	7%
	Burnhamthorpe Road	2%	2%	3%	5%
Total		**100%**	**100%**	**100%**	**100%**

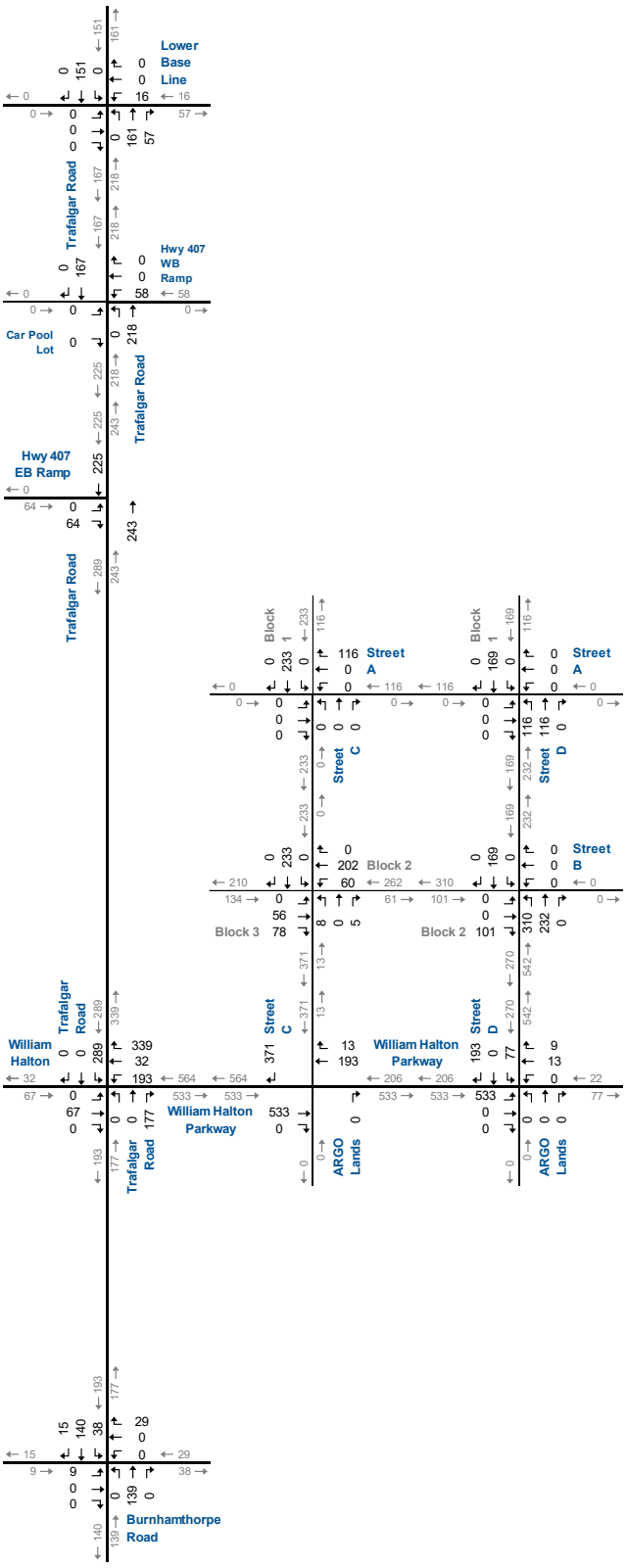
Figure 3.2A and **Figure 3.2B** illustrates the 2031 site generated traffic volumes. **Figure 3.3A** and **Figure 3.3B** illustrates the 2036 site generated traffic volumes. **Figure 3.4A** and **Figure 3.4B** illustrates the 2041 site generated traffic volumes.



2031 Site Generated Traffic Volumes AM Peak Hour

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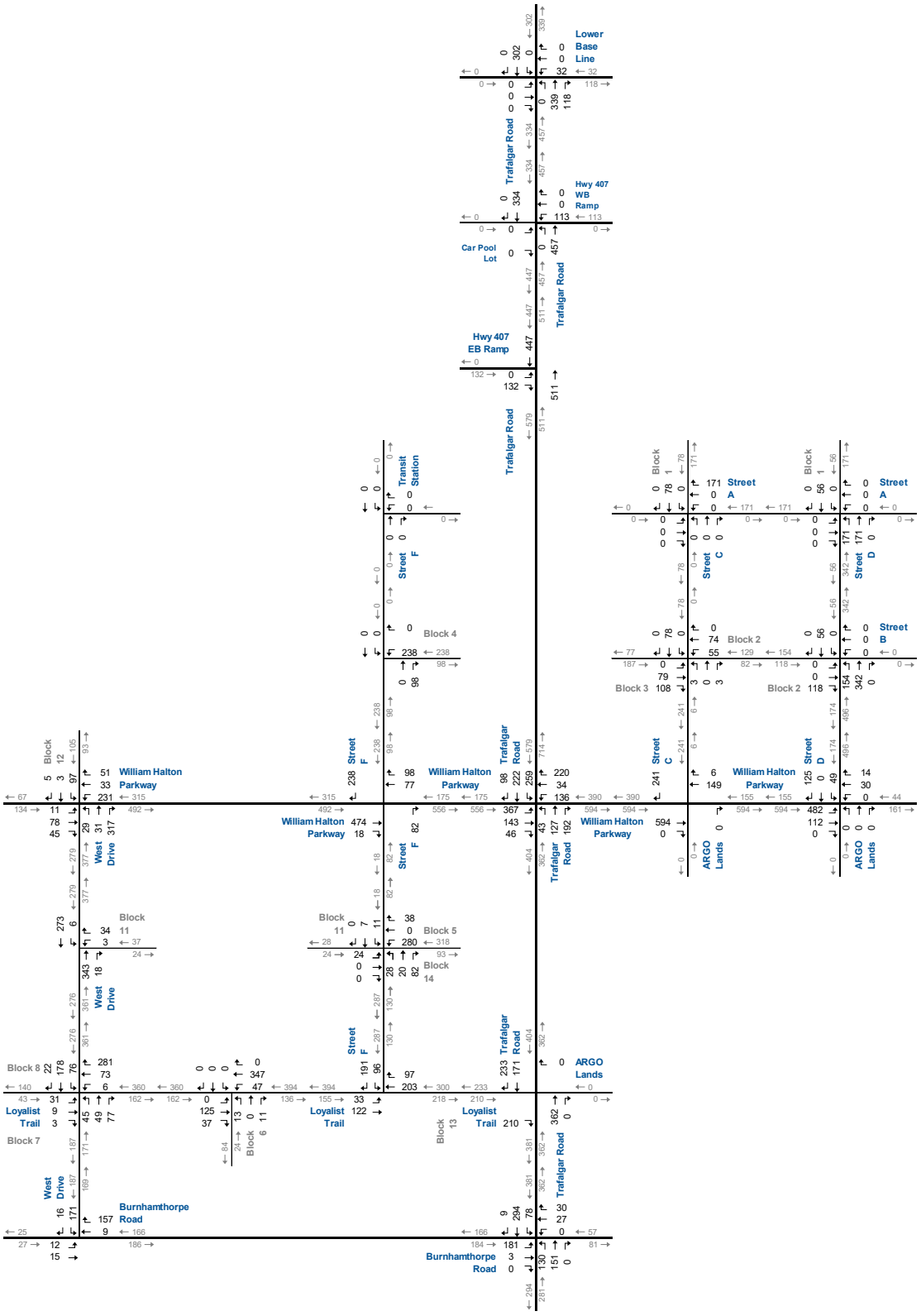
Figure 3.2A



2031 Site Generated Traffic Volumes PM Peak Hour

IO Trafalgar & 407 Oakville, ON TIS
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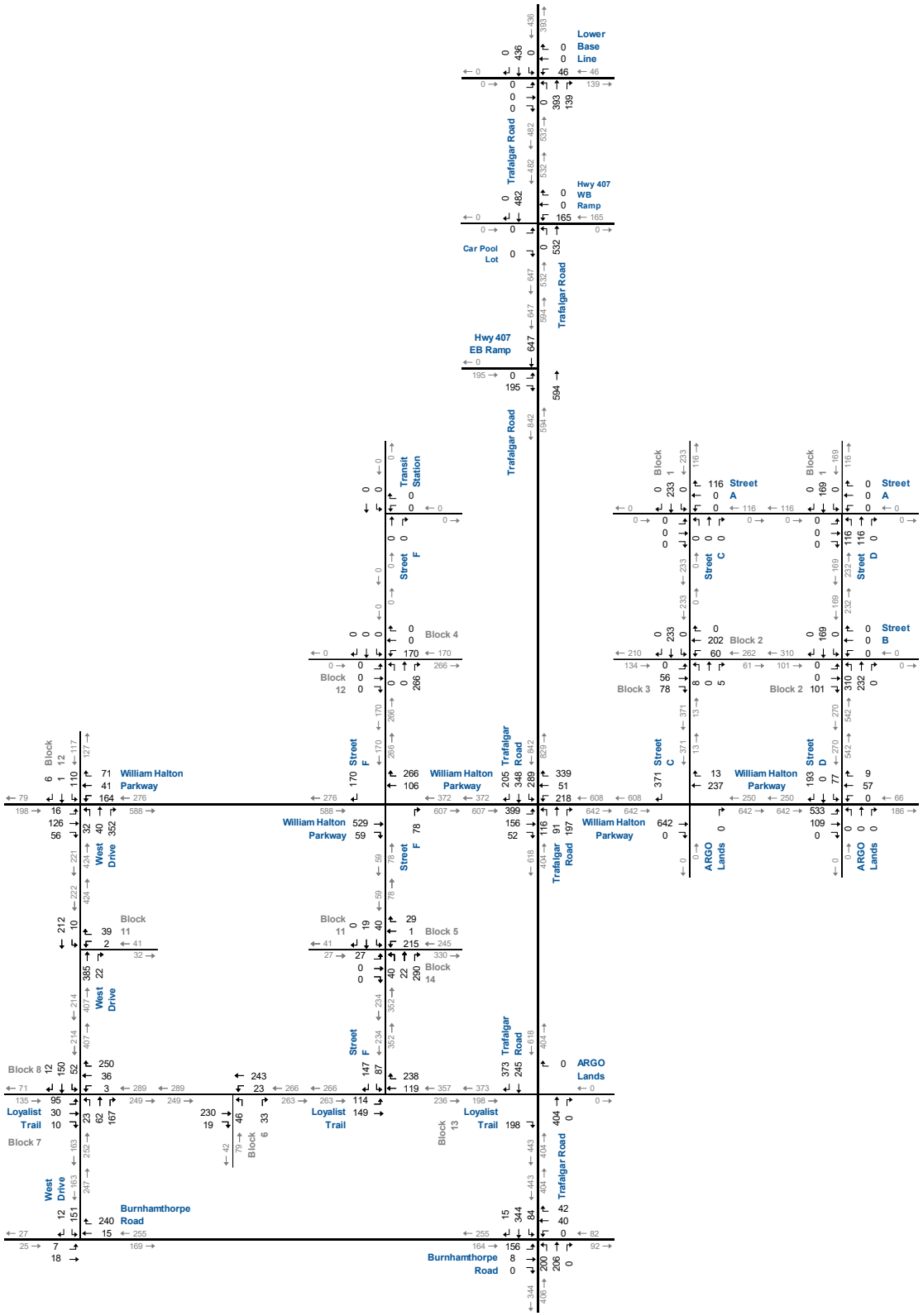
Figure 3.2B



2036 Site Generated Traffic Volumes AM Peak Hour

IO Trafalgar & 407 Oakville, ON TIS
210156/210157

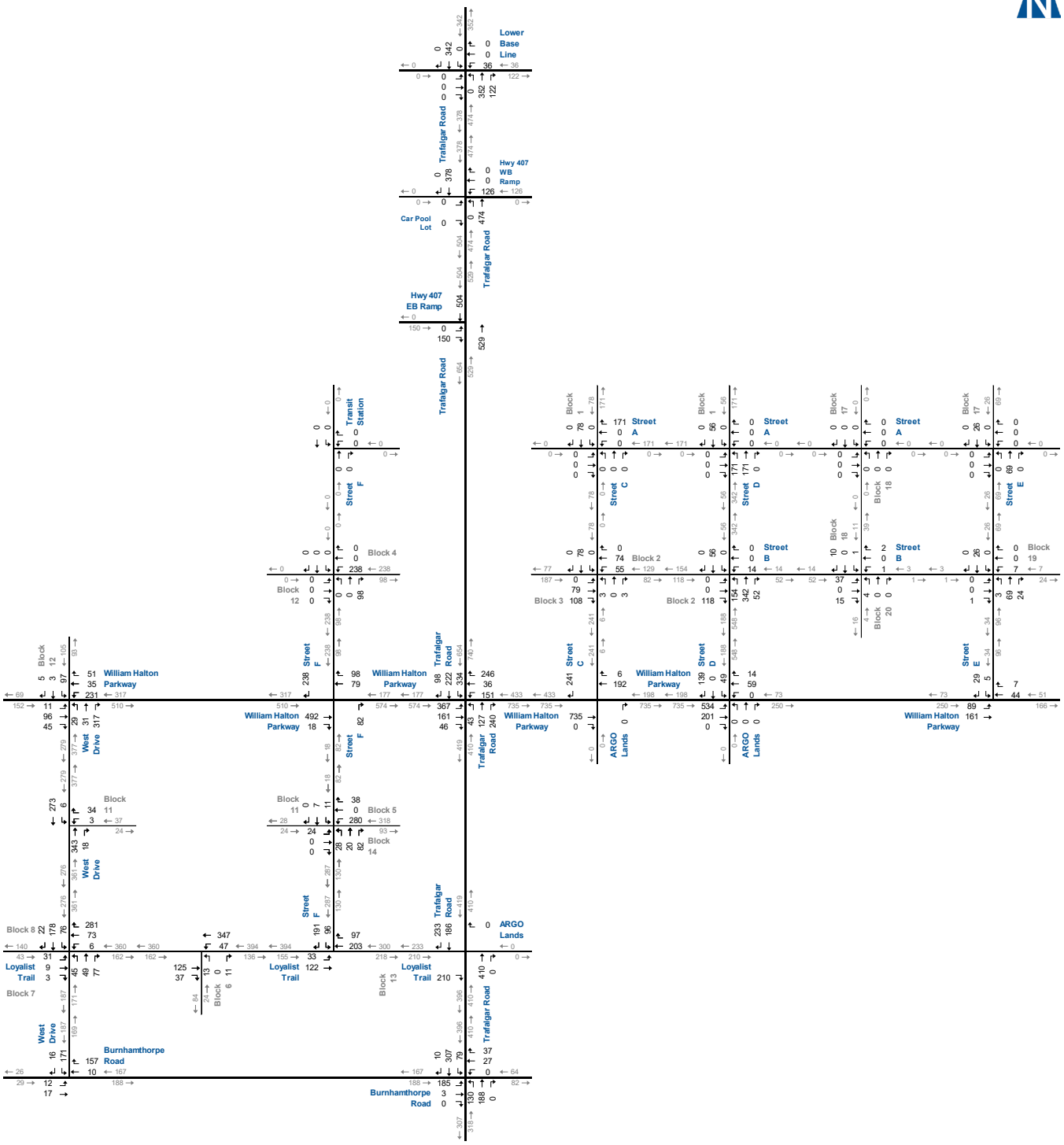
Figure 3.3A



2036 Site Generated Traffic Volumes PM Peak Hour

IO Trafalgar & 407 Oakville, ON TIS
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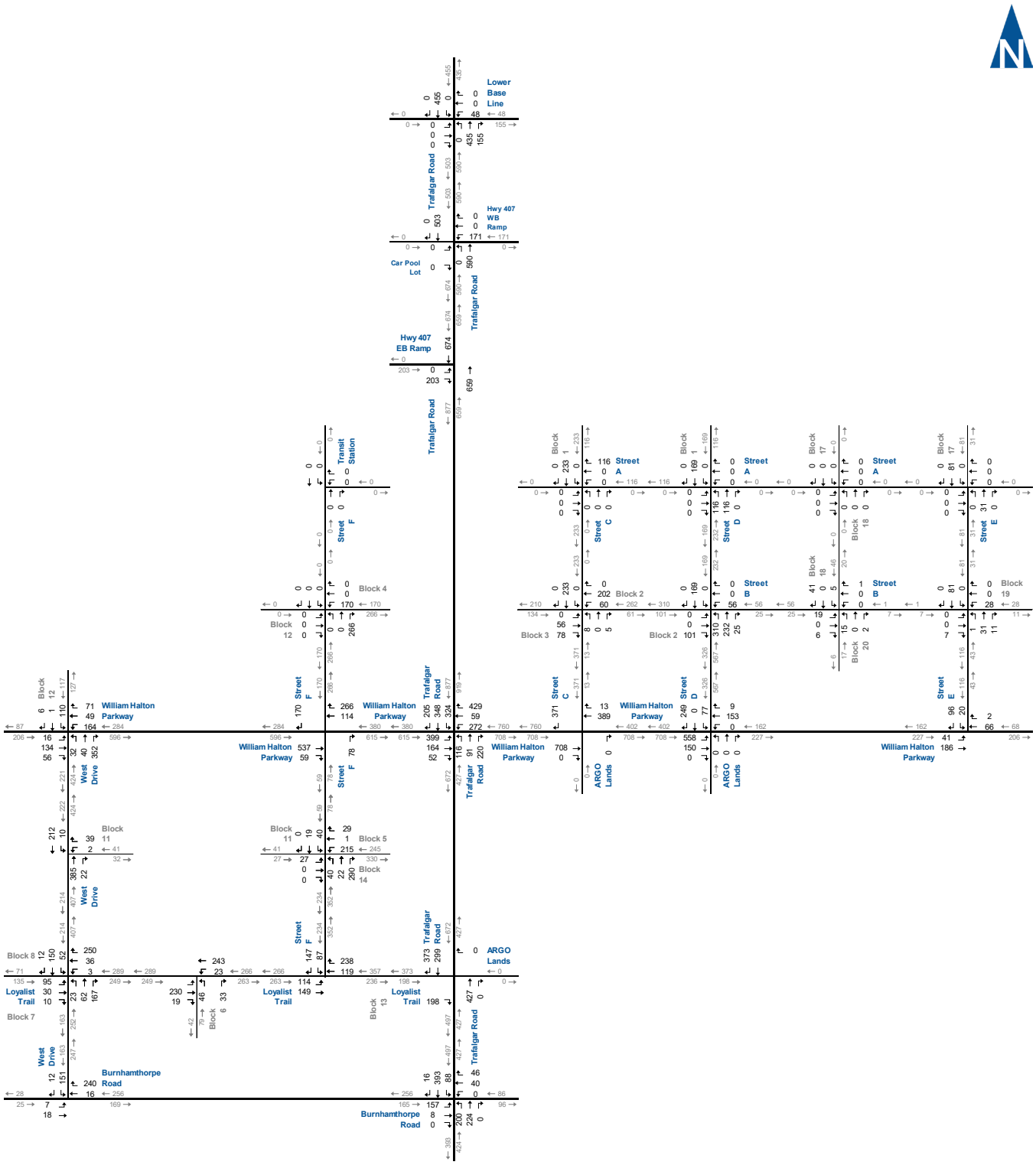
Figure 3.3B



2041 Site Generated Traffic Volumes AM Peak Hour

IO Trafalgar & 407 Oakville, ON TIS
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Figure 3.4A



2041 Site Generated Traffic Volumes PM Peak Hour

IO Trafalgar & 407 Oakville, ON TIS
210156/210157

Figure 3.4B

4 Future Conditions

The assessment of the future traffic conditions contained in this section includes the traffic forecast as well as the level of service analysis.

4.1 Network Improvements

4.1.1 Road Network

The Halton Region Environmental Study Report for Trafalgar Road (Regional Road 3) Improvements Class Environmental Assessment Study from Cornwall Road to Highway 407, Town of Oakville (April 2015), details the widening of Trafalgar Road to six lanes which include future dedicated bus lanes up to Highway 407.

For this study, from Highway 407 northwards, the lane widening of Trafalgar Road as detailed in the January 2026 Class EA[10] was carried northwards to Lower Base Line intersection.

These improvements have been incorporated into the future 2031 background analysis.

4.1.2 Transit Facilities Plan

The North Oakville East Secondary Plan identifies a transit first policy to ensure that development will proceed in a manner which will be supportive of the early provision of transit services. Transit stops are to be located at the centre of each neighbourhood with additional stops located so that all residents, employees, and visitors are predominantly within 400 metre walking distance to a transit stop.

Further, as a condition of approval of any plan of subdivision, a transit facilities plan must be developed by the applicant, in conjunction with the Town, and approved by the Town, which addresses transit facilities in the plan of subdivision and how they will be integrated with existing and/or proposed transit network and connected to major intermodal terminals as identified in the Town's Transit Plan. In particular, the transit facilities plan will show and describe the location of transit facilities including stops and shelters and transit signal priority facilities.

[10] HDR, *Trafalgar Road Municipal Class Environmental Assessment Study Highway 407 to Steeles Avenue, External TAC #2*, (HDR: Halton Region, January 14, 2026).

4.1.3 Highway 407 Transitway

The 407 Transitway[11] is a planned 150 km long high-speed interregional facility planned to be ultimately constructed on a separate right-of-way that parallels Highway 407 from Burlington to Highway 35/115, with stations, parking and access connections.

It is currently being designed in four segments with the Trafalgar Road station included in the Brant Street to Hurontario Street[12] segment. This 35 km section will be a two-lane, fully grade separated transit facility. The Trafalgar Road station will include vehicular and pedestrian accesses, park and ride and pick-up/drop-off facilities, bus lay bay facilities, on-street integration with local transit, shelters, buildings and other amenities. The transitway and the stations will initially be designed to support a two-lane busway service with provisions for future conversion to a two-track light-rail transit technology.

The Big Move[13] report shows Bus Rapid Transit on Highway 407 in mixed traffic with congestion management under the 15-year plan and full separate transitway between Highway 427 and Markham in the 25-year plan. No timing has been provided for the full separated transitway in the study area.

The Illustrative Concept Plans prepared in support of the Official Plan Amendment Application show a conceptual road network and good pedestrian connectivity throughout the land subject to the application to the Trafalgar Road Corridor and to the Future Highway 407 Transitway Station. It is recommended that future development applications shall be designed to ensure that the long-term transit plans, including the future Trafalgar Road Bus Rapid Transit (BRT) and the Highway 407 Transit Way are integrated with local transit services.

4.2 Forecast Traffic

Three horizon years have been assessed to estimate the impact of the subject development and background roadway traffic:

- Build-out of Phase 1 (Year 2031);
- Build-out of Phase 2 (Year 2036); and
- Full build-out (Year 2041).

[11] 407 Transitway
[12] 407 Transitway - Brant Street to Winston Churchill Boulevard
[13] The Big Move, Transforming Transportation in the Greater Toronto Area and Hamilton Area, Metrolinx, November 2008

Future traffic volumes near the subject site are estimated to consist of:

- Increased non-site traffic (generalized background traffic growth). A generalized growth rate of 2% per annum (compounded) was identified by the review agencies during the pre-study consultation
- Background traffic from the following developments:
  - 45 & 55 William Halton Parkway East[14] a proposed industrial development
  - 40, 64 & 86 Burnhamthorpe Road East[15] a proposed residential development containing approximately 232 townhouse units
  - Star Oak Developments[16] a proposed mixed-use development containing residential and employment land uses
  - ARGO Trafalgar[17] a proposed mixed-use development with approximately 3,000 residential units and commercial and employment land uses; and
- Traffic generated by the subject site.

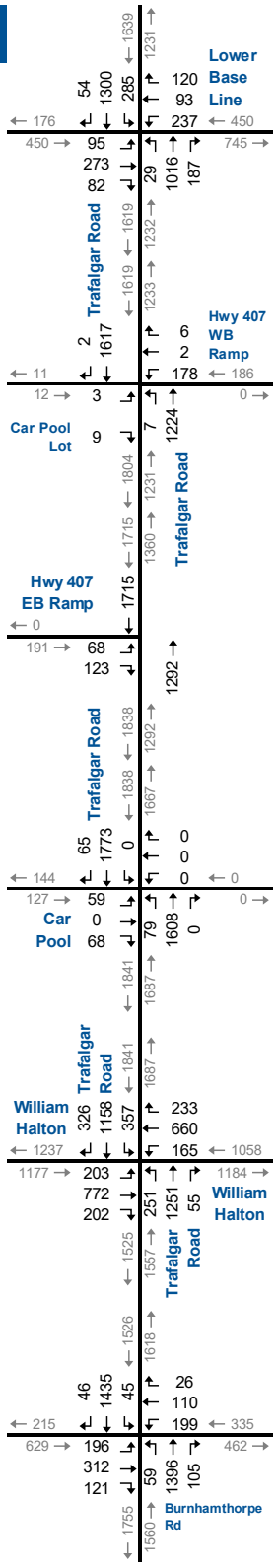
The traffic volumes from the background developments were obtained from their respective studies. **Appendix E** contains the background development trip assignments.

Figure 4.1 illustrates the forecast background 2031 traffic volumes.
Figure 4.2 illustrates the forecast background 2036 traffic volumes.
Figure 4.3 illustrates the forecast background 2041 traffic volumes.

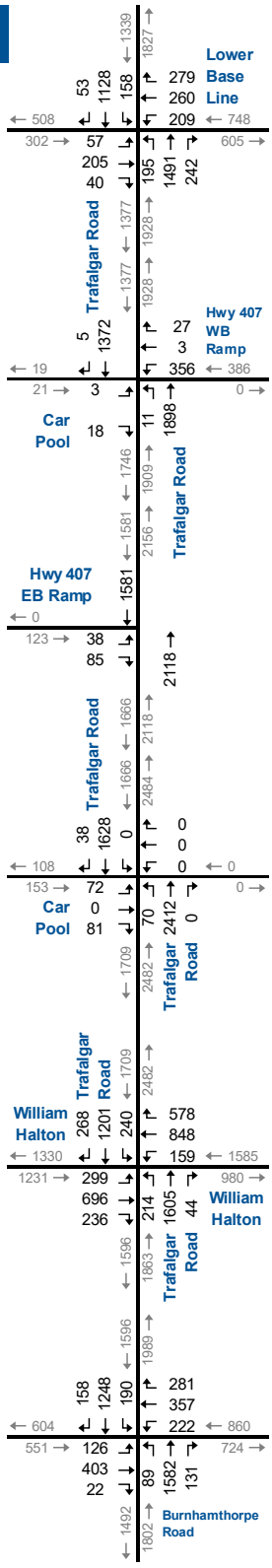
Figure 4.4A and **Figure 4.4B** illustrates the forecast Total 2031 traffic volumes. **Figure 4.5A** and **Figure 4.5B** illustrates the forecast Total 2036 traffic volumes. **Figure 4.6A** and **Figure 4.6B** illustrates the forecast Total 2041 traffic volumes.

[14] LEA Consulting Ltd, *Updated Transportation Impact Study 45 and 55 William Halton Parkway East, Town of Oakville, Proposed Industrial Development,* (LEA: Oakville, May 2023).
[15] LEA Consulting Ltd, *Transportation Impact Assessment 40 64 & 86 Burnhamthorpe Road East, Town of Oakville, Proposed Residential Development,* (LEA: Oakville, December 2020).
[16] URS Canada Inc., *Transportation Impact Study Star Oak Developments Limited Town of Oakville,* (URS: Oakville, April 2013).
[17] CGH Transportation, *ARGO Trafalgar Transportation Impact Study,* (CGH: Oakville, June 2023).

AM Peak Hour



PM Peak Hour

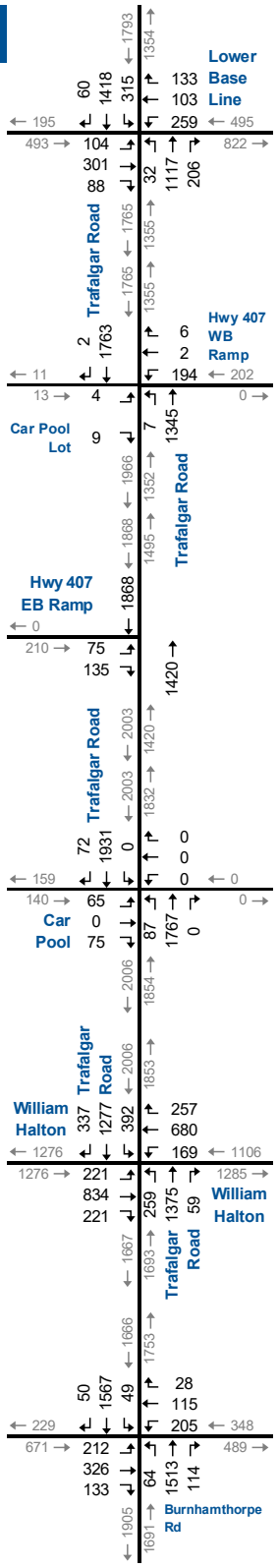


2031 Background Traffic Volumes

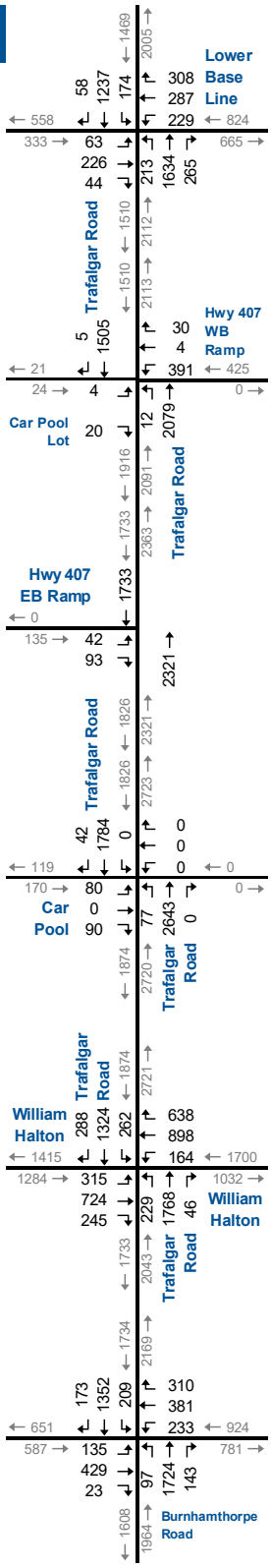
IO Trafalgar & 407 Oakville, ON TIS
210156/210157

Figure 4.1

AM Peak Hour



PM Peak Hour



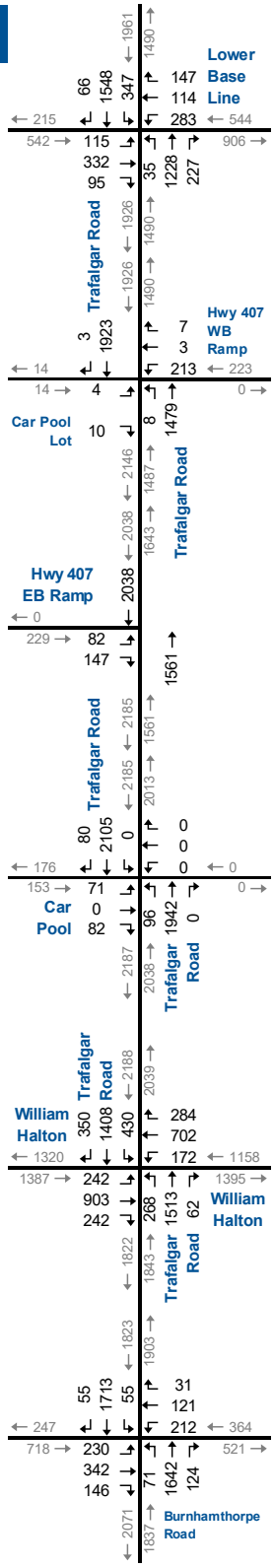
paradigm TRANSPORTATION SOLUTIONS LIMITED

2036 Background Traffic Volumes

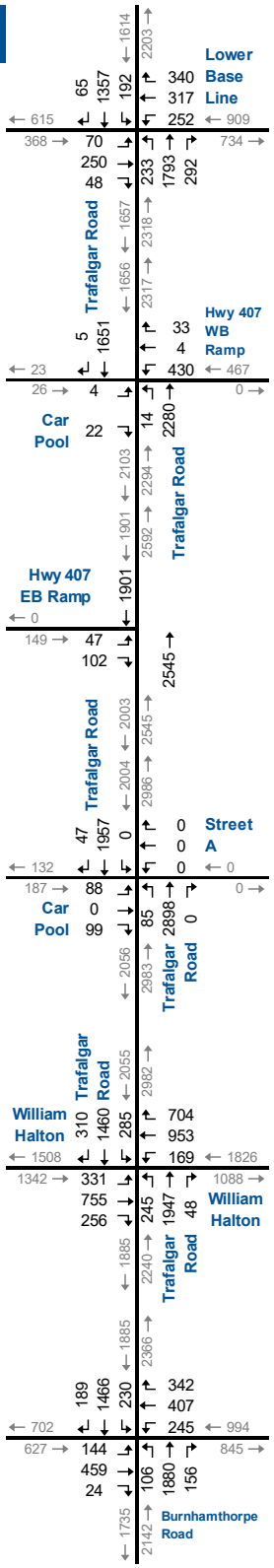
IO Trafalgar & 407 Oakville, ON TIS
210156/210157

Figure 4.2

AM Peak Hour



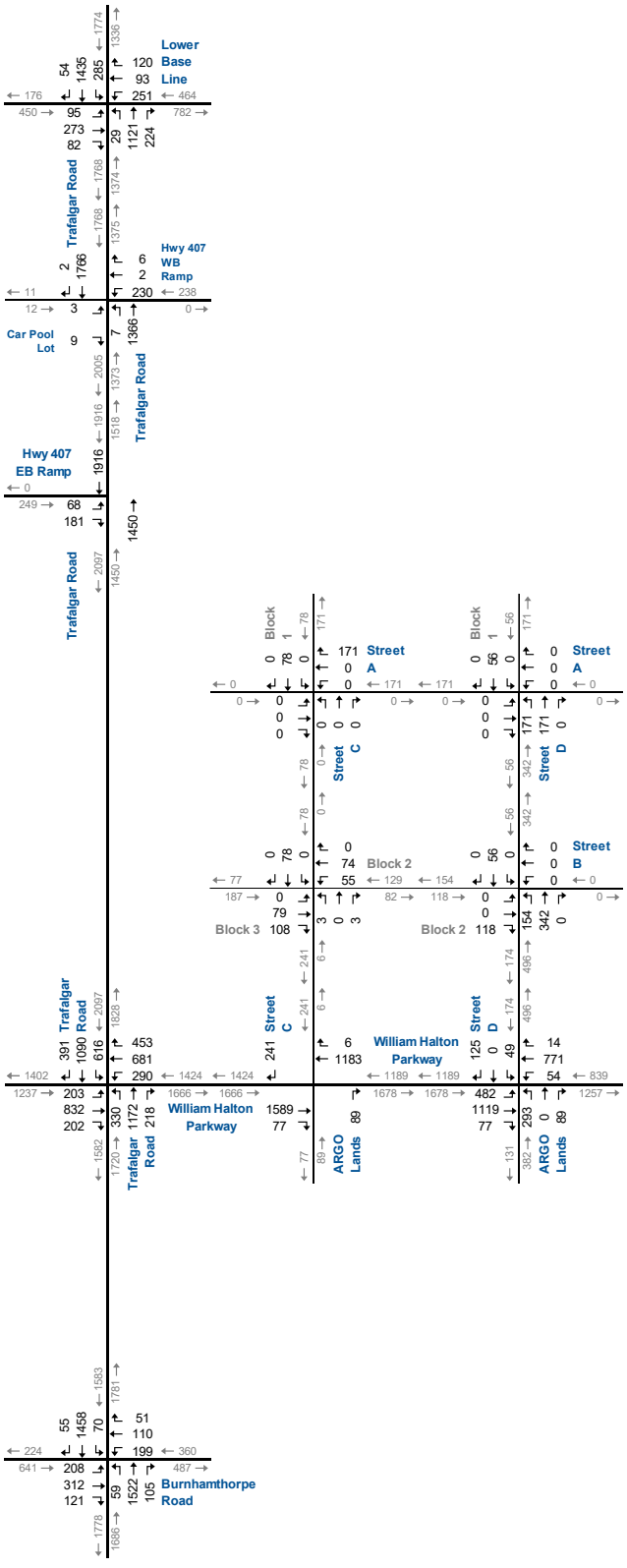
PM Peak Hour



2041 Background Traffic Volumes

IO Trafalgar & 407 Oakville, ON TIS
210156/210157

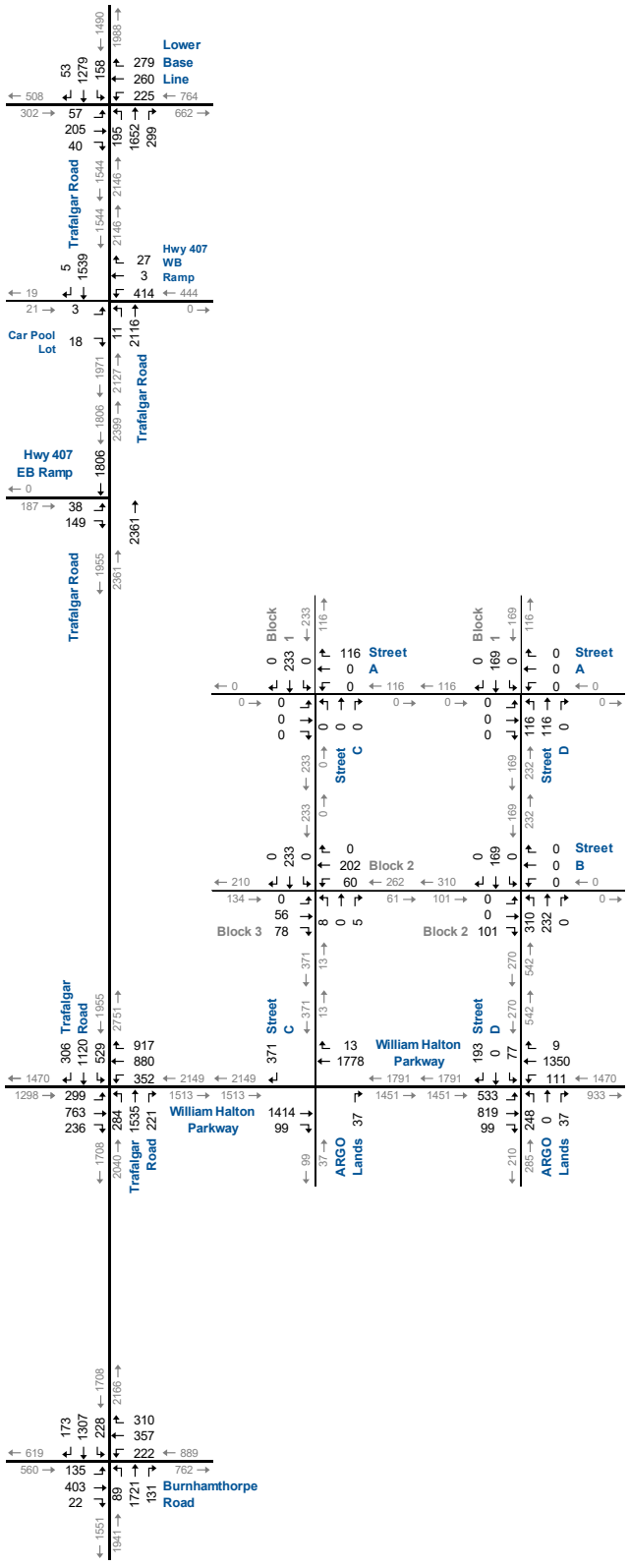
Figure 4.3



2031 Total Traffic Volumes AM Peak Hour

IO Trafalgar & 407 Oakville, ON TIS
210156/210157

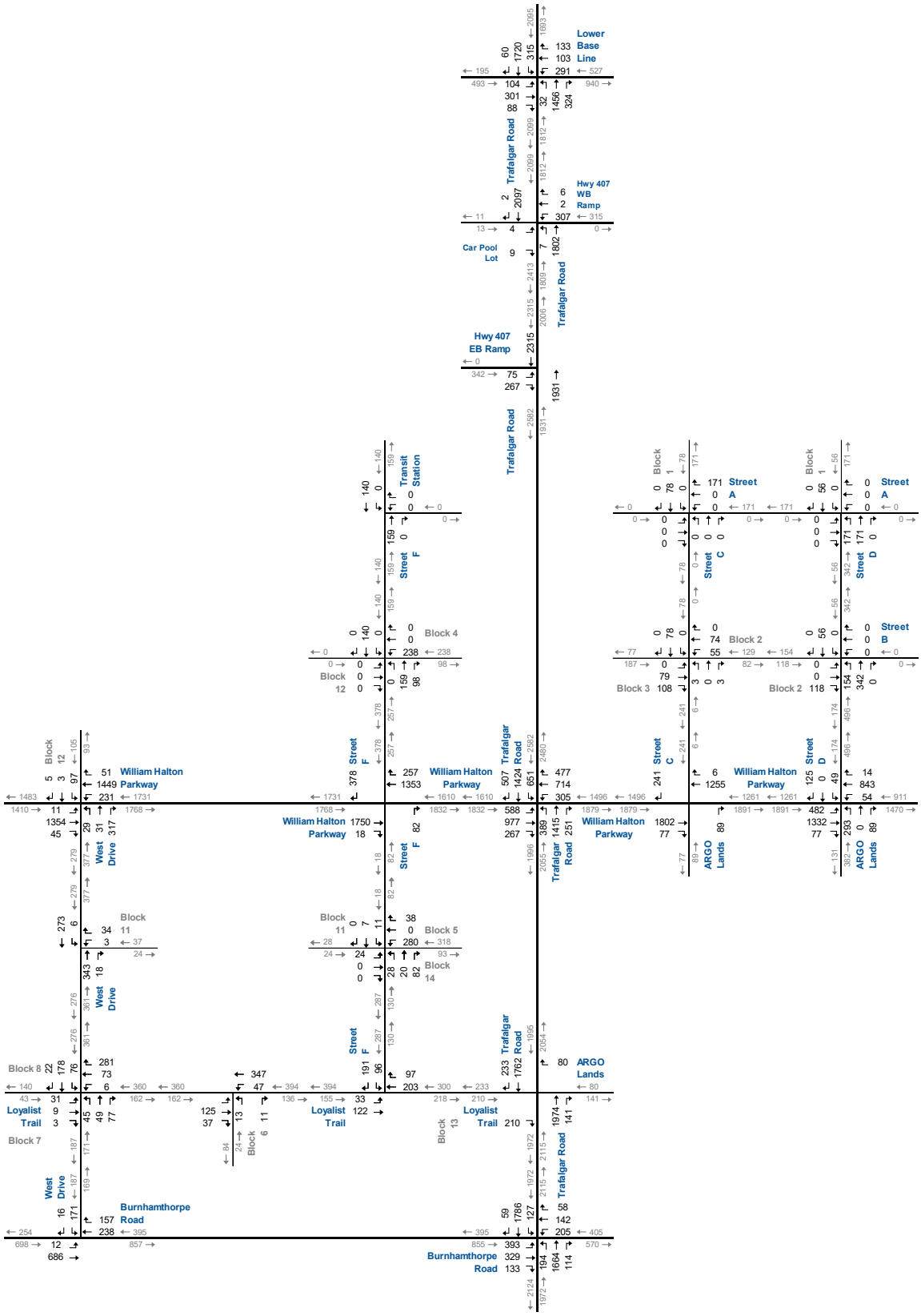
Figure 4.4A



2031 Total Traffic Volumes PM Peak Hour

IO Trafalgar & 407 Oakville, ON TIS
210156/210157

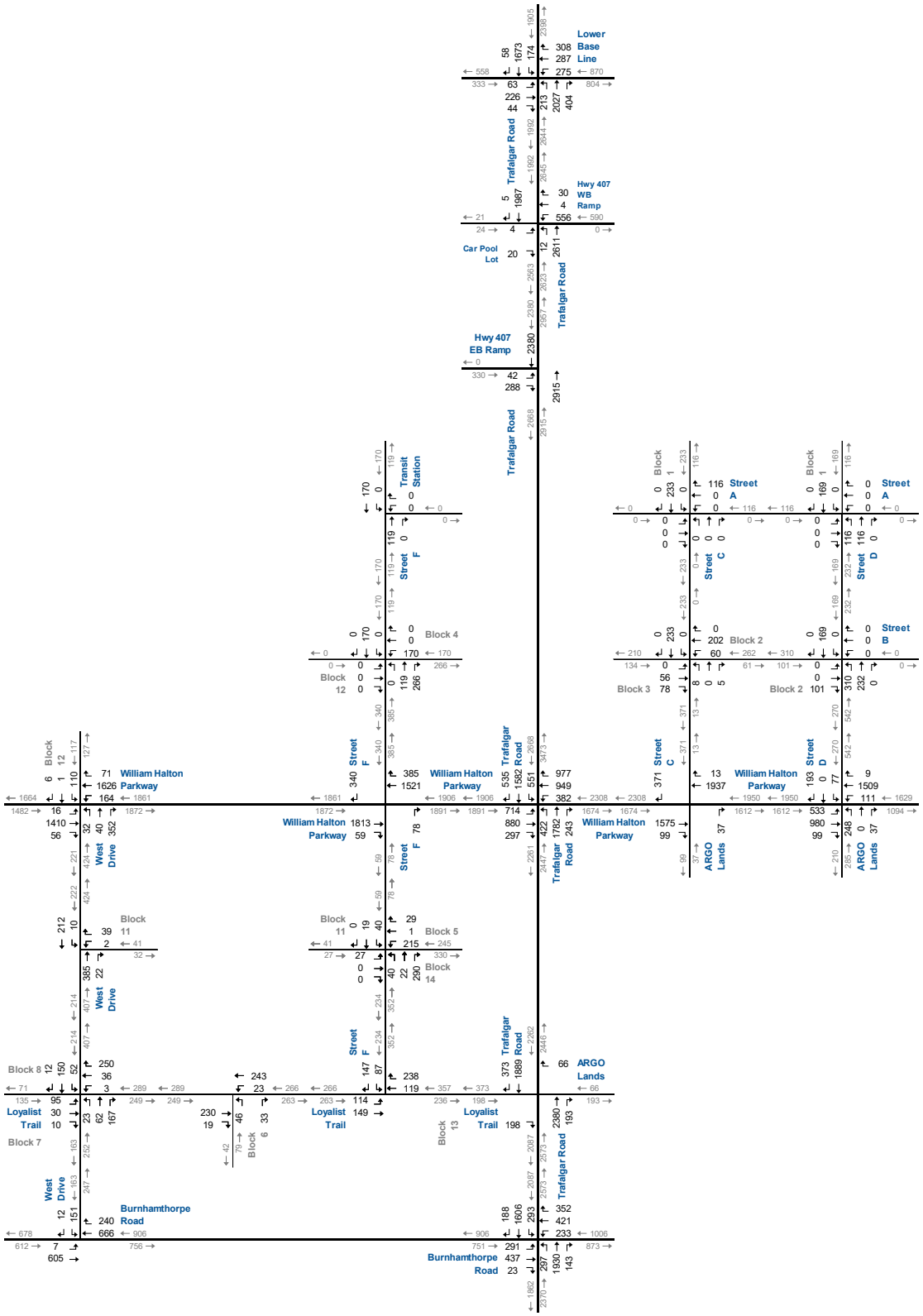
Figure 4.4B



2036 Total Traffic Volumes AM Peak Hour

IO Trafalgar & 407 Oakville, ON TIS
210156/210157

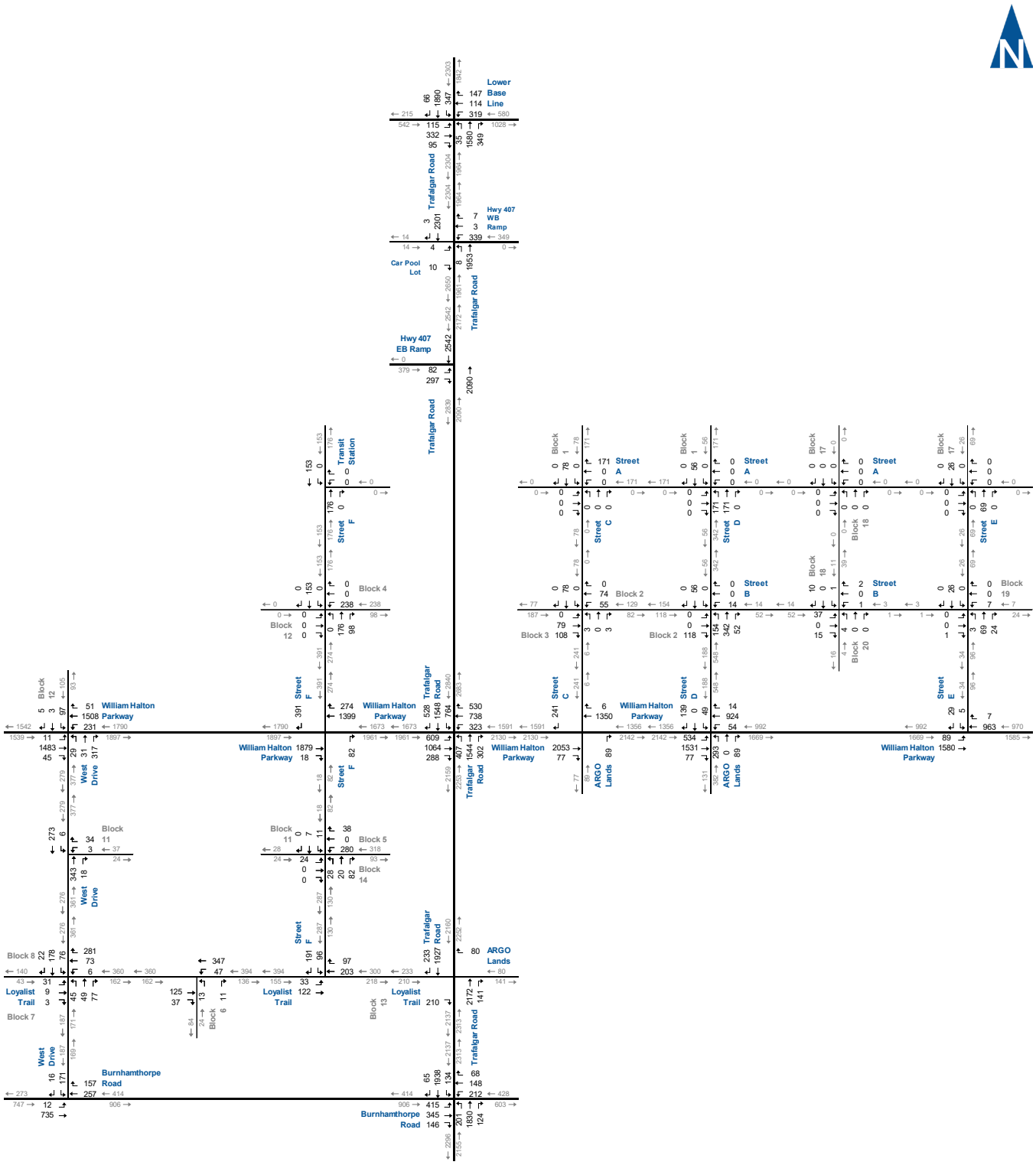
Figure 4.5A



2036 Total Traffic Volumes PM Peak Hour

IO Trafalgar & 407 Oakville, ON TIS
210156/210157

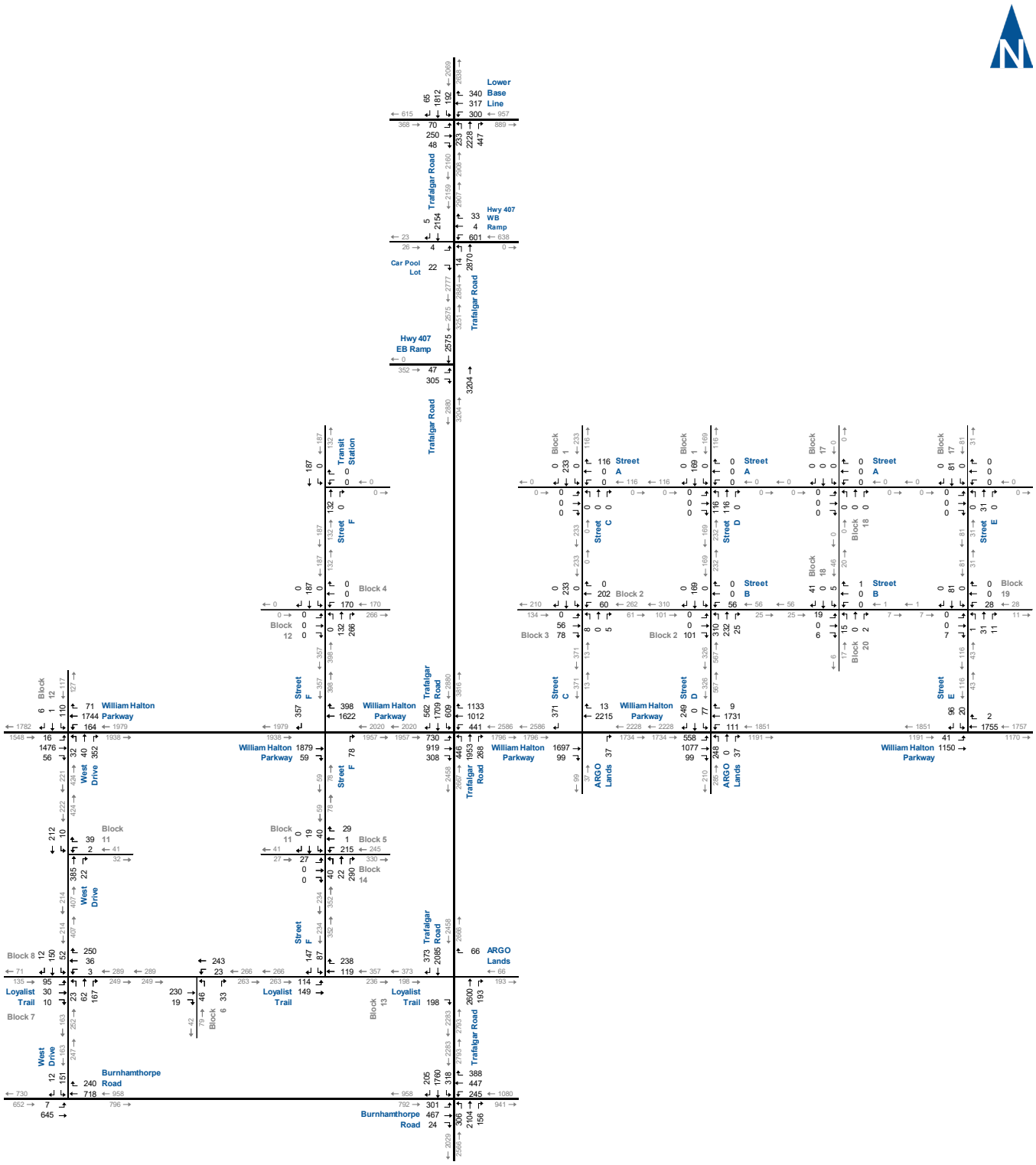
Figure 4.5B



2041 Total Traffic Volumes AM Peak Hour

IO Trafalgar & 407 Oakville, ON TIS
210156/210157

Figure 4.6A



2041 Total Traffic Volumes PM Peak Hour

IO Trafalgar & 407 Oakville, ON TIS
210156/210157

Figure 4.6B

4.2.1 Forecast Daily Traffic Volumes

The daily volumes were derived from the PM peak hour traffic forecasts. The PM peak hour volumes were assumed to be 10 per cent of the total daily traffic volumes. **Table 4.1** shows the forecast 2031 future daily traffic volumes on the study area roadways. **Table 4.2** shows the forecast 2036 future daily volumes on the study area roadways. **Table 4.3** shows the forecast 2041 future daily volumes on the study area roadways.

With the 2% background growth rate, the Trafalgar Road corridor will exceed the maximum 30,000 vehicles per day TAC threshold for urban arterial roads under 2031, 2036 and 2041 future background traffic conditions.

The introduction of the site generated traffic will only add to the congestion and delay in the study area.

TABLE 4.1: 2031 FUTURE DAILY TRAFFIC VOLUMES

Road Section		Two-Way Daily Traffic*				TAC Threshold	
From	To	Existing	2031 Background	Site Traffic	2031 Total	Rural**	Urban***
Trafalgar Road							
North	Lower Base Line	26,400	31,660	3,120	34,780	< 12,000	10,000 - 30,000
Lower Base Line	Highway 407 WB Off-Ramp	27,140	33,050	3,850	36,900	< 12,000	10,000 - 30,000
Highway 407 WB Off-Ramp	Highway 407 EB Off-Ramp	32,140	39,020	4,680	43,700	< 12,000	10,000 - 30,000
Highway 407 EB Off-Ramp	GO Carpool Lot/Street A	34,020	41,500	6,280	47,780	< 12,000	10,000 - 30,000
GO Carpool Lot/Street A	William Halton Parkway	34,380	41,910	6,280	48,190	< 12,000	10,000 - 30,000
William Halton Parkway	Burnhamthorpe Road	27,000	35,850	3,700	39,550	< 12,000	10,000 - 30,000
Burnhamthorpe Road	South	23,680	32,940	2,790	35,730	< 12,000	10,000 - 30,000
Lower Base Line							
Trafalgar Road	East	11,780	13,530	730	14,260	< 12,000	5,000 - 20,000
Trafalgar Road	West	6,940	8,100	-	8,100	< 12,000	5,000 - 20,000
William Halton Parkway							
Trafalgar Road	East	14,150	25,650	990	26,640	< 12,000	10,000 - 30,000
Trafalgar Road	West	11,730	25,610	990	26,600	< 12,000	10,000 - 30,000
Burnhamthorpe Road							
Trafalgar Road	East	10,280	15,840	670	16,510	< 12,000	5,000 - 20,000
Trafalgar Road	West	7,060	11,550	240	11,790	< 12,000	5,000 - 20,000

* PM peak hour x 10

** TAC Table 2.6.4: Classification of Rural Roads

*** TAC Table 2.6.5: Classificaiton of Urban Roads

TABLE 4.2: 2036 FUTURE DAILY TRAFFIC VOLUMES

Road Section		Two-Way Daily Traffic*				TAC Threshold	
From	To	Existing	2036 Background	Site Traffic	2036 Total	Rural**	Urban***
Trafalgar Road							
North	Lower Base Line	26,400	34,740	8,290	43,030	< 12,000	10,000 - 30,000
Lower Base Line	Highway 407 WB Off-Ramp	27,140	36,230	10,140	46,370	< 12,000	10,000 - 30,000
Highway 407 WB Off-Ramp	Highway 407 EB Off-Ramp	32,140	42,790	12,410	55,200	< 12,000	10,000 - 30,000
Highway 407 EB Off-Ramp	GO Carpool Lot/Street A	34,020	45,490	16,710	62,200	< 12,000	10,000 - 30,000
GO Carpool Lot/Street A	William Halton Parkway	34,380	45,950	16,710	62,660	< 12,000	10,000 - 30,000
William Halton Parkway	Burnhamthorpe Road	27,000	39,020	10,220	49,240	< 12,000	10,000 - 30,000
Burnhamthorpe Road	South	23,680	35,720	7,500	43,220	< 12,000	10,000 - 30,000
Lower Base Line							
Trafalgar Road	East	11,780	14,890	1,850	16,740	< 12,000	5,000 - 20,000
Trafalgar Road	West	6,940	8,910	-	8,910	< 12,000	5,000 - 20,000
William Halton Parkway							
Trafalgar Road	East	14,150	27,320	2,520	29,840	< 12,000	10,000 - 30,000
Trafalgar Road	West	11,730	26,990	2,770	29,760	< 12,000	10,000 - 30,000
Burnhamthorpe Road							
Trafalgar Road	East	10,280	17,050	1,740	18,790	< 12,000	5,000 - 20,000
Trafalgar Road	West	7,060	12,380	520	12,900	< 12,000	5,000 - 20,000

* PM peak hour x 10

** TAC Table 2.6.4: Classification of Rural Roads

*** TAC Table 2.6.5: Classificaiton of Urban Roads

TABLE 4.3: 2041 FUTURE DAILY TRAFFIC VOLUMES

Road Section		Two-Way Daily Traffic*				TAC Threshold	
From	To	Existing	2041 Background	Site Traffic	2041 Total	Rural**	Urban***
Trafalgar Road							
North	Lower Base Line	26,400	38,170	8,900	47,070	< 12,000	10,000 - 30,000
Lower Base Line	Highway 407 WB Off-Ramp	27,140	39,750	10,930	50,680	< 12,000	10,000 - 30,000
Highway 407 WB Off-Ramp	Highway 407 EB Off-Ramp	32,140	46,950	13,330	60,280	< 12,000	10,000 - 30,000
Highway 407 EB Off-Ramp	GO Carpool Lot/Street A	34,020	49,900	17,960	67,860	< 12,000	10,000 - 30,000
GO Carpool Lot/Street A	William Halton Parkway	34,380	50,390	17,960	68,350	< 12,000	10,000 - 30,000
William Halton Parkway	Burnhamthorpe Road	27,000	42,510	10,990	53,500	< 12,000	10,000 - 30,000
Burnhamthorpe Road	South	23,680	38,770	8,170	46,940	< 12,000	10,000 - 30,000
Lower Base Line							
Trafalgar Road	East	11,780	16,430	2,030	18,460	< 12,000	5,000 - 20,000
Trafalgar Road	West	6,940	9,830	-	9,830	< 12,000	5,000 - 20,000
William Halton Parkway							
Trafalgar Road	East	14,150	29,140	2,740	31,880	< 12,000	10,000 - 30,000
Trafalgar Road	West	11,730	28,500	2,930	31,430	< 12,000	10,000 - 30,000
Burnhamthorpe Road							
Trafalgar Road	East	10,280	18,390	1,820	20,210	< 12,000	5,000 - 20,000
Trafalgar Road	West	7,060	13,290	530	13,820	< 12,000	5,000 - 20,000

* PM peak hour x 10

** TAC Table 2.6.4: Classification of Rural Roads

*** TAC Table 2.6.5: Classificaiton of Urban Roads

4.3 Forecast Background Traffic Operations

The study area intersection operations analyses for the future background forecast used the road network improvements noted in **Section 4.1** and the new municipal roads noted in **Section 3.1**. The signalized intersections used optimized signal timings.

4.3.1 Background Operations – 2031

Table 4.4 summarizes the level of service conditions. The road improvements noted in Section 4.1 and optimized signal timings have been assumed. The following critical movements are noted:

- **Trafalgar Road and Lower Base Line:**
  - Overall – v/c ratio greater of 0.67 during the AM peak hour and greater than 1.00 during the PM peak hour;
  - Eastbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during PM peak hour;
  - Eastbound through/right-turn – LOS F and v/c ratio of 0.97 during the AM peak hour;
  - Westbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during AM peak hour;
  - Northbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during PM Peak hour;
  - Southbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during AM peak hour. LOS E, and v/c ratio of 0.86 during PM peak hour.
- **Trafalgar Road and Highway 407 Eastbound Ramp Terminal:**
  - Northbound through – LOS C and v/c ratio of 0.91 during the PM peak hour.
- **Trafalgar Road and William Halton Parkway:**
  - Overall – v/c ratio greater than 1.00 during the PM peak hour;
  - Eastbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during the AM and PM peak hours;
  - Eastbound through – LOS E and v/c ratio of 0.91 during the AM peak hour;
  - Westbound left-turn – LOS F and v/c ratio greater than 1.00 during the AM and PM peak hours;

- Westbound through – LOS E and v/c ratio of 0.93 during the AM peak hour. LOS F and v/c ratio greater than 1.0 during the PM peak hour.
- Westbound right-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during the PM peak hour.
- Northbound left-turn – LOS F and v/c ratio greater than 1.00 during the AM and PM peak hours;
- Southbound left-turn – LOS F and v/c ratio greater than 1.00 during the AM and PM peak hours.

- **Trafalgar Road and Burnhamthorpe Road:**
  - Overall – v/c ratio of 0.99 during AM and greater than 1.00 during PM peak hour;
  - Eastbound left-turn with queue exceeds storage during AM peak hour. LOS F, v/c ratio greater than 1.00, and queue exceeds storage during the PM peak hour;
  - Eastbound through/right – LOS F and v/c ratio greater than 1.00 during PM peak hour;
  - Westbound left-turn with LOS F, v/c ratio greater than 1.00, and queue exceeds storage during the AM and PM peak hours;
  - Westbound through/right-turn – LOS F and v/c ratio greater than 1.00 during PM peak hour;
  - Northbound left-turn – LOS F and v/c ratio greater than 1.00 during AM peak hour; and
  - Southbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during PM peak hour.

Appendix F1 contains the detailed Synchro reports.

The above noted capacity issues are expected to occur without the development of the subject site.

TABLE 4.4A: 2031 BACKGROUND OPERATIONS (AM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Trafalgar Rd & Lower Base Line	TCS	LOS	D	E	>	E	F	C	>	F	D	D	C	C	F	B	B	C	E
			Delay	38	77	>	70	435	29	>	251	42	35	26	34	89	20	13	31	65
			V/C	0.39	0.97	>		1.85	0.37	>		0.42	0.71	0.13		1.03	0.57	0.05		0.97
			Q	38	138	>		121	54	>		15	100	16		117	95	4		
			Stor.	45	-	>		110	-	>		90	-	90		90	-	90		
			Avail.	7	-	>		-11	-	>		75	-	74		-27	-	86		
	Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off	TCS	LOS	<	D	>	D	D	D	D	D	A	A		A		B	A	B	B
			Delay	<	35	>	35	45	49	35	46	7	6		6		11	6	11	12
			V/C	<	0.03	>		0.61	0.67	0.01		0.19	0.38				0.58	0.00		0.54
			Q	<	0	>		35	23	0		1	56				112	0		
			Stor.	<	-	>		-	-	60		65	-				-	15		
			Avail.	<	-	>		-	-	60		64	-				-	15		
	Trafalgar Rd & Hwy 407 EB Off	TCS	LOS	B		B	B						B		B		B		B	B
			Delay	16		19	18						12		12		16		16	14
			V/C	0.17		0.37							0.63				0.81			0.51
			Q	14		24							52				78			
	Trafalgar Rd & South Carpool Lot	TCS	LOS	C		C	C					F	B		B		B	A	B	B
			Delay	22		22	22					96	12		16		13	7	13	15
			V/C	0.20		0.21						0.96	0.64				0.72	0.06		0.59
			Q	16		17						26	70				83	6		
			Stor.	-		-						50	-				-	30		
			Avail.	-		-						24	-				-	24		
	Trafalgar Rd & William Halton Parkway	TCS	LOS	F	E	D	F	F	E	D	F	F	C	B	D	F	C	C	F	F
			Delay	281	64	42	99	267	64	47	92	170	31	20	54	473	30	27	121	93
			V/C	1.47	0.91	0.31		1.43	0.91	0.54		1.26	0.62	0.04		1.96	0.58	0.40		0.93
			Q	122	165	39		92	127	53		119	128	3		204	116	58		
			Stor.	100	-	100		100	-	150		150	-	75		-	-	-		
			Avail.	-22	-	61		8	-	97		31	-	72		-	-	-		
	Trafalgar Rd & Burnhamthorpe Rd	TCS	LOS	D	D	>	D	F	C	>	F	F	D	C	D	C	C	B	B	F
			Delay	39	44	>	42	803	28	>	485	93	40	25	42	21	20	13	20	86
			V/C	0.62	0.80	>		2.65	0.32	>		0.86	0.85	0.11		0.23	0.59	0.04		0.99
			Q	70	134	>		122	40	>		35	146	16		11	107	5		
			Stor.	30	-	>		15	-	>		60	-	60		60	-	60		
			Avail.	-40	-	>		-107	-	>		25	-	44		49	-	55		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
< / > - Shared with through movement

TABLE 4.4B: 2031 BACKGROUND OPERATIONS (PM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Trafalgar Rd & Lower Base Line	TCS	LOS	F	D	>	E	D	F	>	F	F	C	C	D	D	B	B	C	D
			Delay	221	46	>	79	54	91	>	82	201	32	22	48	55	16	12	21	48
			V/C	1.19	0.68	>		0.83	1.05	>		1.29	0.73	0.18		0.81	0.44	0.05		1.02
			Q	44	93	>		74	196	>		118	135	12		64	75	2		
			Stor.	45	-	>		110	-	>		90	-	90		90	-	90		
			Avail.	1	-	>		36	-	>		-28	-	78		26	-	88		
	Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off	TCS	LOS	<	C	>	C	D	E	C	D	A	B		B		B	A	B	B
			Delay	<	33	>	33	50	59	33	53	8	11		11		12	8	12	16
			V/C	<	0.03	>		0.74	0.82	0.02		0.13	0.60				0.49	0.01		0.64
			Q	<	0	>		69	26	0		2	114				95	0		
			Stor.	<	-	>		-	-	60		65	-				-	15		
			Avail.	<	-	>		-	-	60		63	-				-	15		
	Trafalgar Rd & Hwy 407 EB Off	TCS	LOS	B		B	B						C		C		B		B	B
			Delay	17		18	17						23		23		16		16	20
			V/C	0.09		0.18							0.91				0.69			0.56
			Q	10		18							128				79			
	Trafalgar Rd & South Carpool Lot	TCS	LOS	C		C	C					E	B		B		A	A	A	B
			Delay	35		33	34					74	13		15		9	6	9	13
			V/C	0.39		0.29						0.88	0.78				0.54	0.03		0.61
			Q	23		22						36	128				68	3		
			Stor.	-		-						50	-				-	30		
			Avail.	-		-						14	-				-	27		
	Trafalgar Rd & William Halton Parkway	TCS	LOS	F	D	D	F	F	F	F	F	F	D	C	D	F	C	C	D	F
			Delay	535	53	42	173	160	96	221	148	106	38	23	46	190	33	27	53	98
			V/C	2.05	0.78	0.29		1.17	1.05	1.34		1.06	0.81	0.04		1.25	0.64	0.27		1.03
			Q	198	127	43		62	192	260		92	185	0		136	124	41		
			Stor.	100	-	100		100	-	150		150	-	75		-	-	-		
			Avail.	-98	-	57		38	-	-110		58	-	75		-	-	-		
	Trafalgar Rd & Burnhamthorpe Rd	TCS	LOS	F	F	>	F	F	F	>	F	D	C	B	C	F	B	A	E	F
			Delay	729	144	>	261	1637	375	>	690	43	26	16	26	300	12	9	57	191
			V/C	2.42	1.18	>		4.46	1.72	>		0.68	0.74	0.19		1.53	0.44	0.15		1.05
			Q	96	166	>		147	279	>		38	136	19		85	69	15		
			Stor.	30	-	>		15	-	>		60	-	60		60	-	60		
			Avail.	-66	-	>		-132	-	>		22	-	41		-25	-	45		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
< / > - Shared with through movement

4.3.2 Background Operations – 2036

Table 4.5 summarizes the level of service conditions. The road improvements noted in Section 4.1 and optimized signal timings have been assumed. The following critical movements are noted:

- **Trafalgar Road and Lower Base Line:**
  - Overall – v/c ratio greater than 1.00 during the AM and PM peak hours;
  - Eastbound left-turn – queue exceeds storage during AM peak hour. LOS F, v/c ratio greater than 1.00, and queue exceeds storage during PM peak hour;
  - Eastbound through/right-turn – LOS F and v/c ratio greater than 1.00 during the AM peak hour;
  - Westbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during AM and PM peak hours;
  - Westbound through/right-turn – LOS F and v/c ratio greater than 1.00 during PM peak hour;
  - Northbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during PM Peak hour;
  - Southbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during AM peak hour.
- **Trafalgar Road and Highway 407 Eastbound Ramp Terminal:**
  - Northbound through – LOS D and v/c ratio of 1.00 during the PM peak hour.
- **Trafalgar Road and GO Carpool Lot:**
  - Northbound left-turn – LOS F and v/c ratio greater than 1.0 during the AM and PM peak hours.
- **Trafalgar Road and William Halton Parkway:**
  - Overall – v/c ratio of 0.99 during the AM peak hour and greater than 1.00 during PM peak hour;
  - Eastbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during the AM and PM peak hours;
  - Eastbound through – LOS F and v/c ratio of 0.99 during the AM peak hour;
  - Westbound left-turn – LOS F and v/c ratio greater than 1.00 during the AM and PM peak hours;

- Westbound through – LOS E and v/c ratio of 0.94 during the AM peak hour. LOS F and v/c ratio greater than 1.0 during the PM peak hour.
- Westbound right-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during the PM peak hour.
- Northbound left-turn – LOS F and v/c ratio greater than 1.00 during the AM and PM peak hours;
- Southbound left-turn – LOS F and v/c ratio greater than 1.00 during the AM and PM peak hours.

- **Trafalgar Road and Burnhamthorpe Road:**
  - Overall – v/c ratio of 1.00 during AM and PM peak hours;
  - Eastbound left-turn with queue exceeds storage during AM peak hour. LOS F, v/c ratio greater than 1.00, and queue exceeds storage during the PM peak hour;
  - Eastbound through/right – LOS D and v/c ratio of 0.91 during the AM peak hour. LOS F and v/c ratio greater than 1.00 during PM peak hour;
  - Westbound left-turn with LOS F, v/c ratio greater than 1.00, and queue exceeds storage during the AM and PM peak hours;
  - Westbound through/right-turn – LOS F and v/c ratio greater than 1.00 during PM peak hour;
  - Northbound left-turn – LOS F and v/c ratio greater than 1.00 during AM and PM peak hours; and
  - Southbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during PM peak hour.

Appendix F2 contains the detailed Synchro reports.

The above noted capacity issues are expected to occur without the development of the subject site.



TABLE 4.5A: 2036 BACKGROUND OPERATIONS (AM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Trafalgar Rd & Lower Base Line	TCS	LOS	D	F	>	F	F	C	>	F	E	D	C	D	F	C	B	D	E
			Delay	39	102	>	90	510	30	>	290	59	38	26	36	158	20	13	44	79
			V/C	0.44	1.06	>		2.02	0.42	>		0.58	0.78	0.15		1.21	0.62	0.05		1.02
			Q	42	159	>		135	62	>		18	112	16		147	107	4		
			Stor.	45	-	>		110	-	>		90	-	90		90	-	90		
			Avail.	3	-	>		-25	-	>		72	-	74		-57	-	86		
	Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off	TCS	LOS	<	C	>	C	D	D	C	D	A	A		A		B	A	B	B
			Delay	<	35	>	35	46	51	35	48	8	7		7		12	7	12	13
			V/C	<	0.03	>		0.64	0.70	0.01		0.23	0.43				0.64	0.00		0.57
			Q	<	0	>		38	24	0		1	67				132	0		
			Stor.	<	-	>		-	-	60		65	-				-	15		
			Avail.	<	-	>		-	-	60		64	-				-	15		
	Trafalgar Rd & Hwy 407 EB Off	TCS	LOS	B		B	B						B		B		B		B	B
			Delay	16		20	19						13		13		18		18	16
			V/C	0.19		0.41							0.69				0.88			0.55
			Q	15		26							59				90			
	Trafalgar Rd & South Carpool Lot	TCS	LOS	C		C	C					F	B		B		B	A	B	B
			Delay	22		22	22					123	13		18		14	7	14	16
			V/C	0.22		0.24						1.05	0.70				0.79	0.07		0.63
			Q	18		19						30	81				96	6		
			Stor.	-		-						50	-				-	30		
			Avail.	-		-						20	-				-	24		
	Trafalgar Rd & William Halton Parkway	TCS	LOS	F	E	D	F	F	E	D	F	F	C	C	E	F	C	C	F	F
			Delay	336	78	44	118	281	68	51	97	250	32	20	66	672	31	28	165	115
			V/C	1.60	0.99	0.38		1.46	0.94	0.64		1.44	0.68	0.04		2.39	0.64	0.42		0.99
			Q	136	187	48		95	132	65		140	145	4		244	132	63		
			Stor.	100	-	100		100	-	150		150	-	75		-	-	-		
			Avail.	-36	-	52		5	-	85		10	-	71		-	-	-		
	Trafalgar Rd & Burnhamthorpe Rd	TCS	LOS	D	D	>	D	F	C	>	F	F	D	C	D	C	C	B	C	F
			Delay	42	48	>	47	1140	29	>	678	195	46	25	52	22	21	13	21	110
			V/C	0.69	0.86	>		3.39	0.34	>		1.18	0.92	0.13		0.25	0.64	0.04		1.04
			Q	78	146	>		110	42	>		43	166	19		11	121	6		
			Stor.	30	-	>		15	-	>		60	-	60		60	-	60		
			Avail.	-48	-	>		-95	-	>		17	-	41		49	-	54		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
< / > - Shared with through movement

TABLE 4.5B: 2036 BACKGROUND OPERATIONS (PM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Trafalgar Rd & Lower Base Line	TCS	LOS	F	D	>	F	F	F	>	F	F	C	C	E	E	B	B	C	E
			Delay	268	50	>	91	98	132	>	124	331	34	23	64	68	17	12	23	64
			V/C	1.32	0.75	>		1.01	1.17	>		1.59	0.80	0.20		0.88	0.48	0.06		1.07
			Q	49	104	>		95	230	>		135	154	12		74	84	2		
			Stor.	45	-	>		110	-	>		90	-	90		90	-	90		
			Avail.	-4	-	>		15	-	>		-45	-	78		16	-	88		
	Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off	TCS	LOS	<	C	>	C	D	E	C	E	A	B		B		B	A	B	B
			Delay	<	33	>	33	54	64	33	57	9	12		12		14	9	14	18
			V/C	<	0.03	>		0.79	0.86	0.02		0.17	0.66				0.55	0.01		0.69
			Q	<	0	>		78	29	0		3	132				108	0		
			Stor.	<	-	>		-	-	60		65	-				-	15		
			Avail.	<	-	>		-	-	60		62	-				-	15		
	Trafalgar Rd & Hwy 407 EB Off	TCS	LOS	B		B	B						D		D		B		B	C
			Delay	17		18	18						35		35		17		17	27
			V/C	0.10		0.20							1.00				0.76			0.60
			Q	10		20							162				91			
	Trafalgar Rd & South Carpool Lot	TCS	LOS	D		C	D					F	B		C		A	A	A	B
			Delay	36		34	35					193	15		21		10	6	9	17
			V/C	0.43		0.35						1.24	0.85				0.59	0.04		0.66
			Q	25		26						31	156				78	4		
			Stor.	-		-						50	-				-	30		
			Avail.	-		-						19	-				-	26		
	Trafalgar Rd & William Halton Parkway	TCS	LOS	F	D	D	F	F	F	F	F	F	D	C	E	F	C	C	E	F
			Delay	584	55	43	188	197	117	296	193	181	43	23	59	238	34	27	60	116
			V/C	2.16	0.81	0.32		1.26	1.11	1.52		1.25	0.90	0.05		1.37	0.70	0.31		1.09
			Q	209	133	48		72	210	303		118	215	0		153	141	49		
			Stor.	100	-	100		100	-	150		150	-	75		-	-	-		
			Avail.	-109	-	52		28	-	-153		32	-	75		-	-	-		
	Trafalgar Rd & Burnhamthorpe Rd	TCS	LOS	F	F	>	F	F	F	>	F	E	C	B	C	F	B	A	E	F
			Delay	807	174	>	301	1736	441	>	756	66	28	16	29	367	12	9	68	212
			V/C	2.60	1.26	>		4.68	1.86	>		0.84	0.81	0.21		1.69	0.48	0.17		1.10
			Q	90	182	>		155	310	>		52	154	22		98	77	19		
			Stor.	30	-	>		15	-	>		60	-	60		60	-	60		
			Avail.	-60	-	>		-140	-	>		8	-	38		-38	-	41		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
< / > - Shared with through movement

4.3.3 Background Operations – 2041

Table 4.6 summarizes the level of service conditions. The road improvements noted in Section 4.1 and optimized signal timings have been assumed. The following critical movements are noted:

- **Trafalgar Road and Lower Base Line:**
  - Overall – v/c ratio greater than 1.00 during the AM and PM peak hours;
  - Eastbound left-turn – queue exceeds storage during AM peak hour. LOS F, v/c ratio greater than 1.00, and queue exceeds storage during PM peak hour;
  - Eastbound through/right-turn – LOS F and v/c ratio greater than 1.00 during the AM peak hour;
  - Westbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during AM and PM peak hours;
  - Westbound through/right-turn – LOS F and v/c ratio greater than 1.00 during PM peak hour;
  - Northbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during PM Peak hour;
  - Southbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during AM peak hour. LOS F, and v/c ratio of 0.95 during PM peak hour.
- **Trafalgar Road and Highway 407 Eastbound Ramp Terminal:**
  - Northbound through – LOS E and v/c ratio greater than 1.00 during the PM peak hour.
- **Trafalgar Road and GO Carpool Lot:**
  - Northbound left-turn – LOS F and v/c ratio greater than 1.0 during the AM and PM peak hours.
- **Trafalgar Road and William Halton Parkway:**
  - Overall – v/c ratio greater than 1.00 during the AM and PM peak hours;
  - Eastbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during the AM and PM peak hours;
  - Eastbound through – LOS F and v/c ratio greater than 1.00 during the AM peak hour;
  - Westbound left-turn – LOS F and v/c ratio greater than 1.00 during the AM and PM peak hours;



- Westbound through – LOS E and v/c ratio of 0.97 during the AM peak hour. LOS F and v/c ratio greater than 1.0 during the PM peak hour.
- Westbound right-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during the PM peak hour.
- Northbound left-turn – LOS F and v/c ratio greater than 1.00 during the AM and PM peak hours;
- Northbound through – LOS F and v/c ratio greater than 1.00 during PM peak hour; and
- Southbound left-turn – LOS F and v/c ratio greater than 1.00 during the AM and PM peak hours.

- **Trafalgar Road and Burnhamthorpe Road:**
  - Overall – v/c ratio of 1.00 during AM and PM peak hours;
  - Eastbound left-turn - queue exceeds storage during AM peak hour. LOS F, v/c ratio greater than 1.00, and queue exceeds storage during the PM peak hour;
  - Eastbound through/right – LOS E and v/c ratio of 0.92 during the AM peak hour. LOS F and v/c ratio greater than 1.00 during PM peak hour;
  - Westbound left-turn with LOS F, v/c ratio greater than 1.00, and queue exceeds storage during the AM and PM peak hours;
  - Westbound through/right-turn – LOS F and v/c ratio greater than 1.00 during PM peak hour;
  - Northbound left-turn – LOS F and v/c ratio greater than 1.00 during AM and PM peak hours;
  - Northbound through – LOS E and v/c ratio of 0.99 during AM peak hour; and
  - Southbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during PM peak hour.

Appendix F3 contains the detailed Synchro reports.

The above noted capacity issues are expected to occur without the development of the subject site.



TABLE 4.6A: 2041 BACKGROUND OPERATIONS (AM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Trafalgar Rd & Lower Base Line	TCS	LOS	D	F	>	F	F	C	>	F	F	D	C	D	F	C	B	D	F
			Delay	40	142	>	122	593	30	>	335	114	41	27	41	211	22	13	54	95
			V/C	0.51	1.17	>		2.20	0.47	>		0.84	0.85	0.18		1.34	0.68	0.06		1.08
			Q	46	185	>		151	70	>		27	127	19		168	121	4		
			Stor.	45	-	>		110	-	>		90	-	90		90	-	90		
			Avail.	-1	-	>		-41	-	>		63	-	71		-78	-	86		
	Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off	TCS	LOS	<	C	>	C	D	D	C	D	B	A		A		B	A	B	B
			Delay	<	34	>	34	45	51	34	48	11	8		8		15	8	15	15
			V/C	<	0.03	>		0.65	0.72	0.01		0.23	0.48				0.72	0.01		0.61
			Q	<	0	>		41	26	0		2	82				162	0		
			Stor.	<	-	>		-	-	60		65	-				-	15		
			Avail.	<	-	>		-	-	60		63	-				-	15		
	Trafalgar Rd & Hwy 407 EB Off	TCS	LOS	B		C	B						B		B		C		C	C
			Delay	17		20	19						14		14		25		25	20
			V/C	0.21		0.45							0.76				0.96			0.58
			Q	17		28							68				122			
	Trafalgar Rd & South Carpool Lot	TCS	LOS	C		C	C					F	B		C		B	A	B	B
			Delay	22		23	22					158	14		21		17	7	16	19
			V/C	0.24		0.27						1.16	0.77				0.86	0.07		0.67
			Q	19		21						34	95				113	7		
			Stor.	-		-						50	-				-	30		
			Avail.	-		-						16	-				-	23		
	Trafalgar Rd & William Halton Parkway	TCS	LOS	F	F	D	F	F	E	E	F	F	C	C	F	F	C	C	F	F
			Delay	402	101	45	145	292	74	57	103	357	34	20	82	921	33	28	219	144
			V/C	1.75	1.07	0.45		1.49	0.97	0.74		1.67	0.75	0.05		2.93	0.71	0.44		1.06
			Q	152	212	58		97	137	78		161	166	4		285	151	69		
			Stor.	100	-	100		100	-	150		150	-	75		-	-	-		
			Avail.	-52	-	42		3	-	72		-11	-	71		-	-	-		
	Trafalgar Rd & Burnhamthorpe Rd	TCS	LOS	D	E	>	D	F	C	>	F	F	E	C	E	C	C	B	C	F
			Delay	50	56	>	54	1794	29	>	1046	421	58	25	74	24	23	13	22	159
			V/C	0.79	0.92	>		4.83	0.36	>		1.72	0.99	0.14		0.28	0.70	0.05		1.08
			Q	90	161	>		128	45	>		54	199	21		12	139	7		
			Stor.	30	-	>		15	-	>		60	-	60		60	-	60		
			Avail.	-60	-	>		-113	-	>		6	-	39		48	-	53		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
< / > - Shared with through movement

TABLE 4.6B: 2041 BACKGROUND OPERATIONS (PM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Trafalgar Rd & Lower Base Line	TCS	LOS	F	E	>	F	F	F	>	F	F	D	C	F	F	B	B	C	F
			Delay	324	56	>	107	184	185	>	185	570	38	23	92	89	18	12	26	90
			V/C	1.47	0.83	>		1.26	1.30	>		2.13	0.88	0.24		0.97	0.53	0.06		1.13
			Q	54	122	>		121	267	>		127	176	17		86	95	2		
			Stor.	45	-	>		110	-	>		90	-	90		90	-	90		
			Avail.	-9	-	>		-11	-	>		-37	-	73		4	-	88		
	Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off	TCS	LOS	<	C	>	C	E	E	C	E	B	B		B		B	A	B	C
			Delay	<	32	>	32	56	67	32	60	11	15		15		16	10	16	20
			V/C	<	0.03	>		0.83	0.89	0.03		0.21	0.74				0.62	0.01		0.74
			Q	<	0	>		92	31	0		3	156				124	0		
			Stor.	<	-	>		-	-	60		65	-				-	15		
			Avail.	<	-	>		-	-	60		62	-				-	15		
	Trafalgar Rd & Hwy 407 EB Off	TCS	LOS	B		B	B						E		E		B		B	D
			Delay	17		18	18						67		67		19		19	45
			V/C	0.11		0.23							1.09				0.83			0.64
			Q	12		22							188				106			
	Trafalgar Rd & South Carpool Lot	TCS	LOS	D		D	D					F	B		C		B	A	B	C
			Delay	37		35	36					296	20		29		10	6	10	22
			V/C	0.47		0.40						1.49	0.93				0.65	0.04		0.72
			Q	27		30						38	195				92	4		
			Stor.	-		-						50	-				-	30		
			Avail.	-		-						12	-				-	26		
	Trafalgar Rd & William Halton Parkway	TCS	LOS	F	E	D	F	F	F	F	F	F	E	C	E	F	D	C	E	F
			Delay	634	57	43	203	243	144	379	245	244	56	23	77	289	37	28	69	139
			V/C	2.27	0.85	0.36		1.38	1.18	1.70		1.39	0.99	0.05		1.49	0.78	0.35		1.16
			Q	222	140	54		84	230	350		136	266	0		170	161	58		
			Stor.	100	-	100		100	-	150		150	-	75		-	-	-		
			Avail.	-122	-	46		16	-	-200		14	-	75		-	-	-		
	Trafalgar Rd & Burnhamthorpe Rd	TCS	LOS	F	F	>	F	F	F	>	F	F	C	B	D	F	B	A	F	F
			Delay	878	212	>	345	1843	513	>	829	133	32	17	36	440	13	9	81	236
			V/C	2.76	1.34	>		4.92	2.03	>		1.08	0.88	0.24		1.85	0.52	0.19		1.18
			Q	96	202	>		163	342	>		64	178	25		111	86	23		
			Stor.	30	-	>		15	-	>		60	-	60		60	-	60		
			Avail.	-66	-	>		-148	-	>		-4	-	35		-51	-	37		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
< / > - Shared with through movement

4.4 Forecast Total Traffic Operations

The study area intersection operations analyses for the future background total used the same methodology as for the future background operations.

4.4.1 Total Operations – 2031

Table 4.7 summarizes the level of service conditions. The following critical movements are noted:

- **Trafalgar Road and Lower Base Line:**
  - Overall intersection – v/c ratio greater than 1.0 during AM and PM peak hours;
  - Eastbound through/right-turn – LOS E and v/c ratio of 0.97 during AM peak hour. LOS F and v/c ratio greater than 1.00 during PM peak hour;
  - Westbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during AM peak hour. LOS F and v/c ratio greater than 1.00 during PM peak hour;
  - Westbound through/right-turn – LOS F and v/c ratio greater than 1.00 during PM peak hour;
  - Northbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during PM peak hour; and
  - Southbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during AM peak hour.
- **Trafalgar Road and Highway 407 Westbound Ramp Terminal:**
  - Westbound left-turn – LOS D and v/c ratio of 0.79 during PM peak hour; and
  - Westbound through – LOS E and v/c ratio of 0.87 during PM peak hour.
- **Trafalgar Road and Highway 407 Eastbound Ramp Terminal:**
  - Northbound through – LOS D and v/c ratio greater than 1.00 during PM peak hour.
- **Trafalgar Road and Williams Parkway:**
  - Overall intersection – v/c ratio greater than 1.00 during AM and PM peak hours;

- Eastbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during AM and PM peak hours;
- Eastbound through – LOS E and v/c ratio of 0.98 during AM peak hour;
- Westbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during AM and PM peak hours;
- Westbound through LOS E and v/c ratio of 0.94 during AM peak hour. LOS F and v/c ratio greater than 1.00 during PM peak hour;
- Westbound right-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during AM and PM peak hours;
- Northbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during AM and PM peak hours; and
- Southbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during AM and PM peak hours.

- **Trafalgar Road and Burnhamthorpe Road:**
  - Overall intersection – v/c ratio greater then 1.00 during AM and PM peak hours;
  - Eastbound left-turn – queue exceeds storage during AM peak hour. LOS F, v/c ratio greater than 1.00, and queue exceeds storage during PM peak hour;
  - Eastbound through/right-turn – LOS F and v/c ratio greater than 1.00 during PM peak hour;
  - Westbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during AM peak hour;
  - Westbound through/right-turn – LOS F and v/c ratio greater than 1.00 during PM peak hour;
  - Northbound left-turn – LOS F and v/c ratio greater than 1,00 during AM peak hour;
  - Southbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during AM and PM peak hours;
- **William Halton Parkway and Street C:**
  - Southbound right-turn – LOS F and v/c ratio greater than 1.00 during the PM peak hour.
- **William Halton Parkway and Street D:**
  - Northbound left/through/right-turn – LOS F and v/c ratio greater than 1.00 during AM and PM peak hours; and

- Southbound left/through/right-turn LOS F, , v/c ratio greater than 1.00, and queue exceeds storage during AM and PM peak hours.

Appendix G1 contains the detailed Synchro reports.

The new municipal road connections to William Halton Parkway are forecast to operate with delay and capacity restraints in the AM and PM peak hours.

The capacity issues experienced under the background traffic horizon are expected to continue to occur with or without the first phase of development of the subject site.

TABLE 4.7A: 2031 TOTAL OPERATIONS (AM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Trafalgar Rd & Lower Base Line	TCS	LOS	D	E	>	E	F	C	>	F	E	D	C	D	F	C	B	D	E
			Delay	38	77	>	70	482	29	>	283	56	38	27	36	118	21	13	35	70
			V/C	0.39	0.97	>		1.95	0.37	>		0.54	0.78	0.16		1.10	0.63	0.05		1.00
			Q	38	138	>		130	54	>		17	112	17		128	109	4		
			Stor.	45	-	>		110	-	>		90	-	90		90	-	90		
			Avail.	7	-	>		-20	-	>		73	-	73		-38	-	86		
	Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off	TCS	LOS	<	C	>	C	D	D	C	D	A	A		A		B	A	B	B
			Delay	<	34	>	34	47	53	34	50	10	8		8		13	7	13	14
			V/C	<	0.03	>		0.68	0.74	0.01		0.23	0.44				0.65	0.00		0.58
			Q	<	0	>		44	28	0		2	74				141	0		
			Stor.	<	-	>		-	-	60		65	-				-	15		
			Avail.	<	-	>		-	-	60		63	-				-	15		
	Trafalgar Rd & Hwy 407 EB Off	TCS	LOS	B		C	C						B		B		B		B	B
			Delay	16		23	21						13		13		20		20	17
			V/C	0.17		0.55							0.70				0.90			0.58
			Q	14		35							61				94			
	Trafalgar Rd & William Halton Parkway	TCS	LOS	F	E	D	F	F	E	F	F	F	C	C	F	F	C	C	F	F
			Delay	281	77	42	106	741	68	214	255	294	30	22	81	999	29	30	331	207
			V/C	1.47	0.98	0.31		2.51	0.94	1.32		1.55	0.58	0.22		3.14	0.55	0.51		1.14
			Q	122	186	39		187	132	186		162	117	27		381	108	84		
			Stor.	100	-	100		100	-	150		150	-	75		150	-	150		
			Avail.	-22	-	61		-87	-	-36		-12	-	48		-231	-	66		
	Trafalgar Rd & Burnhamthorpe Rd	TCS	LOS	D	D	>	D	F	C	>	F	F	D	C	D	C	C	B	C	F
			Delay	50	44	>	46	803	30	>	439	100	46	25	47	24	20	13	20	86
			V/C	0.77	0.80	>		2.65	0.41	>		0.89	0.92	0.12		0.36	0.60	0.04		1.00
			Q	86	134	>		122	48	>		35	168	18		15	110	6		
			Stor.	30	-	>		15	-	>		60	-	60		60	-	60		
			Avail.	-56	-	>		-107	-	>		25	-	42		45	-	54		
	ARGO/Street C & William Halton Parkway	TWSC	LOS		A	>	A		A	>	A			B	B			D	D	A
			Delay		0	>	0		0	>	0			12	12			28	28	2
			V/C		0.68	>			0.50	>				0.16				0.63		
			Q		0	>			0	>				5				34		
	ARGO/Street D & William Halton Parkway	TWSC	LOS	<	C	>	B	<	A	>	A	<	F	>	F	<	F	>	F	
			Delay	<	18	>	11	<	3	>	1	<	Err	>	Err	<	Err	>	Err	
			V/C	<	0.67	>		<	0.09	>		<	Err	>		<	Err	>		
			Q	<	42	>		<	2	>		<	Err	>		<	Err	>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

TABLE 4.7B: 2031 TOTAL OPERATIONS (PM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Trafalgar Rd & Lower Base Line	TCS	LOS	F	D	>	E	E	F	>	F	F	C	C	E	E	B	B	C	D
			Delay	221	46	>	79	66	91	>	84	320	34	23	60	56	17	12	21	53
			V/C	1.19	0.68	>		0.90	1.05	>		1.56	0.81	0.22		0.81	0.50	0.05		1.05
			Q	44	93	>		84	196	>		125	156	13		64	88	2		
			Stor.	45	-	>		110	-	>		90	-	90		90	-	90		
			Avail.	1	-	>		26	-	>		-35	-	77		26	-	88		
	Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off	TCS	LOS	<	C	>	C	D	E	C	E	A	B		B		B	A	B	B
			Delay	<	32	>	32	53	66	32	58	9	13		13		14	9	14	19
			V/C	<	0.03	>		0.79	0.87	0.02		0.16	0.68				0.56	0.01		0.70
			Q	<	0	>		81	30	0		2	136				112	0		
			Stor.	<	-	>		-	-	60		65	-				-	15		
			Avail.	<	-	>		-	-	60		63	-				-	15		
	Trafalgar Rd & Hwy 407 EB Off	TCS	LOS	B		B	B						D		D		B		B	C
			Delay	17		20	19						40		40		18		18	30
			V/C	0.09		0.33							1.01				0.79			0.60
			Q	10		31							167				97			
	Trafalgar Rd & William Halton Parkway	TCS	LOS	F	E	D	F	F	F	F	F	F	D	C	E	F	C	C	F	F
			Delay	535	58	42	170	920	109	649	488	195	37	28	59	850	32	28	244	254
			V/C	2.05	0.86	0.30		2.92	1.09	2.31		1.32	0.78	0.36		2.76	0.59	0.34		1.18
			Q	198	142	44		222	204	497		134	174	27		346	114	56		
			Stor.	100	-	100		100	-	150		150	-	75		150	-	150		
			Avail.	-98	-	56		-122	-	-347		16	-	48		-196	-	94		
	Trafalgar Rd & Burnhamthorpe Rd	TCS	LOS	F	F	>	F	F	F	>	F	D	C	B	C	F	B	A	F	F
			Delay	807	144	>	284	1637	411	>	706	50	28	16	28	433	12	9	85	203
			V/C	2.60	1.18	>		4.46	1.80	>		0.73	0.80	0.19		1.84	0.46	0.16		1.10
			Q	90	166	>		147	295	>		44	154	19		110	74	17		
			Stor.	30	-	>		15	-	>		60	-	60		60	-	60		
			Avail.	-60	-	>		-132	-	>		16	-	41		-50	-	43		
	ARGO/Street C & William Halton Parkway	TWSC	LOS		A	>	A		A	>	A			B	B			F	F	D
			Delay		0	>	0		0	>	0			12	12			324	324	32
			V/C		0.60	>			0.76	>				0.07				1.60		
			Q		0	>			0	>				2				200		
	ARGO/Street D & William Halton Parkway	TWSC	LOS	<	F	>	F	<	A	>	A	<	F	>	F	<	F	>	F	
			Delay	<	169	>	110	<	4	>	2	<	Err	>	Err	<	Err	>	Err	
			V/C	<	1.28	>		<	0.14	>		<	Err	>		<	Err	>		
			Q	<	197	>		<	4	>		<	Err	>		<	Err	>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

4.4.2 Mitigation – Total 2031

As shown in the Total 2031 traffic operations, the two new municipal connections to William Halton Parkway are forecast to operate with delay and capacity constraints.

The intersection of William Halton Parkway at Street D was assessed using the OTM Book 12[18] signal warrant procedures for Justification 7 (forecast volumes). For forecast traffic, the signal warrant threshold has been separated into three 'Cases':

- Case 1 is "Signal is undoubtedly warranted" and the threshold for that is 200%;
- Case 2 is "Signal might be warranted" and its threshold is between 100%-199%; and
- Case 3 is "Signal warrant is unlikely" and that means the warrant is less than 100%.

Appendix G2 contains the warrant analysis. It indicates that traffic signals might be warranted at William Halton Parkway and Street D under future total 2031 conditions.

Due to high eastbound left-turn volume on William Halton Parkway to Street D, dual left-turn lanes would be needed. A westbound left-turn lane would also be required to accommodate the left-turn demand and lane balancing. Northbound and southbound left-turn lanes on the minor approaches would be required to accommodate forecast demand and lane balancing.

Table 4.8 summarizes the left-turn lane storage requirements for the intersection of William Halton Parkway and Street D based on the vehicle arrival rates and green plus amber times for urban/commuter intersections as noted in Table B7-5 of the MTO Geometric Design manual[19].

It indicates that with traffic signals:

- The eastbound left-turn lane would require a minimum of 120 metres of storage;
- The westbound left-turn lane would require a minimum of 55 metres of storage;

[18] Ontario Ministry of Transportation, *Ontario Traffic Manual Book 12: Traffic Signals*, (Toronto: Queen's Printer for Ontario, 2024).
[19] Ontario Ministry of Transportation, *Geometric Design Standards for Ontario Highways*, (Toronto: Queen's Printer for Ontario, 1985).

- The northbound left-turn lane would require a minimum of 115 metres of storage; and
- The southbound left-turn lane would require a minimum of 40 metres of storage.

TABLE 4.8: LEFT-TURN LANE STORAGE REQUIREMENTS

	Intersection	Parameters	EBL1	EBL2	EBT	EBTR	WBL	WBT	WBTR	NBL	NBTR	SBL	SBTR
AM Peak Hour	William Halton Parkway at Street D/ARGO (TT 2031)	Volume (vph)	193	289	478	718	54	314	471	293	99	49	135
		Heavy Vehicle %	0	0	2	1	0	2	1	0	0	0	0
		Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120
		Passenger Cars Per Hour	193	289	1434	1390	54	942	934	293	99	49	135
		Number of Lanes	1	1	1	1	1	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	6.4	9.6	47.8	46.3	1.8	31.4	31.1	9.8	3.3	1.6	4.5
		Queue (vehicles)*	11	15	35	35	4	35	35	15	6	4	8
		Queue (m)	83	113	263	263	30	263	263	113	45	30	60
PM Peak Hour	William Halton Parkway at Street D/ARGO (TT 2031)	Volume (vph)	213	320	367	551	111	544	815	248	47	77	203
		Heavy Vehicle %	0	0	2	1	0	2	1	0	0	0	0
		Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120
		Passenger Cars Per Hour	213	320	1101	1043	111	1632	1625	248	47	77	203
		Number of Lanes	1	1	1	1	1	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	7.1	10.7	36.7	34.8	3.7	54.4	54.2	8.3	1.6	2.6	6.8
		Queue (vehicles)*	12	16	35	35	7	35	35	13	4	5	11
		Queue (m)	90	120	263	263	53	263	263	98	30	38	83

**Ontario Ministry of Transportation, Implementation of the Traffic Signal Operating & Timing Policy # 2010-02, (Toronto: Queen's Printer for Ontario, 2017).*

For the intersection of Trafalgar Road and William Halton Parkway, dual left-turn lanes have been included for all approaches due to their high left-turn volumes. All other signalized intersections have been optimized.

Table 4.9 summarizes the level of service conditions with the improvements noted above. It indicates that with the mitigation noted above, the study area intersections are forecast to continue to operate with delay and capacity constraints.

Appendix G3 contains the detailed Synchro reports.



TABLE 4.9A: 2031 TOTAL WITH IMPROVEMENTS OPERATIONS (AM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Trafalgar Rd & Lower Base Line	TCS	LOS	D	E	>	E	F	C	>	F	C	E	C	D	F	C	C	D	E
			Delay	36	61	>	56	271	24	>	163	30	55	32	51	84	34	21	41	61
			V/C	0.37	0.90	>		1.49	0.33	>		0.35	0.95	0.16		0.99	0.81	0.05		0.88
			Q	36	122	>		112	47	>		9	127	19		121	145	1		
			Stor.	45	-	>		110	-	>		90	-	90		90	-	90		
			Avail.	9	-	>		-2	-	>		81	-	71		-31	-	89		
	Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off	TCS	LOS	<	C	>	C	C	D	C	C	A	A		A		B	A	B	B
			Delay	<	23	>	23	33	38	23	35	9	8		8		15	8	15	14
			V/C	<	0.03	>		0.66	0.72	0.01		0.17	0.49				0.77	0.00		0.58
			Q	<	0	>		32	20	0		1	52				110	0		
			Stor.	<	-	>		-	-	60		65	-				-	15		
			Avail.	<	-	>		-	-	60		64	-				-	15		
	Trafalgar Rd & Hwy 407 EB Off	TCS	LOS	B		C	C						B		B		B		B	B
			Delay	16		23	21						13		13		20		20	17
			V/C	0.17		0.55							0.70				0.90			0.58
			Q	14		35							61				94			
	Trafalgar Rd & William Halton Parkway	TCS	LOS	F	F	D	F	F	E	D	E	D	F	C	E	F	D	C	E	E
			Delay	91	119	36	100	126	67	43	71	40	81	33	66	109	44	34	62	72
			V/C	0.86	1.10	0.29		1.05	0.92	0.83		0.75	1.00	0.30		1.06	0.69	0.61		0.95
			Q	57	214	38		75	139	131		47	186	43		148	142	117		
			Stor.	100	-	100		100	-	150		150	-	75		150	-	150		
			Avail.	43	-	62		25	-	19		103	-	32		2	-	33		
	Trafalgar Rd & Burnhamthorpe Rd	TCS	LOS	D	D	>	D	F	C	>	F	D	D	C	D	D	C	B	C	E
			Delay	39	37	>	38	496	26	>	275	43	36	22	36	40	33	20	33	64
			V/C	0.68	0.74	>		1.98	0.37	>		0.63	0.83	0.11		0.63	0.76	0.04		0.88
			Q	75	126	>		111	45	>		15	154	16		16	139	7		
			Stor.	30	-	>		15	-	>		60	-	60		60	-	60		
			Avail.	-45	-	>		-96	-	>		45	-	44		44	-	53		
	ARGO/Street C & William Halton Parkway	TWSC	LOS		A	>	A		A	>	A			B	B			B	B	A
			Delay		0	>	0		0	>	0			13	13			11	11	1
			V/C		0.68	>			0.50	>				0.18				0.31		
			Q		0	>			0	>				5				11		
	ARGO/Street D & William Halton Parkway	TCS	LOS	D	B	>	C	D	D	>	D	D	B	>	C	B	B	>	B	C
			Delay	43	15	>	23	48	48	>	48	38	20	>	34	20	19	>	20	31
			V/C	0.86	0.71	>		0.58	0.94	>		0.82	0.17	>		0.13	0.11	>		0.92
			Q	82	132	>		31	131	>		77	20	>		14	13	>		
			Stor.	-	-	>		-	-	>		50	-	>		-	-	>		
			Avail.	-	-	>		-	-	>		-27	-	>		-	-	>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

TABLE 4.9B: 2031 TOTAL WITH IMPROVEMENTS OPERATIONS (PM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Trafalgar Rd & Lower Base Line	TCS	LOS	D	D	>	D	C	F	>	E	E	D	C	D	E	D	C	D	D
			Delay	38	39	>	39	26	86	>	70	63	50	28	48	74	39	26	42	49
			V/C	0.58	0.59	>		0.63	1.04	>		0.90	0.95	0.26		0.92	0.80	0.05		0.93
			Q	17	90	>		56	195	>		80	187	21		70	135	0		
			Stor.	45	-	>		110	-	>		90	-	90		90	-	90		
			Avail.	28	-	>		54	-	>		10	-	69		20	-	90		
	Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off	TCS	LOS	<	C	>	C	D	D	C	D	A	B		B		B	A	B	B
			Delay	<	24	>	24	38	46	24	41	10	14		14		15	10	15	18
			V/C	<	0.03	>		0.74	0.81	0.02		0.18	0.74				0.63	0.01		0.70
			Q	<	0	>		64	24	0		3	137				110	0		
			Stor.	<	-	>		-	-	60		65	-				-	15		
			Avail.	<	-	>		-	-	60		62	-				-	15		
	Trafalgar Rd & Hwy 407 EB Off	TCS	LOS	C		C	C						C		C		B		B	B
			Delay	21		25	24						21		21		15		15	18
			V/C	0.10		0.37							0.90				0.70			0.60
			Q	12		36							147				95			
	Trafalgar Rd & William Halton Parkway	TCS	LOS	F	F	D	F	F	F	F	F	E	F	D	F	F	D	D	D	F
			Delay	249	88	44	119	315	141	292	237	66	100	42	86	85	42	35	52	128
			V/C	1.36	1.01	0.16		1.53	1.17	1.54		0.76	1.09	0.45		0.96	0.72	0.37		1.12
			Q	98	168	24		100	213	445		60	235	31		124	133	61		
			Stor.	150	-	100		150	-	150		150	-	75		150	-	150		
			Avail.	52	-	76		50	-	-295		90	-	44		26	-	89		
	Trafalgar Rd & Burnhamthorpe Rd	TCS	LOS	E	F	>	F	F	F	>	F	D	F	C	F	F	C	C	E	F
			Delay	56	122	>	108	249	373	>	343	39	126	27	113	253	30	20	68	140
			V/C	0.83	1.13	>		1.42	1.71	>		0.71	1.18	0.18		1.43	0.69	0.15		1.08
			Q	51	159	>		107	288	>		21	228	13		95	121	17		
			Stor.	30	-	>		15	-	>		60	-	60		60	-	60		
			Avail.	-21	-	>		-92	-	>		39	-	47		-35	-	43		
	ARGO/Street C & William Halton Parkway	TWSC	LOS		A	>	A		A	>	A			B	B			C	C	A
			Delay		0	>	0		0	>	0			11	11			20	20	2
			V/C		0.60	>			0.76	>				0.07				0.63		
			Q		0	>			0	>				2				36		
	ARGO/Street D & William Halton Parkway	TCS	LOS	F	B	>	F	B	D	>	D	E	C	>	E	D	D	>	D	E
			Delay	319	18	>	128	16	42	>	40	72	30	>	65	52	48	>	49	80
			V/C	1.57	0.55	>		0.40	0.95	>		0.93	0.05	>		0.57	0.47	>		0.99
			Q	141	107	>		20	241	>		89	11	>		35	40	>		
			Stor.	120	-	>		55	-	>		115	-	>		-	-	>		
			Avail.	-21	-	>		35	-	>		26	-	>		-	-	>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

4.4.3 Total Operations – 2036

Table 4.10 summarizes the level of service conditions based on forecast 2036 total traffic volumes and the 2031 total mitigation network. The following critical movements are noted:

- **Trafalgar Road and Lower Base Line:**
  - Overall intersection – v/c ratio greater than 1.0 during AM and PM peak hours;
  - Eastbound through/right-turn – LOS F and v/c ratio greater than 1.00 during AM peak hour;
  - Westbound left-turn – LOS F, v/c ratio greater than 1.00, and queue greater than available storage during AM peak hour;
  - Westbound through/right-turn – LOS F and v/c ratio greater than 1.00 during PM peak hour;
  - Northbound left-turn – LOS F and v/c ratio of 0.79 during AM peak hour. LOS F, v/c ratio greater than 1.00, and queue exceeds storage during PM peak hour;
  - Northbound through – LOS F and v/c ratio greater than 1.00 during AM and PM peak hours; and
  - Southbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during AM peak hour. LOS F and v/c ratio greater than 1.00 during PM peak hour.
  - Southbound through – LOS D and v/c ratio of 0.97 during PM peak hour.
- **Trafalgar Road and Highway 407 Westbound Ramp Terminal:**
  - Westbound left-turn – LOS E and v/c ratio of 0.90 during PM peak hour;
  - Westbound through – LOS F and v/c ratio of 0.99 during PM peak hour;
  - Northbound through – LOS C and v/c ratio of 0.91 during PM peak hour; and
  - Southbound through – LOS C and v/c ratio of 0.94 during AM peak hour.
- **Trafalgar Road and Highway 407 Eastbound Ramp Terminal:**

- Eastbound right-turn – LOS D and v/c ratio of 0.82 during the AM peak hour. LOS E and v/c ratio of 0.92 during PM peak hour;
- Northbound through – LOS C and v/c ratio of 0.94 during AM peak hour. LOS C and v/c ratio of 0.95 during PM peak hour; and
- Southbound through – LOS E and v/c ratio greater than 1.00 during AM peak hour.

- **Trafalgar Road and Williams Parkway:**
  - Overall intersection – v/c ratio greater than 1.00 during AM and PM peak hours;
  - Eastbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during AM and PM peak hours;
  - Eastbound through – LOS F and v/c ratio greater than 1.00 during AM and PM peak hours;
  - Westbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during AM and PM peak hours;
  - Westbound through LOS F and v/c ratio greater than 1.00 during AM and PM peak hours;
  - Westbound right-turn – LOS E and v/c ratio of 0.93 during AM peak hour. LOS F, v/c ratio greater than 1.00, and queue exceeds storage during PM peak hour;
  - Northbound left-turn – LOS F, v/c ratio greater of 0.99 during AM peak hour. LOS F and v/c ratio greater than 1.00 during PM peak hour;
  - Northbound through – LOS E and v/c ratio greater than 1.00 during AM peak hour. LOS F and v/c ratio greater than 1.00 during PM peak hour;
  - Southbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during AM peak hour. LOS F and v/c ratio greater than 1.00 during PM peak hour;
  - Southbound through – LOS E and v/c ratio greater than 1.00 during PM peak hour; and
  - Southbound right-turn – queue exceeds storage during AM and PM peak hours.
- **Trafalgar Road and Burnhamthorpe Road:**
  - Overall intersection – v/c ratio greater then 1.00 during AM and PM peak hours;

- Eastbound left-turn –LOS F, v/c ratio greater than 1.00, and queue exceeds storage during AM and PM peak hours;
- Eastbound through/right-turn – LOS F and v/c ratio greater than 1.00 during PM peak hour;
- Westbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during AM and PM peak hours;
- Westbound through/right-turn – LOS F and v/c ratio greater than 1.00 during PM peak hour;
- Northbound left-turn – LOS F, v/c ratio greater than 1,00, and queue exceeds storage during AM and PM peak hours;
- Northbound through – LOS E/F and v/c ratio greater than 1.00 during the AM and PM peak hours;
- Southbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during PM peak hour; and
- Southbound through – LOS E and v/c ratio greater than 1.00 during PM peak hour.

- **William Halton Parkway and Street D:**
  - Eastbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during PM peak hour;
  - Westbound through/right-turn – LOS D and v/c ratio of 0.98 during AM peak hour. LOS F and v/c ratio greater than 1.00 during PM peak hour;
  - Northbound left-turn – LOS F, v/c ratio of 0.95, and queue exceeds storage during PM peak hour.
- **William Halton Parkway and West Drive:**
  - Northbound left/through/right-turn – LOS F and v/c ratio greater than 1.00 during AM and PM peak hours; and
  - Southbound left/through/right-turn – LOS F and v/c ratio greater than 1.00 during AM and PM peak hours.
- **Burnhamthorpe Road and West Drive:**
  - Southbound left/right-turn – LOS F and v/c ratio of 0.87 during AM peak hour. LOS F and v/c ratio greater than 1.0 during PM peak hour.

Appendix G4 contains the detailed Synchro reports.

The new municipal road connections to William Halton Parkway west of Trafalgar Road are forecast to operate with delay and capacity restraints in the AM and PM peak hours.

The capacity issues experienced under the background traffic horizon are expected to continue to occur with or without the first phase of development of the subject site.

TABLE 4.10A: 2036 TOTAL OPERATIONS (AM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Trafalgar Rd & Lower Base Line	TCS	LOS	D	F	>	F	F	C	>	F	F	F	C	F	F	C	B	D	F
			Delay	42	145	>	125	194	25	>	122	107	142	34	123	138	30	16	45	91
			V/C	0.49	1.17	>		1.30	0.37	>		0.79	1.21	0.33		1.16	0.83	0.06		1.10
			Q	43	171	>		122	55	>		24	195	40		144	160	5		
			Stor.	45	-	>		110	-	>		90	-	90		90	-	90		
			Avail.	2	-	>		-12	-	>		66	-	50		-54	-	85		
	Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off	TCS	LOS	<	C	>	C	D	D	C	D	B	B		B		C	A	C	C
			Delay	<	22	>	22	42	53	22	46	13	11		11		25	8	24	21
			V/C	<	0.03	>		0.79	0.86	0.01		0.17	0.67				0.94	0.00		0.67
			Q	<	0	>		43	26	0		1	79				161	0		
			Stor.	<	-	>		-	-	60		65	-				-	15		
			Avail.	<	-	>		-	-	60		64	-				-	15		
	Trafalgar Rd & Hwy 407 EB Off	TCS	LOS	B		D	C						C		C		E		E	D
			Delay	16		36	32						23		23		63		63	43
			V/C	0.19		0.82							0.94				1.09			0.71
			Q	15		60							99				150			
	Trafalgar Rd & William Halton Parkway	TCS	LOS	F	F	D	F	F	F	E	F	F	F	C	F	F	D	D	E	F
			Delay	754	213	39	366	201	97	59	106	84	108	33	94	145	48	40	72	150
			V/C	2.50	1.33	0.44		1.24	1.04	0.93		0.99	1.10	0.35		1.15	0.86	0.78		1.06
			Q	210	273	64		88	158	151		87	234	52		165	187	160		
			Stor.	100	-	100		100	-	150		150	-	75		150	-	150		
			Avail.	-110	-	36		12	-	-1		63	-	23		-15	-	-10		
	Trafalgar Rd & Burnhamthorpe Rd	TCS	LOS	F	D	>	F	F	C	>	F	F	E	C	F	D	C	B	C	F
			Delay	386	50	>	199	1172	32	>	587	1769	62	25	275	39	24	13	25	208
			V/C	1.74	0.87	>		3.46	0.51	>		4.76	1.01	0.13		0.65	0.73	0.05		1.08
			Q	218	150	>		111	62	>		126	203	20		32	148	7		
			Stor.	30	-	>		15	-	>		60	-	60		60	-	60		
			Avail.	-188	-	>		-96	-	>		-66	-	40		28	-	53		
	ARGO/Street C & William Halton Parkway	TWSC	LOS		A	>	A		A	>	A			C	C			B	B	A
			Delay		0	>	0		0	>	0			16	16			12	12	1
			V/C		0.77	>			0.53	>				0.23				0.32		
			Q		0	>			0	>				7				11		
	ARGO/Street D & William Halton Parkway	TCS	LOS	D	B	>	C	D	D	>	D	D	C	>	C	B	B	>	B	C
			Delay	54	19	>	28	53	53	>	53	38	20	>	34	20	19	>	20	35
			V/C	0.92	0.83	>		0.63	0.98	>		0.82	0.20	>		0.13	0.11	>		0.98
			Q	86	190	>		32	144	>		77	22	>		14	13	>		
			Stor.	-	-	>		-	-	>		50	-	>		-	-	>		
			Avail.	-	-	>		-	-	>		-27	-	>		-	-	>		
	Street F & William Halton Parkway	TWSC	LOS		A	>	A		A	A	A			D	D			C	C	A
			Delay		0	>	0		0	0	0			26	26			16	16	2
			V/C		0.75	>			0.43	0.43				0.35				0.56		
			Q		0	>			0	0				12				29		
			Stor.	-	-	>		-	-	50		-	-	-		-	-	-		
			Avail.	-	-	>		-	-	50		-	-	-		-	-	-		
	West Drive & William Halton Parkway	TWSC	LOS	<	A	>	A	<	C	>	B	<	F	>	F	<	F	>	F	F
			Delay	<	1	>	0	<	24	>	13	<	Err	>	Err	<	Err	>	Err	
			V/C	<	0.03	>		<	0.58	>		<	Err	>		<	Err	>		
			Q	<	1	>		<	28	>		<	Err	>		<	Err	>		
	West Drive & Loyalist Trail	TWSC	LOS	<	A	>	A	<	A	>	A	<	B	>	B	<	C	>	C	A
			Delay	<	6	>	6	<	0	>	0	<	14	>	14	<	20	>	20	10
			V/C	<	0.03	>		<	0.00	>		<	0.33	>		<	0.56	>		
			Q	<	1	>		<	0	>		<	11	>		<	27	>		
	Loyalist Trail & Street F	TWSC	LOS	<	A		A		A	>	A					C		>	C	A
			Delay	<	2		2		0	>	0					15		>	15	6
			V/C	<	0.03				0.19	>						0.47		>		
			Q	<	1				0	>						20		>		
	Trafalgar Rd & Loyalist Trail/ARGO	TWSC	LOS			B	B			B	B		A	A	A		A	A	A	A
			Delay			12	12			11	11		0	0	0		0	0	0	1
			V/C			0.29				0.12			0.42	0.42			0.38	0.38		
			Q			10				3			0	0			0	0		
	Burhamthorpe Rd & West Drive	TWSC	LOS	<	A		A		A	>	A					F		>	F	B
			Delay	<	0		0		0	>	0					74		>	74	11
			V/C	<	0.01				0.25	>						0.87		>		
			Q	<	0				0	>						56		>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

TABLE 4.10B: 2036 TOTAL OPERATIONS (PM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Trafalgar Rd & Lower Base Line	TCS	LOS	D	D	>	D	D	F	>	F	F	F	B	F	F	D	C	E	E
			Delay	40	50	>	48	41	158	>	125	132	89	19	81	128	51	21	57	78
			V/C	0.57	0.75	>		0.83	1.23	>		1.12	1.10	0.47		1.10	0.97	0.06		1.04
			Q	19	109	>		74	238	>		101	247	51		86	198	1		
			Stor.	45	-	>		110	-	>		90	-	90		90	-	90		
			Avail.	26	-	>		36	-	>		-11	-	39		4	-	89		
	Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off	TCS	LOS	<	C	>	C	E	F	C	E	B	C		C		C	B	C	C
			Delay	<	27	>	27	60	83	27	70	16	24		24		22	11	22	28
			V/C	<	0.03	>		0.90	0.99	0.02		0.24	0.91				0.80	0.01		0.84
			Q	<	0	>		116	36	0		3	204				163	0		
			Stor.	<	-	>		-	-	60		65	-				-	15		
			Avail.	<	-	>		-	-	60		62	-				-	15		
	Trafalgar Rd & Hwy 407 EB Off	TCS	LOS	C		E	E						C		C		B		B	C
			Delay	31		71	65						24		24		15		15	23
			V/C	0.14		0.92							0.95				0.79			0.75
			Q	16		113							232				149			
	Trafalgar Rd & William Halton Parkway	TCS	LOS	F	F	D	F	F	F	F	F	F	F	D	F	F	E	E	F	F
			Delay	1082	140	47	494	319	163	352	271	146	160	43	142	123	78	55	83	225
			V/C	3.24	1.16	0.31		1.54	1.22	1.68		1.14	1.24	0.51		1.09	1.04	0.83		1.33
			Q	250	207	42		107	234	489		108	291	38		140	223	184		
			Stor.	150	-	100		150	-	150		150	-	75		150	-	150		
			Avail.	-100	-	58		43	-	-339		42	-	37		10	-	-34		
	Trafalgar Rd & Burnhamthorpe Rd	TCS	LOS	F	F	>	F	F	F	>	F	F	F	C	F	F	E	C	F	F
			Delay	362	91	>	185	332	409	>	392	367	258	33	256	424	67	29	129	229
			V/C	1.68	1.04	>		1.61	1.79	>		1.69	1.47	0.24		1.82	1.01	0.24		1.30
			Q	164	162	>		128	359	>		160	309	20		146	212	35		
			Stor.	30	-	>		15	-	>		60	-	60		60	-	60		
			Avail.	-134	-	>		-113	-	>		-100	-	40		-86	-	25		
	ARGO/Street C & William Halton Parkway	TWSC	LOS		A	>	A		A	>	A			B	B			C	C	A
			Delay		0	>	0		0	>	0			13	13			18	18	2
			V/C		0.67	>			0.83	>				0.08				0.61		
			Q		0	>			0	>				2				33		
	ARGO/Street D & William Halton Parkway	TCS	LOS	F	C	>	E	B	F	>	F	F	C	>	E	C	C	>	C	F
			Delay	176	24	>	74	20	118	>	111	82	30	>	73	32	31	>	31	87
			V/C	1.24	0.68	>		0.47	1.16	>		0.95	0.05	>		0.21	0.16	>		1.05
			Q	130	146	>		20	306	>		117	11	>		29	20	>		
			Stor.	120	-	>		55	-	>		115	-	>		-	-	>		
			Avail.	-10	-	>		35	-	>		-2	-	>		-	-	>		
	Street F & William Halton Parkway	TWSC	LOS		A	>	A		A	A	A			D	D			C	C	A
			Delay		0	>	0		0	0	0			29	29			17	17	2
			V/C		0.77	>			0.49	0.49				0.36				0.55		
			Q		0	>			0	0				12				27		
			Stor.	-	-	>		-	-	50		-	-	-		-	-	-		
			Avail.	-	-	>		-	-	50		-	-	-		-	-	-		
	West Drive & William Halton Parkway	TWSC	LOS	<	A	>	A	<	C	>	A	<	F	>	F	<	F	>	F	F
			Delay	<	2	>	1	<	19	>	10	<	Err	>	Err	<	Err	>	Err	
			V/C	<	0.05	>		<	0.44	>		<	70.93	>		<	Err	>		
			Q	<	1	>		<	17	>		<	Err	>		<	Err	>		
	West Drive & Loyalist Trail	TWSC	LOS	<	A	>	A	<	A	>	A	<	B	>	B	<	D	>	D	B
			Delay	<	6	>	6	<	0	>	0	<	15	>	15	<	25	>	25	11
			V/C	<	0.08	>		<	0.00	>		<	0.42	>		<	0.58	>		
			Q	<	2	>		<	0	>		<	17	>		<	28	>		
	Loyalist Trail & Street F	TWSC	LOS	<	A		A		A	>	A					C		>	C	A
			Delay	<	4		4		0	>	0					17		>	17	6
			V/C	<	0.11				0.23	>						0.46		>		
			Q	<	3				0	>						19		>		
	Trafalgar Rd & Loyalist Trail/ARGO	TWSC	LOS			B	B			B	B		A	A	A		A	A	A	A
			Delay			12	12			10	10		0	0	0		0	0	0	1
			V/C			0.29				0.09			0.51	0.51			0.40	0.40		
			Q			10				2			0	0			0	0		
			Stor.	-	-	-		-	-	-		-	-	50		-	-	50		
			Avail.	-	-	-		-	-	-		-	-	50		-	-	50		
	Burnhamthorpe Rd & West Drive	TWSC	LOS	<	A		A		A	>	A					F		>	F	F
			Delay	<	0		0		0	>	0					772		>	772	75
			V/C	<	0.01				0.58	>						2.43		>		
			Q	<	0				0	>						135		>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

4.4.1 Mitigation – Total 2036

As shown in the Total 2036 traffic operations, the two new municipal connections to William Halton Parkway as well as Burnhamthorpe Road at West Drive are forecast to operate with delay and capacity constraints.

The intersection of William Halton Parkway at West Drive and Burnhamthorpe Road at West Drive were assessed using the OTM Book 12 signal warrant procedures for Justification 7 (forecast volumes).

Appendix G5 contains the traffic signal justification. It indicates that traffic control signals:

- Might be warranted at William Halton Parkway and West Drive under 2036 total traffic conditions; and
- Unlikely at Burnhamthorpe Road and West Drive under 2036 total traffic conditions.

Table 4.11 summarizes the left-turn lane storage requirements for the intersection of William Halton Parkway and West Drive based on the vehicle arrival rates and green plus amber times for urban/commuter intersections as noted in Table B7-5 of the MTO Geometric Design manual.

It indicates that with traffic signals:

- The eastbound left-turn lane would require a minimum of 15 metres of storage;
- The westbound left-turn lane would require a minimum of 90 metres of storage;
- The northbound left-turn lane would require a minimum of 25 metres of storage; and
- The southbound left-turn lane would require a minimum of 55 metres of storage.

TABLE 4.11: LEFT-TURN LANE STORAGE REQUIREMENTS

	Intersection	Parameter	EBL	EBT	EBTR	WBL	WBT	WBTR	NBL	NBTR	SBL	SBTR
AM Peak Hour	William Halton Parkway at West Drive (TT 2036)	Volume (vph)	11	560	839	231	600	900	29	348	97	8
		Heavy Vehicle %	0	2	0.9678	0	2	0.966	0	0	0	0
		Cycle Length (s)	120	120	120	120	120	120	120	120	120	120
		Passenger Cars Per Hour	11	1680	1652	231	1800	1770	29	348	97	8
		Number of Lanes	1	1	1	1	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	0.4	56	55.1	7.7	60	59	1	11.6	3.2	0.3
		Queue (vehicles)*	2	35	35	12	35	35	3	17	6	1
		Queue (m)	15	263	263	90	263	263	23	128	45	8
PM Peak Hour	William Halton Parkway at West Drive (TT 2036)	Volume (vph)	16	586	880	164	679	1018	32	392	110	7
		Heavy Vehicle %	0	2	0.9618	0	2	0.9582	0	0	0	0
		Cycle Length (s)	120	120	120	120	120	120	120	120	120	120
		Passenger Cars Per Hour	16	1758	1727	164	2037	1994	32	392	110	7
		Number of Lanes	1	1	1	1	1	1	1	1	1	1
		Arrival Rate (veh/s/lane)	0.5	58.6	57.6	5.5	67.9	66.5	1.1	13.1	3.7	0.2
		Queue (vehicles)*	2	35	35	10	35	35	3	19	7	1
		Queue (m)	15	263	263	75	263	263	23	143	53	8

*Ontario Ministry of Transportation, *Implementation of the Traffic Signal Operating & Timing Policy # 2010-02,* (Toronto: Queen's Printer for Ontario, 2017).

Table 4.12 summarizes the level of service conditions with the improvements noted above. All other signalized intersections have been optimized. It indicates that with the mitigation noted above, the study area intersections are forecast to continue to operate with delay and capacity constraints.

Appendix G6 contains the detailed Synchro reports.

TABLE 4.12A: 2036 TOTAL WITH IMPROVEMENTS OPERATIONS (AM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Trafalgar Rd & Lower Base Line	TCS	LOS	D	F	>	F	F	C	>	F	F	D	C	D	F	C	B	D	F
			Delay	50	254	>	214	369	33	>	225	100	41	25	40	188	20	12	44	82
			V/C	0.59	1.42	>		1.71	0.47	>		0.79	0.91	0.28		1.28	0.71	0.05		1.10
			Q	46	192	>		140	66	>		24	149	29		152	131	4		
			Stor.	45	-	>		110	-	>		90	-	90		90	-	90		
			Avail.	-1	-	>		-30	-	>		66	-	61		-62	-	86		
	Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off	TCS	LOS	<	C	>	C	D	D	C	D	B	B		B		C	A	C	C
			Delay	<	22	>	22	42	53	22	46	13	11		11		25	8	24	21
			V/C	<	0.03	>		0.79	0.86	0.01		0.17	0.67				0.94	0.00		0.67
			Q	<	0	>		43	26	0		1	79				161	0		
			Stor.	<	-	>		-	-	60		65	-				-	15		
			Avail.	<	-	>		-	-	60		64	-				-	15		
	Trafalgar Rd & Hwy 407 EB Off	TCS	LOS	C		E	D						B		B		C		C	C
			Delay	26		55	49						17		17		23		23	22
			V/C	0.20		0.88							0.80				0.93			0.71
			Q	22		85							115				160			
	Trafalgar Rd & William Halton Parkway	TCS	LOS	F	F	C	F	F	F	F	F	F	F	C	E	F	E	C	F	F
			Delay	322	126	34	177	287	139	112	161	85	86	32	79	310	56	34	120	131
			V/C	1.56	1.14	0.45		1.45	1.16	1.10		1.00	1.05	0.40		1.54	0.94	0.75		1.06
			Q	172	235	66		91	164	163		83	213	59		182	195	143		
			Stor.	100	-	100		100	-	150		150	-	75		150	-	150		
			Avail.	-72	-	34		9	-	-13		67	-	16		-32	-	7		
	Trafalgar Rd & Burnhamthorpe Rd	TCS	LOS	F	F	>	F	F	E	>	F	F	C	C	D	F	D	C	D	F
			Delay	550	237	>	376	400	63	>	227	172	34	20	51	101	42	21	46	125
			V/C	2.09	1.37	>		1.75	0.82	>		1.21	0.78	0.11		0.99	0.88	0.05		0.99
			Q	233	244	>		104	90	>		88	180	18		44	208	5		
			Stor.	30	-	>		15	-	>		60	-	60		60	-	60		
			Avail.	-203	-	>		-89	-	>		-28	-	42		16	-	55		
	ARGO/Street C & William Halton Parkway	TWSC	LOS		A	>	A		A	>	A			B	B			B	B	A
			Delay		0	>	0		0	>	0			14	14			12	12	1
			V/C		0.77	>			0.53	>				0.20				0.32		
			Q		0	>			0	>				6				11		
	ARGO/Street D & William Halton Parkway	TCS	LOS	D	B	>	C	D	D	>	D	D	C	>	C	B	B	>	B	C
			Delay	54	19	>	28	53	53	>	53	38	20	>	34	20	19	>	20	35
			V/C	0.92	0.83	>		0.63	0.98	>		0.82	0.20	>		0.13	0.11	>		0.98
			Q	86	190	>		32	144	>		77	22	>		14	13	>		
			Stor.	-	-	>		-	-	>		50	-	>		-	-	>		
			Avail.	-	-	>		-	-	>		-27	-	>		-	-	>		
	Street F & William Halton Parkway	TWSC	LOS		A	>	A		A	A	A			B	B			B	B	A
			Delay		0	>	0		0	0	0			12	12			15	15	2
			V/C		0.75	>			0.43	0.43				0.14				0.53		
			Q		0	>			0	0				4				25		
			Stor.	-	-	>		-	-	50		-	-	-		-	-	-		
			Avail.	-	-	>		-	-	50		-	-	-		-	-	-		
	West Drive & William Halton Parkway	TCS	LOS	B	C	>	C	E	B	>	C	D	D	>	D	D	C	>	D	C
			Delay	16	34	>	34	70	15	>	23	38	52	>	51	42	30	>	42	30
			V/C	0.12	0.91	>		0.93	0.74	>		0.14	0.72	>		0.66	0.01	>		1.01
			Q	7	252	>		102	198	>		15	70	>		32	4	>		
			Stor.	100	-	>		100	-	>		50	-	>		50	-	>		
			Avail.	93	-	>		-2	-	>		35	-	>		18	-	>		
	West Drive & Loyalist Trail	TWSC	LOS	<	A	>	A	<	A	>	A	<	B	>	B	<	C	>	C	A
			Delay	<	6	>	6	<	0	>	0	<	14	>	14	<	20	>	20	10
			V/C	<	0.03	>		<	0.00	>		<	0.33	>		<	0.56	>		
			Q	<	1	>		<	0	>		<	11	>		<	27	>		
	Loyalist Trail & Street F	TWSC	LOS	<	A		A		A	>	A						C	>	C	A
			Delay	<	2		2		0	>	0						15	>	15	6
			V/C	<	0.03				0.19	>							0.47	>		
			Q	<	1				0	>							20	>		
	Trafalgar Rd & Loyalist Trail/ARGO	TWSC	LOS			B	B			B	B		A	A	A		A	A	A	A
			Delay			12	12			10	10		0	0	0		0	0	0	1
			V/C			0.30				0.11			0.42	0.42			0.38	0.38		
			Q			10				3			0	0			0	0		
	Burhamthorpe Rd & West Drive	TWSC	LOS	<	A		A		A	>	A					F		>	F	B
			Delay	<	0		0		0	>	0					73		>	73	11
			V/C	<	0.01				0.25	>						0.86		>		
			Q	<	0				0	>						56		>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

TABLE 4.12B: 2031 TOTAL WITH IMPROVEMENTS OPERATIONS (PM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Overall
PM Peak Hour	Trafalgar Rd & Lower Base Line	TCS	LOS	D	E	>	E	E	F	>	F	F	D	C	D	F	D	C	D	E
			Delay	41	72	>	66	77	247	>	199	135	50	25	53	132	37	21	45	75
			V/C	0.55	0.90	>		0.98	1.43	>		1.13	0.98	0.37		1.11	0.87	0.06		1.04
			Q	20	125	>		109	266	>		101	226	28		86	171	0		
			Stor.	45	-	>		110	-	>		90	-	90		90	-	90		
			Avail.	25	-	>		1	-	>		-11	-	62		4	-	90		
	Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off	TCS	LOS	<	C	>	C	E	F	C	E	B	C		C		C	B	C	C
			Delay	<	27	>	27	60	83	27	70	16	24		24		22	11	22	28
			V/C	<	0.03	>		0.90	0.99	0.02		0.24	0.91				0.80	0.01		0.84
			Q	<	0	>		116	36	0		3	204				163	0		
			Stor.	<	-	>		-	-	60		65	-				-	15		
			Avail.	<	-	>		-	-	60		62	-				-	15		
	Trafalgar Rd & Hwy 407 EB Off	TCS	LOS	C		D	D						D		D		B		B	C
			Delay	26		51	47						38		38		18		18	30
			V/C	0.13		0.83							1.01				0.85			0.75
			Q	15		98							250				152			
	Trafalgar Rd & William Halton Parkway	TCS	LOS	F	F	D	F	F	F	F	F	F	F	D	F	F	E	E	F	F
			Delay	1082	140	47	494	319	163	352	271	146	160	43	142	123	78	55	83	225
			V/C	3.24	1.16	0.31		1.54	1.22	1.68		1.14	1.24	0.51		1.09	1.04	0.83		1.33
			Q	250	207	42		107	234	489		108	291	38		140	223	184		
			Stor.	150	-	100		150	-	150		150	-	75		150	-	150		
			Avail.	-100	-	58		43	-	-339		42	-	37		10	-	-34		
	Trafalgar Rd & Burnhamthorpe Rd	TCS	LOS	F	F	>	F	F	F	>	F	F	F	C	F	F	E	C	F	F
			Delay	347	105	>	189	276	422	>	389	353	254	30	250	430	67	27	130	227
			V/C	1.66	1.09	>		1.49	1.83	>		1.67	1.46	0.23		1.84	1.03	0.23		1.30
			Q	152	163	>		115	337	>		148	287	17		137	199	31		
			Stor.	30	-	>		15	-	>		60	-	60		60	-	60		
			Avail.	-122	-	>		-100	-	>		-88	-	43		-77	-	29		
	ARGO/Street C & William Halton Parkway	TWSC	LOS		A	>	A		A	>	A			B	B			C	C	A
			Delay		0	>	0		0	>	0			13	13			18	18	2
			V/C		0.67	>			0.83	>				0.08				0.61		
			Q		0	>			0	>				2				33		
	ARGO/Street D & William Halton Parkway	TCS	LOS	F	C	>	E	B	F	>	F	F	C	>	E	C	C	>	C	F
			Delay	176	24	>	74	20	118	>	111	82	30	>	73	32	31	>	31	87
			V/C	1.24	0.68	>		0.47	1.16	>		0.95	0.05	>		0.21	0.16	>		1.05
			Q	130	146	>		20	306	>		117	11	>		29	20	>		
			Stor.	120	-	>		55	-	>		115	-	>		-	-	>		
			Avail.	-10	-	>		35	-	>		-2	-	>		-	-	>		
	Street F & William Halton Parkway	TWSC	LOS		A	>	A		A	A	A			B	B			C	C	A
			Delay		0	>	0		0	0	0			12	12			17	17	2
			V/C		0.77	>			0.49	0.49				0.14				0.55		
			Q		0	>			0	0				4				27		
			Stor.	-	-	>		-	-	50		-	-	-		-	-	-		
			Avail.	-	-	>		-	-	50		-	-	-		-	-	-		
	West Drive & William Halton Parkway	TCS	LOS	B	D	>	D	D	C	>	C	C	D	>	D	D	C	>	D	D
			Delay	19	52	>	52	50	28	>	30	34	55	>	53	45	26	>	44	41
			V/C	0.25	1.00	>		0.83	0.92	>		0.12	0.83	>		0.73	0.01	>		1.14
			Q	10	287	>		72	304	>		14	94	>		36	4	>		
			Stor.	100	-	>		100	-	>		50	-	>		50	-	>		
			Avail.	90	-	>		28	-	>		36	-	>		14	-	>		
	West Drive & Loyalist Trail	TWSC	LOS	<	A	>	A	<	A	>	A	<	B	>	B	<	D	>	D	B
			Delay	<	6	>	6	<	0	>	0	<	15	>	15	<	25	>	25	11
			V/C	<	0.08	>		<	0.00	>		<	0.42	>		<	0.58	>		
			Q	<	2	>		<	0	>		<	17	>		<	28	>		
	Loyalist Trail & Street F	TWSC	LOS	<	A		A		A	>	A					C		>	C	A
			Delay	<	4		4		0	>	0					17		>	17	6
			V/C	<	0.11				0.23	>						0.46		>		
			Q	<	3				0	>						19		>		
	Trafalgar Rd & Loyalist Trail/ARGO	TWSC	LOS			B	B			B	B		A	A	A		A	A	A	A
			Delay			12	12			10	10		0	0	0		0	0	0	1
			V/C			0.29				0.09			0.51	0.51			0.40	0.40		
			Q			10				2			0	0			0	0		
			Stor.	-	-	-		-	-	-		-	-	50		-	-	50		
			Avail.	-	-	-		-	-	-		-	-	50		-	-	50		
	Burnhamthorpe Rd & West Drive	TWSC	LOS	<	A		A		A	>	A					F		>	F	F
			Delay	<	0		0		0	>	0					751		>	751	73
			V/C	<	0.01				0.58	>						2.38		>		
			Q	<	0				0	>						134		>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal

TWSC - Two-Way Stop Control
< / > - Shared with through movement

4.4.2 Total Operations – 2041

Table 4.13 summarizes the level of service conditions based on forecast 2041 total traffic volumes and the 2036 mitigation network. The following critical movements are noted:

- **Trafalgar Road and Lower Base Line:**
  - Overall intersection – v/c ratio greater than 1.00 during AM and PM peak hours;
  - Eastbound through/right-turn – LOS F and v/c ratio greater than 1.00 during AM peak hour;
  - Westbound left-turn – LOS F, v/c ratio greater than 1.00, and queue greater than available storage during AM peak hour. LOS E, v/c ratio of 0.96, and queue exceeds storage during PM peak hour;
  - Westbound through/right-turn – LOS F and v/c ratio greater than 1.00 during PM peak hour;
  - Northbound left-turn – LOS F and v/c ratio of 0.88 during AM peak hour. LOS F, v/c ratio greater than 1.00, and queue exceeds storage during PM peak hour;
  - Northbound through – LOS F and v/c ratio greater than 1.00 during AM and PM peak hours; and
  - Southbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during AM peak hour. LOS F and v/c ratio greater than 1.00 during PM peak hour.
  - Southbound through – LOS E and v/c ratio greater than 1.00 during PM peak hour.
- **Trafalgar Road and Highway 407 Westbound Ramp Terminal:**
  - Westbound left-turn – LOS E and v/c ratio of 0.95 during PM peak hour;
  - Westbound through – LOS E and v/c ratio of 0.93 during AM peak hour. LOS F and v/c ratio greater than 1.00 during PM peak hour;
  - Northbound through – LOS D and v/c ratio greater than 1.00 during PM peak hour; and
  - Southbound through – LOS C and v/c ratio of 0.92 during AM peak hour.
- **Trafalgar Road and Highway 407 Eastbound Ramp Terminal:**

- Eastbound right-turn – LOS F and v/c ratio greater than 1.00 during the AM peak hour. LOS F and v/c ratio of 0.98 during PM peak hour;
- Northbound through – LOS D and v/c ratio greater than 1.00 during PM peak hour; and
- Southbound through – LOS C and v/c ratio of 0.95 during AM peak hour.

- **Trafalgar Road and Williams Parkway:**
  - Overall intersection – v/c ratio greater than 1.00 during AM and PM peak hours;
  - Eastbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during AM and PM peak hours;
  - Eastbound through – LOS F and v/c ratio greater than 1.00 during AM and PM peak hours;
  - Westbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during AM and PM peak hours;
  - Westbound through LOS F and v/c ratio greater than 1.00 during AM and PM peak hours;
  - Westbound right-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during the AM and PM peak hours;
  - Northbound left-turn – LOS F, v/c ratio greater of 0.99 during AM and PM peak hours;
  - Northbound through – LOS F and v/c ratio greater than 1.00 during the AM and PM peak hours;
  - Southbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during AM peak hour. LOS F and v/c ratio greater than 1.00 during PM peak hour;
  - Southbound through – LOS F and v/c ratio greater than 1.00 during the PM peak hour; and
  - Southbound right-turn – LOS E and queue exceeds storage during PM peak hour.
- **Trafalgar Road and Burnhamthorpe Road:**
  - Overall intersection – v/c ratio greater then 1.00 during AM and PM peak hours;
  - Eastbound left-turn –LOS F, v/c ratio greater than 1.00, and queue exceeds storage during AM and PM peak hours;

- Eastbound through/right-turn – LOS F and v/c ratio greater than 1.00 during the AM and PM peak hour;
- Westbound left-turn – LOS F, v/c ratio greater than 1.00, and queue exceeds storage during AM and PM peak hours;
- Westbound through/right-turn – LOS F and v/c ratio greater than 1.00 during the AM and PM peak hours;
- Northbound left-turn – LOS F, v/c ratio greater than 1,00, and queue exceeds storage during AM and PM peak hours;
- Northbound through – LOS E and v/c ratio of 0.98 during AM peak hour. LOS F and v/c ratio greater than 1.00 during the PM peak hour;
- Southbound left-turn –LOS F and v/c ratio greater than 1.00 during AM peak hour. LOS F, v/c ratio greater than 1.00, and queue exceeds storage during PM peak hour; and
- Southbound through – LOS F and v/c ratio greater than 1.00 during the AM and PM peak hours.

- **William Halton Parkway and Street C:**
  - Westbound through/right-turn – LOS A and v/c ratio of 0.94 during PM peak hour.

- **William Halton Parkway and Street D:**
  - Eastbound left-turn – LOS E and v/c ratio greater than 1.00 during AM peak hour. LOS F, v/c ratio greater than 1.00, and queue exceeds storage during PM peak hour;
  - Eastbound through/right-turn – LOS E and v/c ratio of 0.95 during AM peak hour.
  - Westbound through/right-turn – LOS F and v/c ratio greater than 1.00 during the AM and PM peak hours;
  - Northbound left-turn – queue exceeds storage in AM peak hour. LOS F, v/c ratio greater than 1.00, and queue exceeds storage during PM peak hour.

- **William Halton Parkway and West Drive:**
  - Eastbound through/right-turn – LOS D and v/c ratio greater than 1.00 during AM peak hour. LOS E and v/c ratio greater than 1.00 during PM peak hour;
  - Westbound left-turn – LOS F and v/c ratio of 1.00 during AM peak hour. LOS F and v/c ratio of 0.96 during PM peak hour; and

- Westbound through/right-turn – LOS D and v/c ratio of 1.00 during PM peak hour.

- **Burnhamthorpe Road and West Drive:**
  - Southbound left/right-turn – LOS F and v/c ratio of 1.00 during AM peak hour. LOS F and v/c ratio greater than 1.0 during PM peak hour.
- **William Halton Parkway and Street E:**
  - Southbound left/right-turn – LOS F and v/c ratio greater than 1.00 during PM peak hour.

Appendix G7 contains the detailed Synchro reports.

The new municipal road connections to William Halton Parkway west of Trafalgar Road are forecast to operate with delay and capacity restraints in the AM and PM peak hours.

The capacity issues experienced under the background traffic horizon are expected to continue to occur with or without the first phase of development of the subject site.

TABLE 4.13A: 2041 TOTAL OPERATIONS (AM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Trafalgar Rd & Lower Base Line	TCS	LOS	D	F	>	F	F	C	>	F	F	F	D	F	F	D	B	E	F
			Delay	45	194	>	165	246	26	>	151	128	187	36	160	184	35	16	56	117
			V/C	0.56	1.29	>		1.43	0.42	>		0.88	1.31	0.40		1.28	0.92	0.07		1.17
			Q	48	197	>		139	63	>		27	221	49		164	186	6		
			Stor.	45	-	>		110	-	>		90	-	90		90	-	90		
			Avail.	-3	-	>		-29	-	>		63	-	41		-74	-	84		
	Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off	TCS	LOS	<	C	>	C	D	E	C	E	B	B		B		C	A	C	C
			Delay	<	22	>	22	49	66	22	56	13	12		12		23	9	23	21
			V/C	<	0.03	>		0.85	0.93	0.01		0.20	0.73				0.92	0.01		0.66
			Q	<	0	>		52	28	0		1	90				153	0		
			Stor.	<	-	>		-	-	60		65	-				-	15		
			Avail.	<	-	>		-	-	60		64	-				-	15		
	Trafalgar Rd & Hwy 407 EB Off	TCS	LOS	D		F	F						B		B		C		C	C
			Delay	36		97	84						19		19		28		28	28
			V/C	0.23		1.02							0.80				0.95			0.78
			Q	31		128							156				230			
	Trafalgar Rd & William Halton Parkway	TCS	LOS	F	F	D	F	F	F	F	F	F	F	C	F	F	D	C	F	F
			Delay	360	180	40	216	321	162	158	194	239	115	34	127	382	49	31	141	165
			V/C	1.63	1.26	0.49		1.52	1.20	1.21		1.40	1.12	0.44		1.69	0.89	0.72		1.13
			Q	192	286	72		103	184	221		115	256	69		231	206	148		
			Stor.	100	-	100		100	-	150		150	-	75		150	-	150		
			Avail.	-92	-	28		-3	-	-71		35	-	6		-81	-	2		
	Trafalgar Rd & Burnhamthorpe Rd	TCS	LOS	F	F	>	F	F	F	>	F	F	E	C	E	F	F	C	F	F
			Delay	220	196	>	206	228	114	>	168	216	57	25	74	158	103	26	105	118
			V/C	1.35	1.29	>		1.36	1.04	>		1.32	0.98	0.11		1.16	1.11	0.05		1.04
			Q	218	248	>		90	104	>		98	246	16		57	284	2		
			Stor.	30	-	>		15	-	>		60	-	60		60	-	60		
			Avail.	-188	-	>		-75	-	>		-38	-	44		3	-	58		
	ARGO/Street C & William Halton Parkway	TWSC	LOS		A	>	A		A	>	A			C	C			B	B	A
			Delay		0	>	0		0	>	0			18	18			12	12	1
			V/C		0.88	>			0.58	>				0.26				0.32		
			Q		0	>			0	>				8				11		
	ARGO/Street D & William Halton Parkway	TCS	LOS	E	C	>	D	D	F	>	E	D	C	>	C	C	C	>	C	D
			Delay	78	30	>	42	54	81	>	79	39	20	>	34	20	21	>	21	50
			V/C	1.03	0.95	>		0.63	1.08	>		0.83	0.20	>		0.13	0.12	>		1.04
			Q	98	235	>		32	163	>		77	23	>		14	13	>		
			Stor.	100	-	>		100	-	>		50	-	>		-	-	>		
			Avail.	2	-	>		68	-	>		-27	-	>		-	-	>		
	Street F & William Halton Parkway	TWSC	LOS		A	>	A		A	A	A			B	B			C	C	A
			Delay		0	>	0		0	0	0			12	12			15	15	2
			V/C		0.80	>			0.45	0.45				0.15				0.56		
			Q		0	>			0	0				4				28		
			Stor.	-	-	>		-	-	50		-	-	-		-	-	-		
			Avail.	-	-	>		-	-	50		-	-	-		-	-	-		

TABLE 4.13A: 2041 TOTAL OPERATIONS (AM PEAK HOUR) - CONTINUED

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	West Drive & William Halton Parkway	TCS	LOS	B	D	>	D	F	B	>	C	D	D	>	D	D	C	>	D	D
			Delay	16	54	>	54	88	17	>	26	35	50	>	48	36	27	>	36	40
			V/C	0.16	1.02	>		1.00	0.80	>		0.13	0.74	>		0.61	0.01	>		1.02
			Q	7	279	>		100	210	>		14	69	>		29	4	>		
			Stor.	100	-	>		100	-	>		50	-	>		50	-	>		
			Avail.	93	-	>		0	-	>		36	-	>		21	-	>		
	West Drive & Loyalist Trail	TWSC	LOS	<	A	>	A	<	A	>	A	<	B	>	B	<	C	>	C	A
			Delay	<	6	>	6	<	0	>	0	<	14	>	14	<	20	>	20	10
			V/C	<	0.03	>		<	0.00	>		<	0.33	>		<	0.56	>		
			Q	<	1	>		<	0	>		<	11	>		<	27	>		
	Loyalist Trail & Street F	TWSC	LOS	<	A		A		A	>	A					C		>	C	A
			Delay	<	2		2		0	>	0					15		>	15	6
			V/C	<	0.03				0.19	>						0.47		>		
			Q	<	1				0	>						20		>		
	Trafalgar Rd & Loyalist Trail/ARGO	TWSC	LOS			B	B			B	B		A	A	A		A	A	A	A
			Delay			12	12			11	11		0	0	0		0	0	0	1
			V/C			0.31				0.13			0.46	0.46			0.41	0.41		
			Q			10				4			0	0			0	0		
			Stor.	-	-	-		-	-	-		-	-	100		-	-	100		
			Avail.	-	-	-		-	-	-		-	-	100		-	-	100		
	Burhamthorpe Rd & West Drive	TWSC	LOS	<	A		A		A	>	A					F		>	F	C
			Delay	<	0		0		0	>	0					111		>	111	15
			V/C	<	0.01				0.27	>						1.00		>		
			Q	<	0				0	>						70		>		
	William Halton Parkway & Street E	TWSC	LOS	<	A		A		A	>	A					C		>	C	A
			Delay	<	4		1		0	>	0					21		>	21	1
			V/C	<	0.15				0.41	>						0.14		>		
			Q	<	4				0	>						4		>		
	Street D & Street B	TWSC	LOS					B		>	B		A	>	A	<	A		A	A
			Delay					12		>	12		0	>	0	<	0		0	0
			V/C					0.03		>			0.15	>		<	0.00			
			Q					1		>			0	>		<	0			
	Street D & Street A	TWSC	LOS		A	>	A	<	A		A	A		A	A					A
			Delay		0	>	0	<	0		0	10		9	9					8
			V/C		0.04	>		<	0.00			0.19		0.18						
			Q		0	>		<	0			6		5						
	Street E & Street A	TWSC	LOS		A	>	A	<	A		A	A		>	A					A
			Delay		0	>	0	<	0		0	9		>	9					6
			V/C		0.02	>		<	0.00			0.07		>						
			Q		0	>		<	0			2		>						
	Street E & Street B	TWSC	LOS	A		>	A					<	A		A		A	>	A	A
			Delay	8		>	8					<	0		0		0	>	0	0
			V/C	0.00		>						<	0.00				0.02	>		
			Q	0		>						<	0				0	>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

TABLE 4.13B: 2041 TOTAL OPERATIONS (PM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Trafalgar Rd & Lower Base Line	TCS	LOS	D	E	>	E	E	F	>	F	F	F	B	F	F	E	C	E	F
			Delay	44	65	>	61	70	215	>	174	171	134	19	118	167	72	21	78	110
			V/C	0.64	0.88	>		0.96	1.36	>		1.23	1.21	0.54		1.21	1.05	0.06		1.13
			Q	20	132	>		113	275	>		115	286	68		98	227	3		
			Stor.	45	-	>		110	-	>		90	-	90		90	-	90		
			Avail.	25	-	>		-3	-	>		-25	-	22		-8	-	87		
	Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off	TCS	LOS	<	C	>	C	E	F	C	F	B	D		D		C	B	C	D
			Delay	<	27	>	27	71	100	26	82	19	41		41		27	12	27	40
			V/C	<	0.03	>		0.95	1.05	0.03		0.23	1.02				0.90	0.01		0.90
			Q	<	0	>		128	38	0		3	274				206	0		
			Stor.	<	-	>		-	-	60		65	-				-	15		
			Avail.	<	-	>		-	-	60		62	-				-	15		
	Trafalgar Rd & Hwy 407 EB Off	TCS	LOS	C		F	E						D		D		B		B	D
			Delay	32		84	75						48		48		18		18	36
			V/C	0.16		0.98							1.05				0.86			0.79
			Q	18		123							306				177			
	Trafalgar Rd & William Halton Parkway	TCS	LOS	F	F	D	F	F	F	F	F	F	F	D	F	F	F	E	F	F
			Delay	1115	161	47	512	423	198	477	361	171	212	45	182	166	110	61	112	270
			V/C	3.31	1.21	0.34		1.77	1.30	1.96		1.20	1.36	0.59		1.20	1.12	0.88		1.46
			Q	256	220	47		129	257	597		117	333	46		160	254	203		
			Stor.	150	-	100		150	-	150		150	-	75		150	-	150		
			Avail.	-106	-	53		21	-	-447		33	-	29		-10	-	-53		
	Trafalgar Rd & Burnhamthorpe Rd	TCS	LOS	F	F	>	F	F	F	>	F	F	F	C	F	F	F	C	F	F
			Delay	388	115	>	208	368	474	>	451	388	317	34	305	492	101	30	166	272
			V/C	1.74	1.11	>		1.69	1.94	>		1.74	1.60	0.28		1.97	1.11	0.27		1.39
			Q	171	188	>		136	397	>		166	348	24		163	246	40		
			Stor.	30	-	>		15	-	>		60	-	60		60	-	60		
			Avail.	-141	-	>		-121	-	>		-106	-	36		-103	-	20		
	ARGO/Street C & William Halton Parkway	TWSC	LOS		A	>	A		A	>	A			B	B			C	C	A
			Delay		0	>	0		0	>	0			14	14			21	21	2
			V/C		0.72	>			0.94	>				0.09				0.64		
			Q		0	>			0	>				2				37		
	ARGO/Street D & William Halton Parkway	TCS	LOS	F	C	>	F	C	F	>	F	F	C	>	F	C	C	>	C	F
			Delay	298	27	>	114	25	180	>	171	120	29	>	106	31	32	>	32	132
			V/C	1.52	0.75	>		0.58	1.31	>		1.08	0.05	>		0.20	0.31	>		1.15
			Q	145	159	>		22	365	>		129	11	>		29	43	>		
			Stor.	120	-	>		55	-	>		115	-	>		-	-	>		
			Avail.	-25	-	>		33	-	>		-14	-	>		-	-	>		
	Street F & William Halton Parkway	TWSC	LOS		A	>	A		A	A	A			B	B			C	C	A
			Delay		0	>	0		0	0	0			12	12			21	21	2
			V/C		0.80	>			0.52	0.52				0.14				0.63		
			Q		0	>			0	0				4				36		
			Stor.	-	-	>		-	-	50		-	-	-		-	-	-		
			Avail.	-	-	>		-	-	50		-	-	-		-	-	-		

TABLE 4.13B: 2041 TOTAL OPERATIONS (PM PEAK HOUR) – CONTINUED

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	West Drive & William Halton Parkway	TCS	LOS	B	E	>	E	F	D	>	D	C	D	>	D	D	C	>	D	D
			Delay	18	62	>	62	82	45	>	48	32	54	>	52	46	25	>	45	54
			V/C	0.24	1.04	>		0.96	1.00	>		0.11	0.84	>		0.75	0.01	>		1.17
			Q	10	307	>		78	346	>		14	99	>		37	4	>		
			Stor.	100	-	>		100	-	>		50	-	>		50	-	>		
			Avail.	90	-	>		22	-	>		36	-	>		13	-	>		
	West Drive & Loyalist Trail	TWSC	LOS	<	A	>	A	<	A	>	A	<	B	>	B	<	D	>	D	B
			Delay	<	6	>	6	<	0	>	0	<	15	>	15	<	25	>	25	11
			V/C	<	0.08	>		<	0.00	>		<	0.42	>		<	0.58	>		
			Q	<	2	>		<	0	>		<	17	>		<	28	>		
	Loyalist Trail & Street F	TWSC	LOS	<	A		A		A	>	A					C		>	C	A
			Delay	<	4		4		0	>	0					17		>	17	6
			V/C	<	0.11				0.23	>						0.46		>		
			Q	<	3				0	>						19		>		
	Trafalgar Rd & Loyalist Trail/ARGO	TWSC	LOS			B	B			B	B		A	A	A		A	A	A	A
			Delay			12	12			10	10		0	0	0		0	0	0	1
			V/C			0.30				0.09			0.55	0.55			0.44	0.44		
			Q			10				2			0	0			0	0		
			Stor.	-	-	-		-	-	-		-	-	50		-	-	50		
			Avail.	-	-	-		-	-	-		-	-	50		-	-	50		
	Burnhamthorpe Rd & West Drive	TWSC	LOS	<	A		A		A	>	A					F		>	F	F
			Delay	<	0		0		0	>	0					Err		>	Err	919
			V/C	<	0.02				0.61	>						3.24		>		
			Q	<	0				0	>						Err		>		
	William Halton Parkway & Street E	TWSC	LOS	<	A		A		A	>	A					F		>	F	C
			Delay	<	5		2		0	>	0					540		>	540	21
			V/C	<	0.15				0.75	>						1.86		>		
			Q	<	4				0	>						92		>		
	Street D & Street B	TWSC	LOS					B		>	B		A	>	A	<	A		A	A
			Delay					11		>	11		0	>	0	<	0		0	1
			V/C					0.10		>			0.10	>		<	0.00			
			Q					3		>			0	>		<	0			
	Street D & Street A	TWSC	LOS		A	>	A	<	A		A	B		A	B					A
			Delay		0	>	0	<	8		8	13		9	11					10
			V/C		0.00	>		<	0.11			0.22		0.12						
			Q		0	>		<	3			7		3						
	Street E & Street A	TWSC	LOS		A	>	A	<	A		A	A		>	A					A
			Delay		0	>	0	<	7		7	10		>	10					8
			V/C		0.00	>		<	0.05			0.04		>						
			Q		0	>		<	1			1		>						
	Street E & Street B	TWSC	LOS	A		>	A					<	A		A		A	>	A	A
			Delay	9		>	9					<	0		0		0	>	0	2
			V/C	0.04		>						<	0.00				0.05	>		
			Q	1		>						<	0				0	>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

5 Remedial Measures

Deficiencies currently exist at certain locations, primarily along the Trafalgar Road corridor, and they can be expected to persist in the future with anticipated growth in traffic independent of the subject development.

Due to the high levels of congestion occurring, further remedial measures to improve intersection capacity are not likely to be implemented. This aligns with the Towns focus where future improvements to the transportation network should be focused on public transit and active transportation (AT) infrastructure to reduce the use of single-occupant vehicles and create a balanced transportation system.

By shifting commuter travel to public transit and AT, intersection operations could be expected to maintain the status-quo (capacity constraint during peak hours) or possibly improve if fewer vehicles transverse the intersections during the peak hours of a typical weekday.

It is recommended that Halton Region and the Town of Oakville prioritize public transit and active transportation modes along the Trafalgar Road corridor to reduce the need for single-occupant vehicles.

The following provides a high-level assessment of potential mitigation measures for each intersection in the study area.

5.1 Existing Intersections

5.1.1 Trafalgar Road and Lower Base Line Road

The intersection of Trafalgar Road and Lower Base Line Road is forecast to experience delay and capacity constraints under future background and total traffic conditions.

The road authority for Lower Base Line Road should consider widening Lower Base Lane Road from Trafalgar Road eastwards based on forecast traffic volumes. The road authorities should monitor future traffic volumes at this intersection along with optimizing the signal timings where possible.

5.1.2 Trafalgar Road and Highway 407 Ramp Terminals

Trafalgar Road southbound (AM peak hour) and northbound (PM peak hour) are forecast to experience capacity issues during the 2041

horizon year at the Highway 407 ramp terminals. Optimizing the signal timings would mitigate the capacity issues on Trafalgar Road.

The road authorities should monitor future traffic volumes at this intersection and optimize the signal timings where possible.

5.1.3 Trafalgar Road and William Halton Parkway

The intersection of Trafalgar Road and William Halton Parkway is forecast to experience delay and capacity constraints under future background and total traffic conditions.

The left-turn volumes for all approaches are forecast to be greater than 300 vehicles per hour in both the AM and PM peak hours under future traffic conditions. Dual left-turn lanes are typically recommended when left-turn volumes exceed 300 vehicles per hour.

The road authorities should monitor future traffic volumes at this intersection and plan for including second left-turn lanes for all approaches with optimizing the signal timings.

5.1.4 Trafalgar Road and Burnhamthorpe Road

The intersection of Trafalgar Road and Burnhamthorpe Road is forecast to experience delay and capacity constraints under future background and total traffic conditions.

The road authority should consider widening Burnhamthorpe Road to four lanes and monitor future traffic volumes at this intersection and optimize the signal timings where possible.

5.2 New Intersections

5.2.1 Trafalgar Road and Loyalist Trail/ARGO Lands

This is a proposed right-in/right-out only intersection to Trafalgar Road between William Halton Parkway and Burnhamthorpe Road. The east leg is proposed for the 2031 horizon for the ARGO Lands while the west leg is proposed for the 2036 horizon for Phase 2 stages of the subject site.

Exclusive right-turn lanes on Trafalgar Road would be required for both the northbound and southbound approaches to accommodate the forecast traffic volumes.



5.2.2 William Halton Parkway and Street C/ARGO Lands

This is a proposed right-in/right-out only intersection to William Halton Parkway approximately 100 to 150 metres east of Trafalgar Road. Both the north and south legs are proposed for the 2031 horizon year. Eastbound and westbound right-turn lanes on William Halton Parkway would likely be required to accommodate the forecast right-turn volumes.

5.2.3 William Halton Parkway and ARGO Lands/Street D

This is a proposed all-moves intersection located approximately 300 metres east of Trafalgar Road. As noted previously, the intersection might warrant traffic control signals based on the 2031 future traffic volumes. The high eastbound left-turns in the PM peak hour would likely require dual left-turn lanes. Exclusive left-turn lanes for the westbound, northbound and southbound approaches would be required on William Halton Parkway starting from the 2031 horizon to accommodate traffic generated by both the ARGO Lands development and the subject site.

5.2.4 William Halton Parkway and Street E

This is a proposed all-moves intersection located approximately 600 metres east of Trafalgar Road. The minor leg would be from the north to service the planned employment lands of the subject development during the 2041 horizon. Traffic control signal justification shows traffic signals unlikely under 2041 total traffic conditions. The forecast 2041 operations shows delay and capacity constraints for the minor approach during the PM peak hour.

5.2.5 William Halton Parkway and Street F

This is a proposed right-in/right-out only intersection to William Halton Parkway approximately 100 to 150 metres west of Trafalgar Road. Both the north and south legs are proposed for the 2036 horizon year. The forecast westbound right-turns on William Halton Parkway are expected to warrant an exclusive right-turn lane. Forecast eastbound right-turns are not expected to warrant an exclusive right-turn lane.

5.2.6 William Halton Parkway and West Drive

This is a proposed all-moves intersection to William Halton Parkway approximately 300 to 400 metres west of Trafalgar Road. Traffic control justification shows traffic control signals might be warranted at this intersection under 2036 total traffic conditions. Exclusive left-turn lanes on all approaches would be required. This intersection is required for the 2036 horizon year.



5.2.7 Burnhamthorpe Road and West Drive

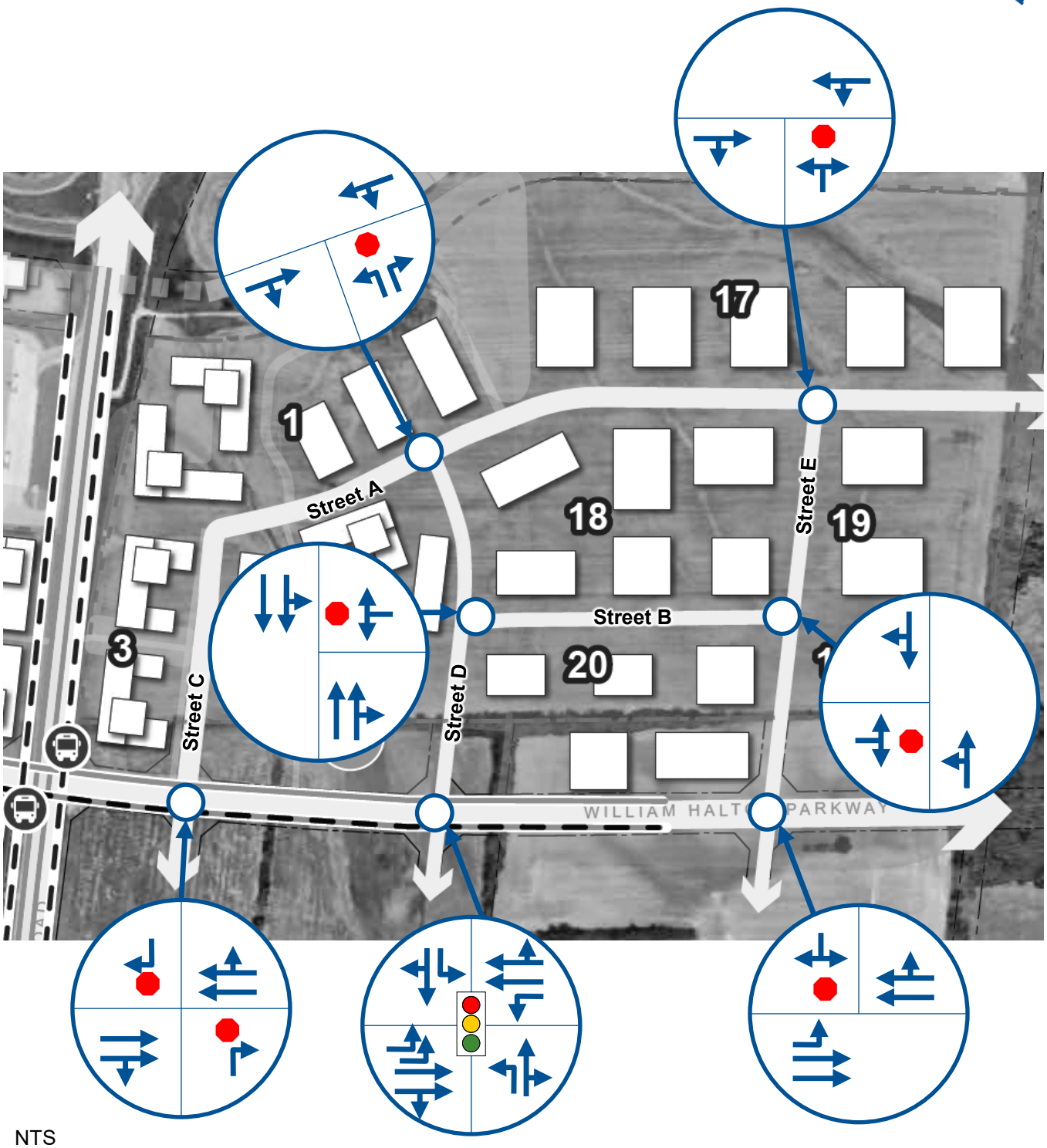
This is a proposed all-moves intersection for the 2036 horizon year. It was analyzed as stop-control for the minor approach. Traffic control signal justification shows that traffic control signals are unlikely at this intersection under future 2041 total traffic conditions. The forecast eastbound left-turn volumes would not likely warrant left-turn lanes. The westbound right-turn volumes would warrant exclusive right-turn lane on Burnhamthorpe Road.

5.2.8 Internal Intersections

All internal intersections are forecast to operate with acceptable levels of service under 2031, 2036 and 2041 future traffic conditions.

Figure 5.1 and **Figure 5.2** illustrates the proposed lane configuration and traffic control for the study area.

It is recommended that each separate development parcel have a detailed Transportation Impact Study and Transit Facilities Plan prepared as part of Zoning Bylaw Amendment or Site Plan Application submission to confirm or refine the recommended lane configurations and traffic control.

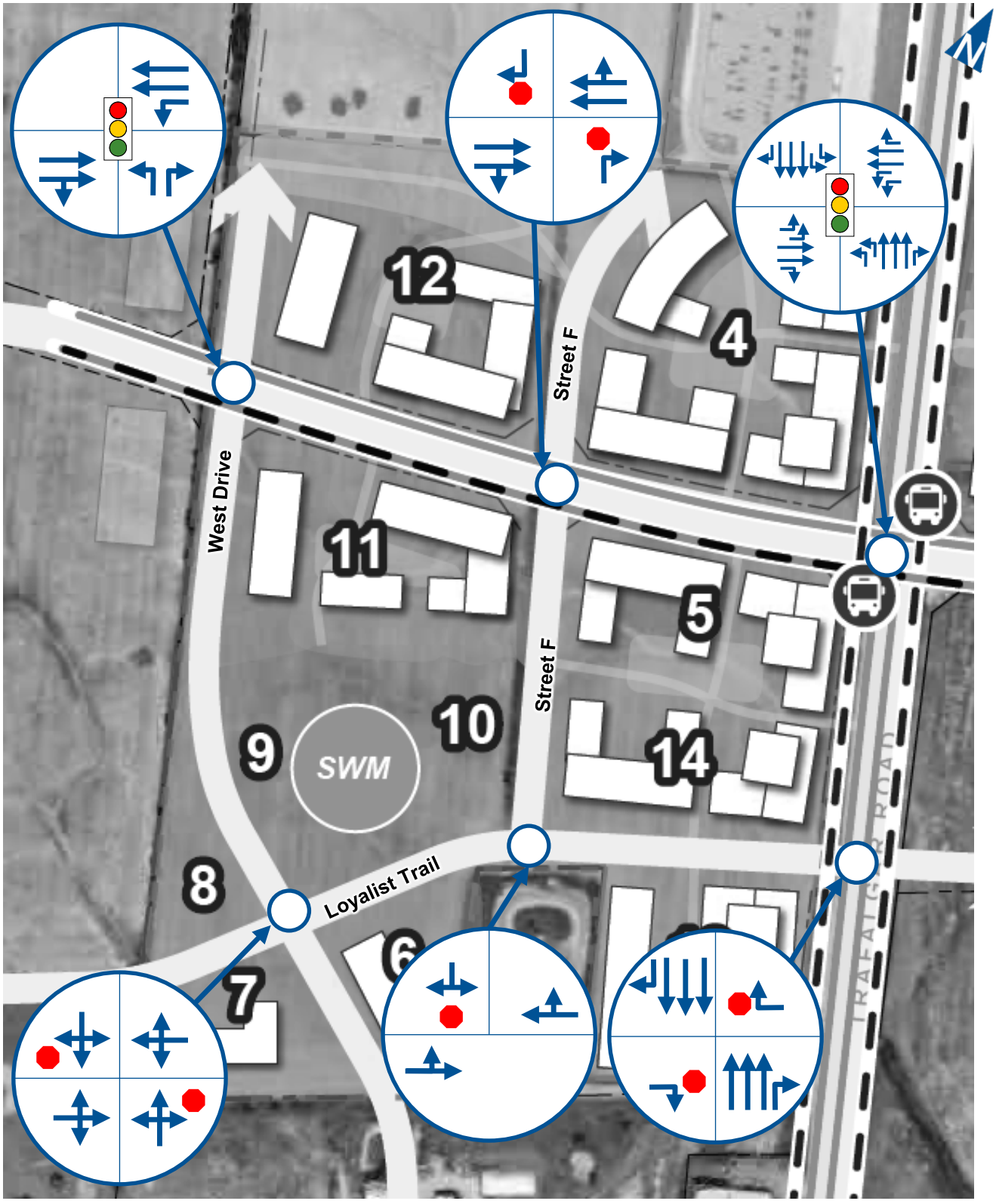


NTS

Proposed Lane Configuration & Traffic Control East Side

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Figure 5.1



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Proposed Lane Configuration & Traffic Control West Side

5.3 Alternative Scenario

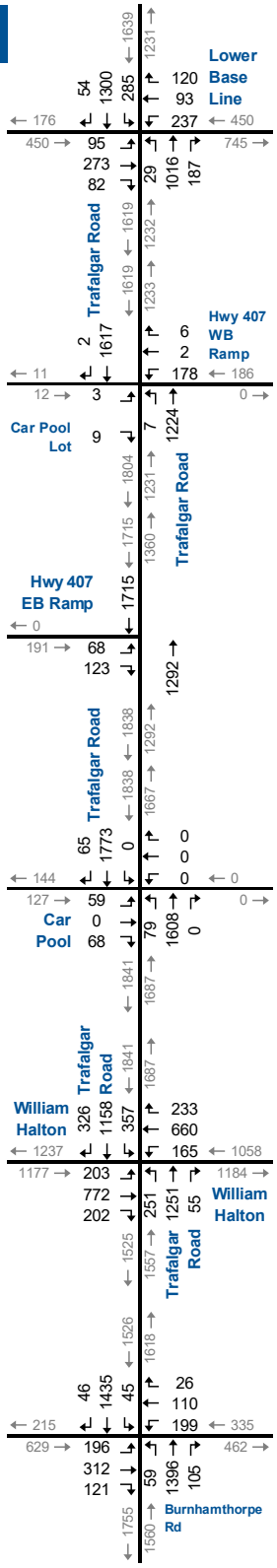
The previous analyses utilized a 2.0% per annum growth rate on the study area road network for all three horizon years. An alternative scenario was assessed where the background growth rate reduces over the three horizon periods. The background growth for each horizon year are as follows:

- 2.0% per annum to 2031;
- 1.5% per annum from 2031 to 2036; and
- 1.0% per annum from 2036 to 2041.

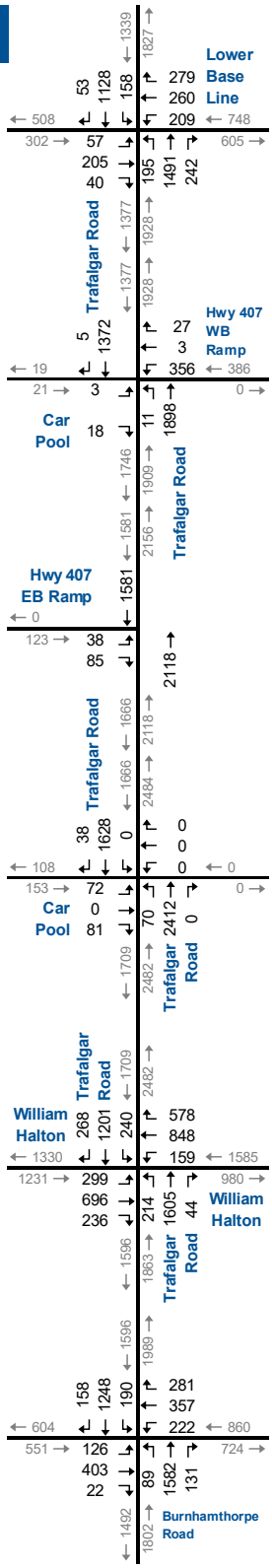
Figure 5.3 to **Figure 5.5** illustrates the future background traffic forecasts based on the growth rates above for the 2031, 2036 and 2041 horizon years, respectively.

Figure 5.6 to **Figure 5.8** illustrates the future total traffic volumes based on the background traffic volumes above plus the site generated traffic volumes from **Chapter 3** for the 2031, 2036, and 2041 horizon years, respectively.

AM Peak Hour



PM Peak Hour

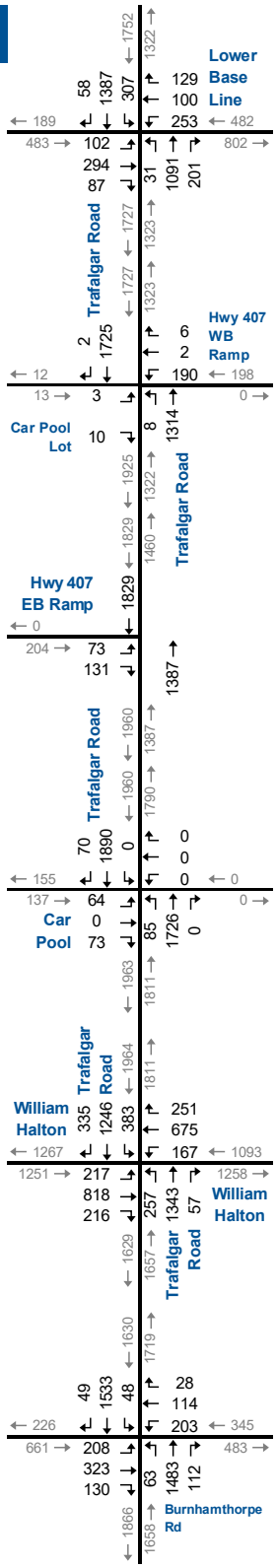


Alternative 2031 Background Traffic Volumes

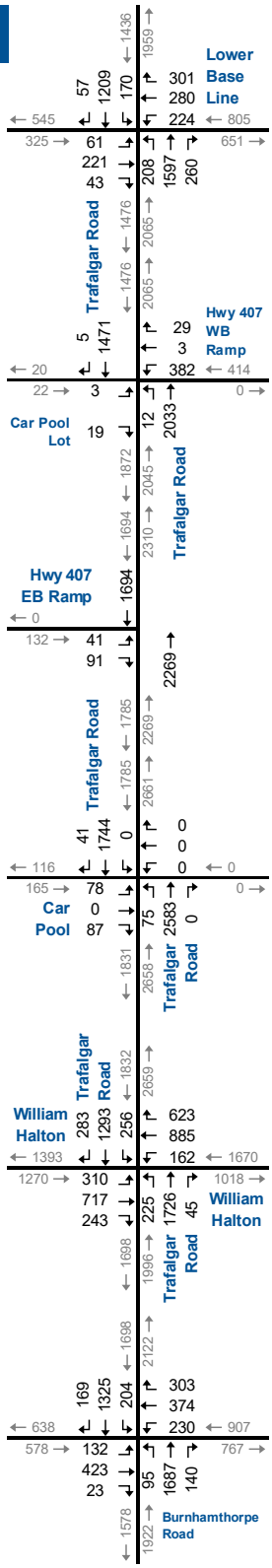
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Figure 5.3

AM Peak Hour

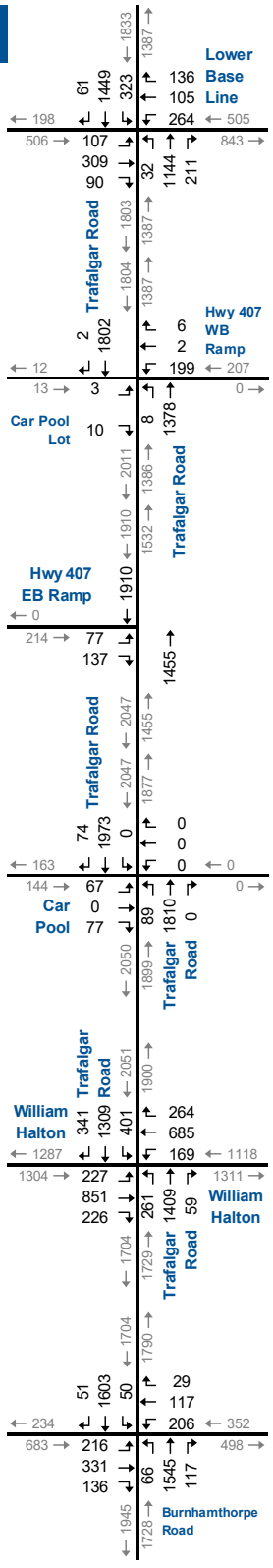


PM Peak Hour

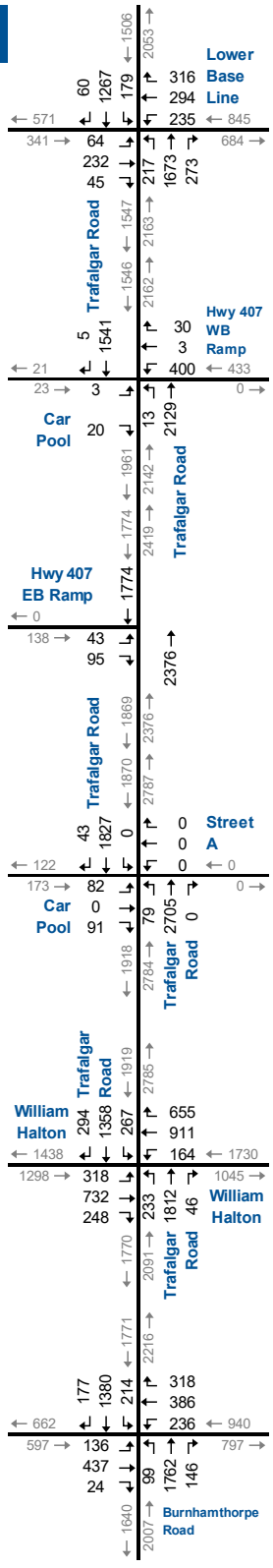


Alternative 2036 Background Traffic Volumes

AM Peak Hour



PM Peak Hour

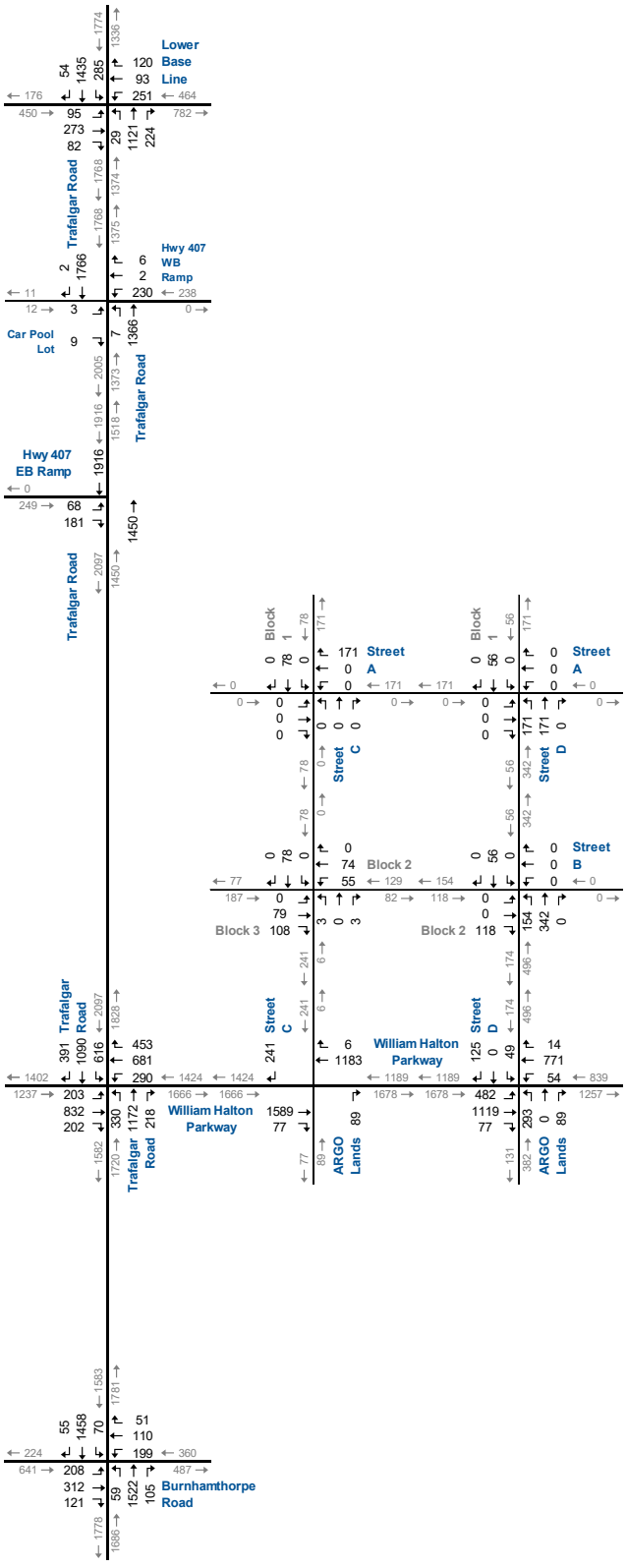


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Alternative 2041 Background Traffic Volumes

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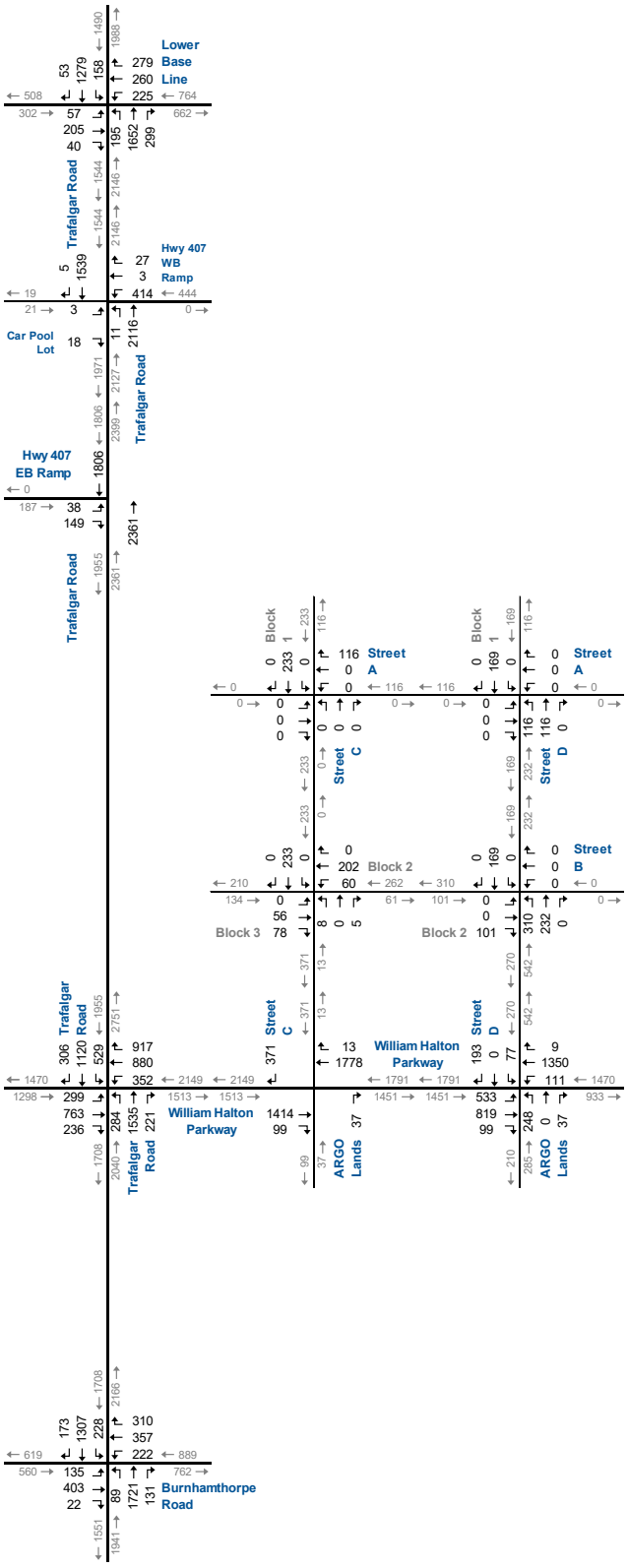
Figure 5.5



Alternative 2031 Total Traffic Volumes AM Peak Hour

IO Trafalgar & 407 Oakville, ON TIS
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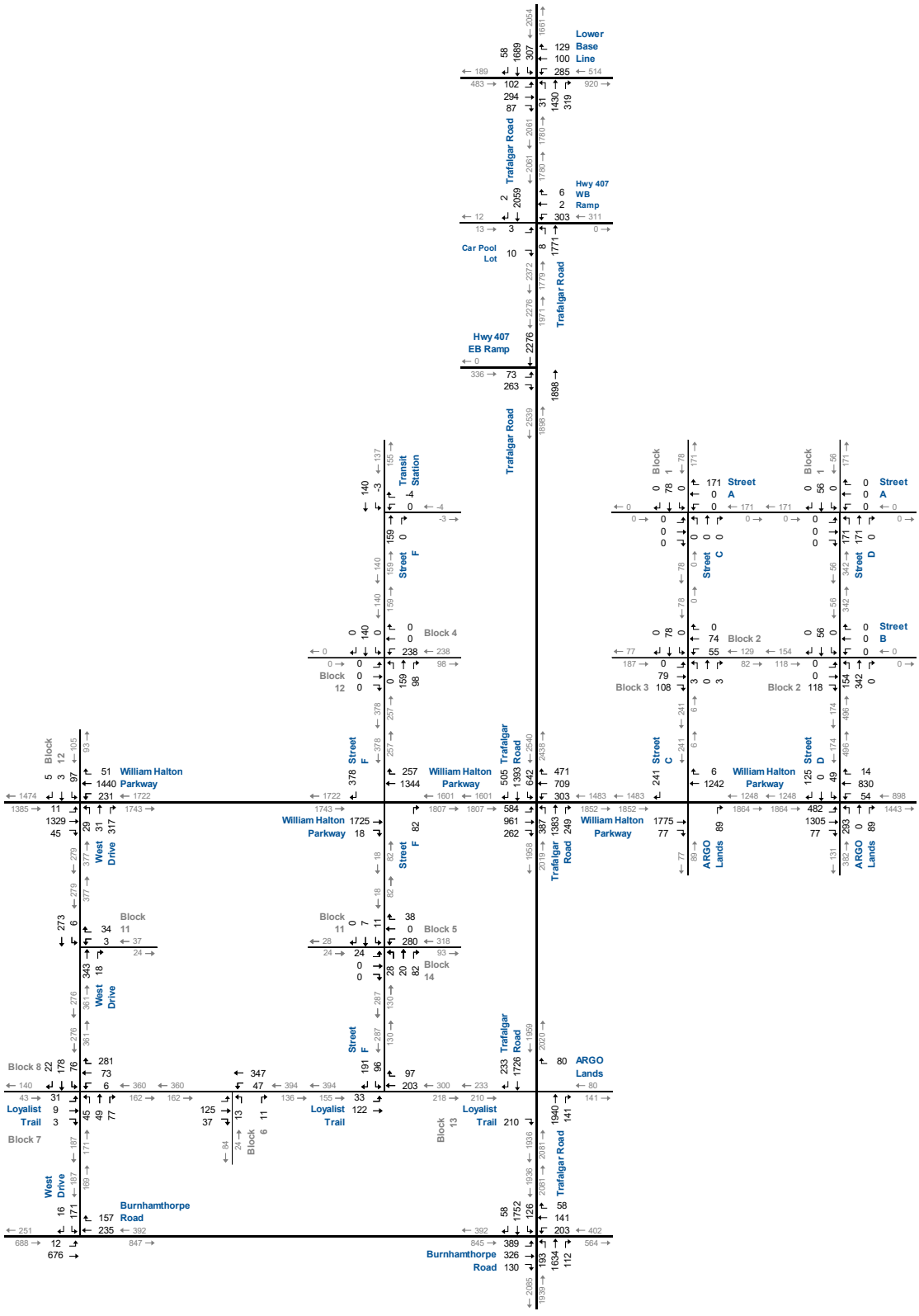
Figure 5.6A



Alternative 2031 Total Traffic Volumes PM Peak Hour

IO Trafalgar & 407 Oakville, ON TIS
210156/210157

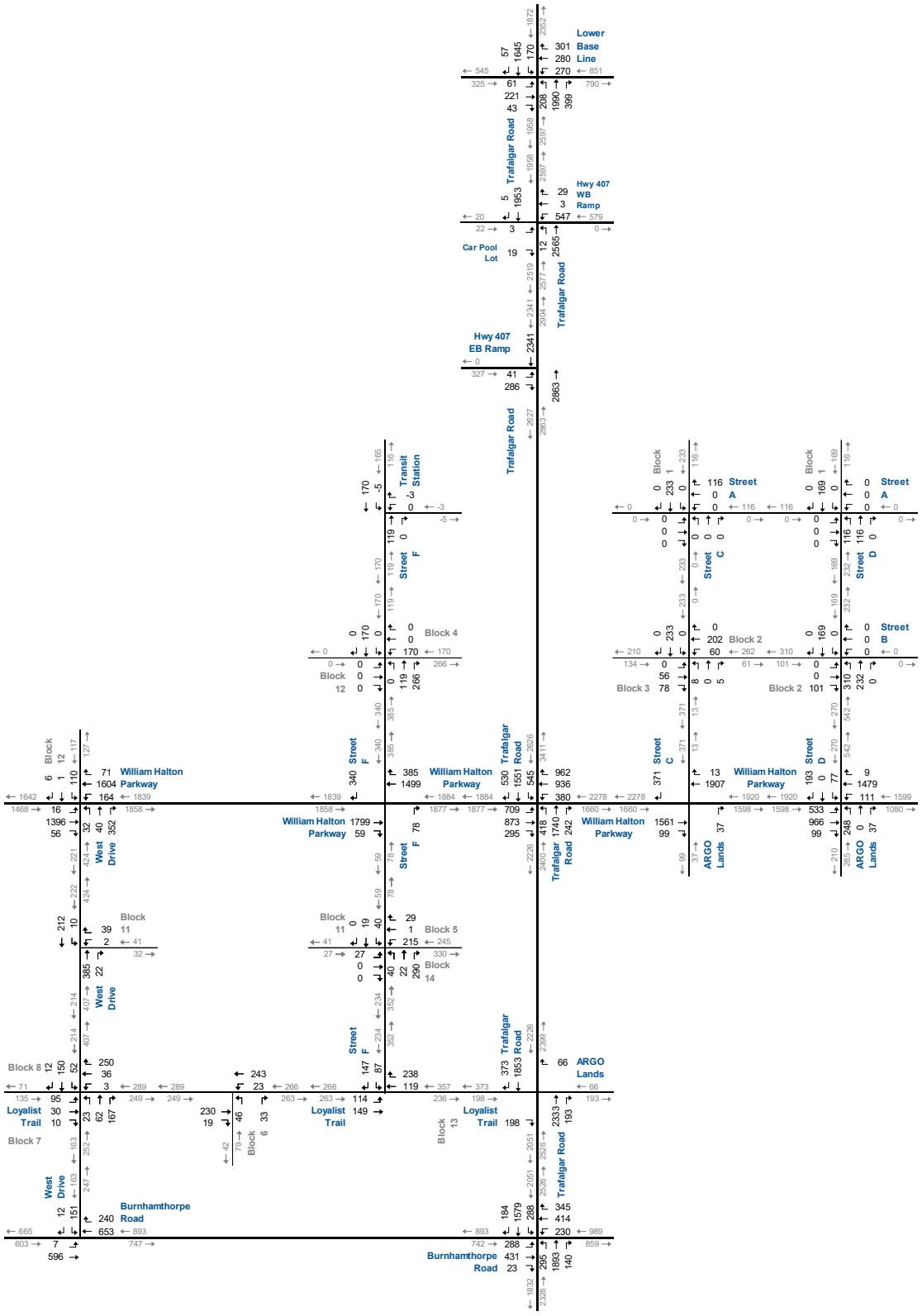
Figure 5.6B



Alternative 2036 Total Traffic Volumes AM Peak Hour

IO Trafalgar & 407 Oakville, ON TIS
210156/210157

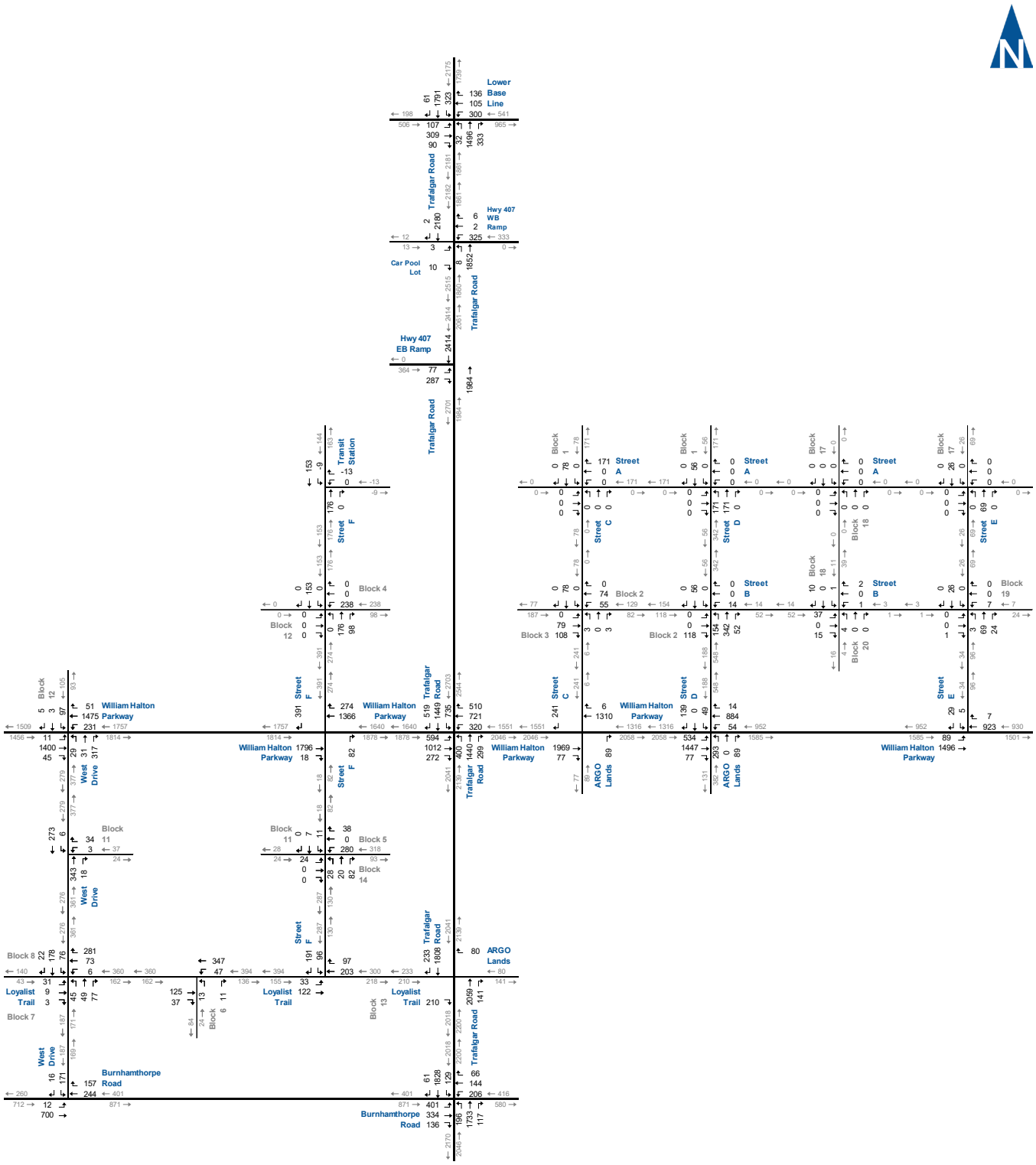
Figure 5.7A



Alternative 2036 Total Traffic Volumes PM Peak Hour

IO Trafalgar & 407 Oakville, ON TIS
210156/210157

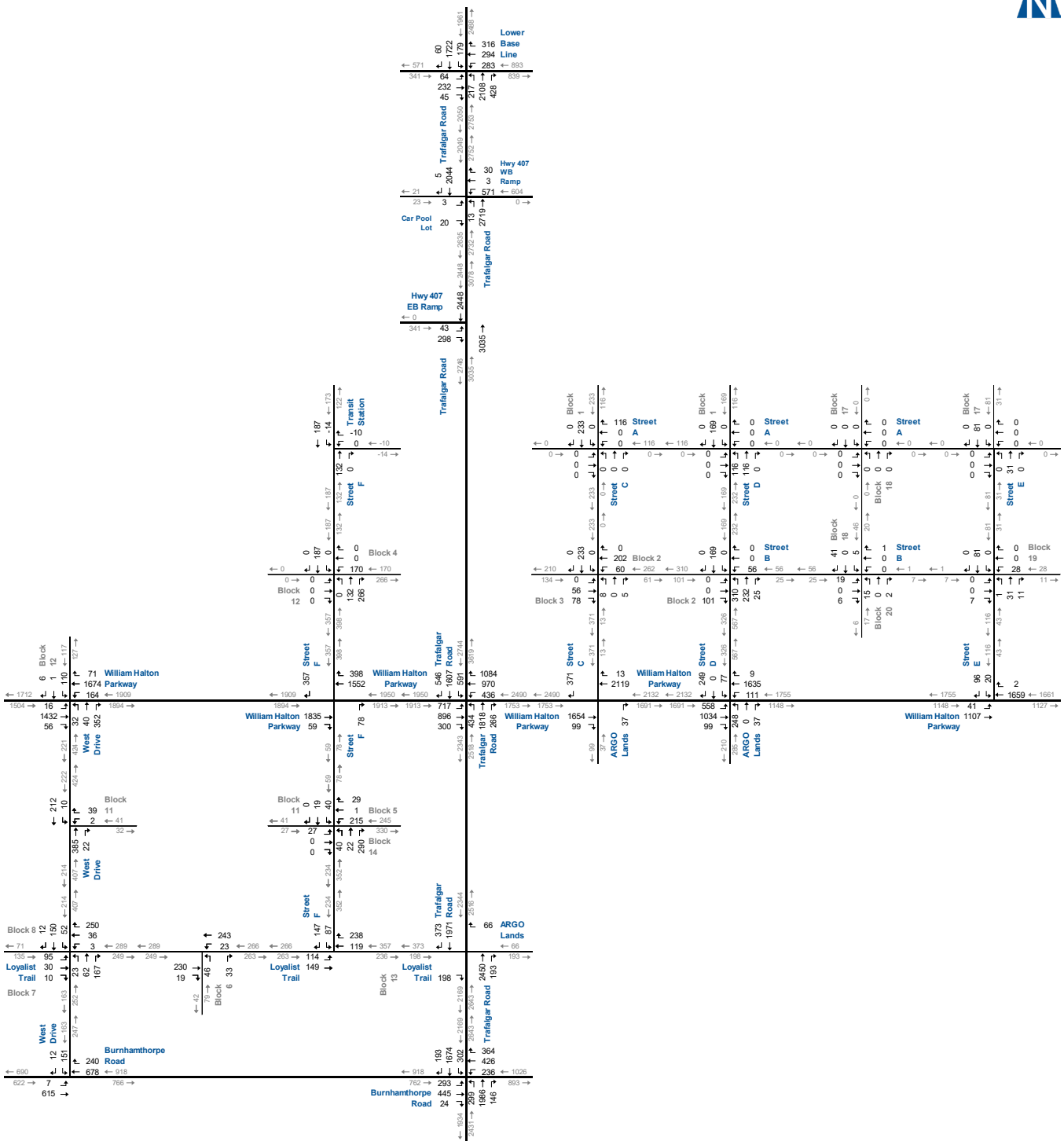
Figure 5.7B



Alternative 2041 Total Traffic Volumes AM Peak Hour

IO Trafalgar & 407 Oakville, ON TIS
210156/210157

Figure 5.8A



Alternative 2041 Total Traffic Volumes PM Peak Hour

IO Trafalgar & 407 Oakville, ON TIS
210156/210157

Figure 5.8B

The study are intersection operations analyses for the alternative background traffic volumes followed the same methodology used in Chapter 4. The alternative future total traffic scenarios used the improved networks noted in Chapter 4 for each horizon year.

Table 5.1 to **Table 5.3** details the level of service conditions for the weekday AM and PM peak hours for the 2031, 2036 and 2041 alternative background horizons, respectively.

Table 5.4 to **Table 5.6** details the level of service conditions for the weekday AM and PM peak hours for the 2031, 2036 and 2041 alternative total traffic horizons, respectively.

They indicate that with the reductions in the 2036 and 2041 background growth rate, the new access points into the subject site from the existing road network are slightly improved compared to those with the continuous growth rate. However, there would still be significant background traffic volumes on Trafalgar Road and William Halton Parkway.

Appendix H contains the detailed Synchro Reports.

TABLE 5.1A: ALTERNATIVE 2031 BACKGROUND OPERATIONS (AM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Trafalgar Rd & Lower Base Line	TCS	LOS	D	E	>	E	F	C	>	F	D	D	C	C	F	B	B	C	E
			Delay	38	77	>	70	435	29	>	251	42	35	26	34	89	20	13	31	65
			V/C	0.39	0.97	>		1.85	0.37	>		0.42	0.71	0.13		1.03	0.57	0.05		0.97
			Q	38	138	>		121	54	>		15	100	16		117	95	4		
			Stor.	45	-	>		110	-	>		90	-	90		90	-	90		
			Avail.	7	-	>		-11	-	>		75	-	74		-27	-	86		
	Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off	TCS	LOS	<	D	>	D	D	D	D	D	A	A		A		B	A	B	B
			Delay	<	35	>	35	45	49	35	46	7	6		6		11	6	11	12
			V/C	<	0.03	>		0.61	0.67	0.01		0.19	0.38				0.58	0.00		0.54
			Q	<	0	>		35	23	0		1	56				112	0		
			Stor.	<	-	>		-	-	60		65	-				-	15		
			Avail.	<	-	>		-	-	60		64	-				-	15		
	Trafalgar Rd & Hwy 407 EB Off	TCS	LOS	B		B	B						B		B		B		B	B
			Delay	16		19	18						12		12		16		16	14
			V/C	0.17		0.37							0.63				0.81			0.51
			Q	14		24							52				78			
	Trafalgar Rd & South Carpool Lot	TCS	LOS	C		C	C					F	B		B		B	A	B	B
			Delay	22		22	22					96	12		16		13	7	13	15
			V/C	0.20		0.21						0.96	0.64				0.72	0.06		0.59
			Q	16		17						26	70				83	6		
			Stor.	-		-						50	-				-	30		
			Avail.	-		-						24	-				-	24		
	Trafalgar Rd & William Halton Parkway	TCS	LOS	F	E	D	F	F	E	D	F	F	C	B	D	F	C	C	F	F
			Delay	281	64	42	99	267	64	47	92	170	31	20	54	473	30	27	121	93
			V/C	1.47	0.91	0.31		1.43	0.91	0.54		1.26	0.62	0.04		1.96	0.58	0.40		0.93
			Q	122	165	39		92	127	53		119	128	3		204	116	58		
			Stor.	100	-	100		100	-	150		150	-	75		-	-	-		
			Avail.	-22	-	61		8	-	97		31	-	72		-	-	-		
	Trafalgar Rd & Burnhamthorpe Rd	TCS	LOS	D	D	>	D	F	C	>	F	F	D	C	D	C	C	B	B	F
			Delay	39	44	>	42	803	28	>	485	93	40	25	42	21	20	13	20	86
			V/C	0.62	0.80	>		2.65	0.32	>		0.86	0.85	0.11		0.23	0.59	0.04		0.99
			Q	70	134	>		122	40	>		35	146	16		11	107	5		
			Stor.	30	-	>		15	-	>		60	-	60		60	-	60		
			Avail.	-40	-	>		-107	-	>		25	-	44		49	-	55		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
< / > - Shared with through movement

TABLE 5.1B: ALTERNATIVE 2031 BACKGROUND OPERATIONS (PM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Trafalgar Rd & Lower Base Line	TCS	LOS	F	D	>	E	D	F	>	F	F	C	C	D	D	B	B	C	D
			Delay	221	46	>	79	54	91	>	82	201	32	22	48	55	16	12	21	48
			V/C	1.19	0.68	>		0.83	1.05	>		1.29	0.73	0.18		0.81	0.44	0.05		1.02
			Q	44	93	>		74	196	>		118	135	12		64	75	2		
			Stor.	45	-	>		110	-	>		90	-	90		90	-	90		
			Avail.	1	-	>		36	-	>		-28	-	78		26	-	88		
	Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off	TCS	LOS	<	C	>	C	D	E	C	D	A	B		B		B	A	B	B
			Delay	<	33	>	33	50	59	33	53	8	11		11		12	8	12	16
			V/C	<	0.03	>		0.74	0.82	0.02		0.13	0.60				0.49	0.01		0.64
			Q	<	0	>		69	26	0		2	114				95	0		
			Stor.	<	-	>		-	-	60		65	-				-	15		
			Avail.	<	-	>		-	-	60		63	-				-	15		
	Trafalgar Rd & Hwy 407 EB Off	TCS	LOS	B		B	B						C		C		B		B	B
			Delay	17		18	17						23		23		16		16	20
			V/C	0.09		0.18							0.91				0.69			0.56
			Q	10		18							128				79			
	Trafalgar Rd & South Carpool Lot	TCS	LOS	C		C	C					E	B		B		A	A	A	B
			Delay	35		33	34					74	13		15		9	6	9	13
			V/C	0.39		0.29						0.88	0.78				0.54	0.03		0.61
			Q	23		22						36	128				68	3		
			Stor.	-		-						50	-				-	30		
			Avail.	-		-						14	-				-	27		
	Trafalgar Rd & William Halton Parkway	TCS	LOS	F	D	D	F	F	F	F	F	F	D	C	D	F	C	C	D	F
			Delay	535	53	42	173	160	96	221	148	106	38	23	46	190	33	27	53	98
			V/C	2.05	0.78	0.29		1.17	1.05	1.34		1.06	0.81	0.04		1.25	0.64	0.27		1.03
			Q	198	127	43		62	192	260		92	185	0		136	124	41		
			Stor.	100	-	100		100	-	150		150	-	75		-	-	-		
			Avail.	-98	-	57		38	-	-110		58	-	75		-	-	-		
	Trafalgar Rd & Burnhamthorpe Rd	TCS	LOS	F	F	>	F	F	F	>	F	D	C	B	C	F	B	A	E	F
			Delay	729	144	>	261	1637	375	>	690	43	26	16	26	300	12	9	57	191
			V/C	2.42	1.18	>		4.46	1.72	>		0.68	0.74	0.19		1.53	0.44	0.15		1.05
			Q	96	166	>		147	279	>		38	136	19		85	69	15		
			Stor.	30	-	>		15	-	>		60	-	60		60	-	60		
			Avail.	-66	-	>		-132	-	>		22	-	41		-25	-	45		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
< / > - Shared with through movement

TABLE 5.2A: ALTERNATIVE 2036 BACKGROUND OPERATIONS (AM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Trafalgar Rd & Lower Base Line	TCS	LOS	D	F	>	F	F	C	>	F	D	D	C	D	F	C	B	D	E
			Delay	39	96	>	85	490	29	>	280	53	37	26	36	139	20	13	40	76
			V/C	0.43	1.04	>		1.97	0.41	>		0.53	0.76	0.14		1.16	0.61	0.05		1.01
			Q	41	154	>		132	59	>		17	109	16		139	104	4		
			Stor.	45	-	>		110	-	>		90	-	90		90	-	90		
			Avail.	4	-	>		-22	-	>		73	-	74		-49	-	86		
	Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off	TCS	LOS	<	C	>	C	D	D	C	D	A	A		A		B	A	B	B
			Delay	<	35	>	35	45	49	34	46	8	7		7		13	7	13	13
			V/C	<	0.03	>		0.62	0.68	0.01		0.22	0.42				0.64	0.00		0.56
			Q	<	0	>		37	24	0		2	64				127	0		
			Stor.	<	-	>		-	-	60		65	-				-	15		
			Avail.	<	-	>		-	-	60		63	-				-	15		
	Trafalgar Rd & Hwy 407 EB Off	TCS	LOS	B		B	B						B		B		B		B	B
			Delay	16		20	18						13		13		17		17	16
			V/C	0.18		0.40							0.67				0.86			0.54
			Q	15		25							57				86			
	Trafalgar Rd & South Carpool Lot	TCS	LOS	C		C	C					F	B		B		B	A	B	B
			Delay	22		22	22					117	12		18		14	7	14	16
			V/C	0.22		0.23						1.03	0.69				0.77	0.06		0.62
			Q	18		18						29	78				93	6		
			Stor.	-		-						50	-				-	30		
			Avail.	-		-						21	-				-	24		
	Trafalgar Rd & William Halton Parkway	TCS	LOS	F	E	D	F	F	E	D	F	F	C	C	E	F	C	C	F	F
			Delay	323	73	43	113	276	67	50	96	227	32	20	63	620	31	28	153	109
			V/C	1.56	0.97	0.36		1.45	0.93	0.61		1.39	0.66	0.04		2.28	0.63	0.41		0.97
			Q	132	181	46		94	130	62		135	140	3		234	128	63		
			Stor.	100	-	100		100	-	150		150	-	75		-	-	-		
			Avail.	-32	-	54		6	-	88		15	-	72		-	-	-		
	Trafalgar Rd & Burnhamthorpe Rd	TCS	LOS	D	D	>	D	F	C	>	F	F	D	C	D	C	C	B	C	F
			Delay	42	47	>	46	1053	28	>	626	161	44	25	48	22	21	13	21	104
			V/C	0.68	0.85	>		3.20	0.34	>		1.08	0.90	0.12		0.25	0.63	0.04		1.02
			Q	76	144	>		106	42	>		41	159	18		11	118	6		
			Stor.	30	-	>		15	-	>		60	-	60		60	-	60		
			Avail.	-46	-	>		-91	-	>		19	-	42		49	-	54		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
< / > - Shared with through movement

TABLE 5.2B: ALTERNATIVE 2036 BACKGROUND OPERATIONS (PM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Trafalgar Rd & Lower Base Line	TCS	LOS	F	D	>	F	F	F	>	F	F	C	C	E	E	B	B	C	E
			Delay	250	49	>	86	84	121	>	112	299	33	23	60	64	17	12	22	60
			V/C	1.27	0.73	>		0.96	1.14	>		1.52	0.79	0.19		0.86	0.47	0.06		1.06
			Q	47	101	>		90	221	>		131	149	12		71	82	2		
			Stor.	45	-	>		110	-	>		90	-	90		90	-	90		
			Avail.	-2	-	>		20	-	>		-41	-	78		19	-	88		
	Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off	TCS	LOS	<	C	>	C	D	E	C	E	A	B		B		B	A	B	B
			Delay	<	33	>	33	51	62	33	55	8	12		12		13	9	13	17
			V/C	<	0.03	>		0.77	0.85	0.02		0.16	0.65				0.53	0.01		0.68
			Q	<	0	>		74	28	0		3	127				105	0		
			Stor.	<	-	>		-	-	60		65	-				-	15		
			Avail.	<	-	>		-	-	60		62	-				-	15		
	Trafalgar Rd & Hwy 407 EB Off	TCS	LOS	B		B	B						C		C		B		B	C
			Delay	17		18	17						31		31		16		16	24
			V/C	0.10		0.20							0.97				0.74			0.59
			Q	10		20							157				88			
	Trafalgar Rd & South Carpool Lot	TCS	LOS	D		C	C					F	B		B		A	A	A	B
			Delay	36		34	35					152	14		19		9	6	9	16
			V/C	0.42		0.33						1.13	0.83				0.58	0.04		0.65
			Q	25		25						27	148				76	3		
			Stor.	-		-						50	-				-	30		
			Avail.	-		-						23	-				-	27		
	Trafalgar Rd & William Halton Parkway	TCS	LOS	F	D	D	F	F	F	F	F	F	D	C	E	F	C	C	E	F
			Delay	568	54	43	183	185	111	277	181	158	42	23	55	224	34	27	58	111
			V/C	2.12	0.80	0.32		1.23	1.10	1.47		1.19	0.88	0.04		1.34	0.69	0.30		1.07
			Q	206	132	47		68	205	292		111	207	0		148	136	47		
			Stor.	100	-	100		100	-	150		150	-	75		-	-	-		
			Avail.	-106	-	53		32	-	-142		39	-	75		-	-	-		
	Trafalgar Rd & Burnhamthorpe Rd	TCS	LOS	F	F	>	F	F	F	>	F	E	C	B	C	F	B	A	E	F
			Delay	778	167	>	289	1708	423	>	738	59	27	16	28	349	12	9	65	206
			V/C	2.53	1.24	>		4.62	1.83	>		0.80	0.79	0.21		1.64	0.47	0.16		1.09
			Q	101	179	>		153	301	>		50	149	21		94	75	18		
			Stor.	30	-	>		15	-	>		60	-	60		60	-	60		
			Avail.	-71	-	>		-138	-	>		10	-	39		-34	-	42		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
< / > - Shared with through movement

TABLE 5.3A: ALTERNATIVE 2041 BACKGROUND OPERATIONS (AM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Trafalgar Rd & Lower Base Line	TCS	LOS	D	F	>	F	F	C	>	F	E	D	C	D	F	C	B	D	F
			Delay	39	111	>	97	528	30	>	300	66	38	26	37	173	21	13	46	83
			V/C	0.46	1.09	>		2.06	0.43	>		0.62	0.80	0.15		1.25	0.64	0.06		1.04
			Q	43	166	>		139	63	>		20	115	16		153	110	4		
			Stor.	45	-	>		110	-	>		90	-	90		90	-	90		
			Avail.	2	-	>		-29	-	>		70	-	74		-63	-	86		
	Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off	TCS	LOS	<	C	>	C	D	D	C	D	A	A		A		B	A	B	B
			Delay	<	34	>	34	45	50	34	47	9	7		7		13	7	13	14
			V/C	<	0.03	>		0.64	0.69	0.01		0.23	0.44				0.67	0.00		0.58
			Q	<	0	>		39	25	0		2	70				139	0		
			Stor.	<	-	>		-	-	60		65	-				-	15		
			Avail.	<	-	>		-	-	60		63	-				-	15		
	Trafalgar Rd & Hwy 407 EB Off	TCS	LOS	B		B	B						B		B		B		B	B
			Delay	16		20	19						13		13		19		19	17
			V/C	0.19		0.42							0.71				0.90			0.55
			Q	16		26							61				93			
	Trafalgar Rd & South Carpool Lot	TCS	LOS	C		C	C					F	B		B		B	A	B	B
			Delay	22		22	22					130	13		19		15	7	15	17
			V/C	0.22		0.25						1.07	0.72				0.80	0.07		0.64
			Q	18		20						31	85				100	6		
			Stor.	-		-						50	-				-	30		
			Avail.	-		-						19	-				-	24		
	Trafalgar Rd & William Halton Parkway	TCS	LOS	F	F	D	F	F	E	D	F	F	C	C	E	F	C	C	F	F
			Delay	354	83	44	125	281	69	52	98	274	33	20	70	733	32	28	178	122
			V/C	1.64	1.01	0.39		1.46	0.95	0.66		1.49	0.70	0.04		2.52	0.66	0.43		1.01
			Q	140	193	50		95	133	68		145	150	4		254	136	65		
			Stor.	100	-	100		100	-	150		150	-	75		-	-	-		
			Avail.	-40	-	50		5	-	82		5	-	71		-	-	-		
	Trafalgar Rd & Burnhamthorpe Rd	TCS	LOS	D	D	>	D	F	C	>	F	F	D	C	E	C	C	B	C	F
			Delay	44	50	>	48	1267	29	>	747	242	48	25	56	22	22	13	21	120
			V/C	0.72	0.88	>		3.67	0.35	>		1.30	0.94	0.13		0.26	0.66	0.04		1.05
			Q	80	150	>		114	43	>		46	178	19		12	125	6		
			Stor.	30	-	>		15	-	>		60	-	60		60	-	60		
			Avail.	-50	-	>		-99	-	>		14	-	41		48	-	54		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
< / > - Shared with through movement

TABLE 5.3B: ALTERNATIVE 2041 BACKGROUND OPERATIONS (PM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Trafalgar Rd & Lower Base Line	TCS	LOS	F	D	>	F	F	F	>	F	F	C	C	E	E	B	B	C	E
			Delay	274	51	>	93	115	144	>	137	381	35	23	70	73	17	12	24	70
			V/C	1.34	0.77	>		1.06	1.20	>		1.71	0.82	0.21		0.91	0.49	0.06		1.09
			Q	50	107	>		101	238	>		106	159	13		77	87	2		
			Stor.	45	-	>		110	-	>		90	-	90		90	-	90		
			Avail.	-5	-	>		9	-	>		-16	-	77		13	-	88		
	Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off	TCS	LOS	<	C	>	C	D	E	C	E	A	B		B		B	A	B	B
			Delay	<	32	>	32	51	63	32	56	9	13		13		15	10	15	18
			V/C	<	0.03	>		0.78	0.86	0.02		0.17	0.68				0.57	0.01		0.70
			Q	<	0	>		78	30	0		3	138				112	0		
			Stor.	<	-	>		-	-	60		65	-				-	15		
			Avail.	<	-	>		-	-	60		62	-				-	15		
	Trafalgar Rd & Hwy 407 EB Off	TCS	LOS	B		B	B						D		D		B		B	C
			Delay	17		18	18						41		41		17		17	30
			V/C	0.10		0.21							1.02				0.78			0.61
			Q	11		20							169				94			
	Trafalgar Rd & South Carpool Lot	TCS	LOS	D		C	D					F	B		C		A	A	A	B
			Delay	36		34	35					245	16		24		10	6	10	19
			V/C	0.44		0.36						1.36	0.87				0.61	0.04		0.68
			Q	26		27						34	164				82	4		
			Stor.	-		-						50	-				-	30		
			Avail.	-		-						16	-				-	26		
	Trafalgar Rd & William Halton Parkway	TCS	LOS	F	E	D	F	F	F	F	F	F	D	C	E	F	C	C	E	F
			Delay	592	55	43	190	205	124	317	205	203	45	23	64	248	35	28	62	122
			V/C	2.18	0.82	0.33		1.28	1.13	1.56		1.30	0.92	0.05		1.39	0.72	0.32		1.11
			Q	212	135	50		74	215	316		124	223	0		156	146	52		
			Stor.	100	-	100		100	-	150		150	-	75		-	-	-		
			Avail.	-112	-	50		26	-	-166		26	-	75		-	-	-		
	Trafalgar Rd & Burnhamthorpe Rd	TCS	LOS	F	F	>	F	F	F	>	F	E	C	B	C	F	B	A	E	F
			Delay	814	185	>	310	1765	456	>	773	77	29	16	30	383	12	9	71	217
			V/C	2.61	1.28	>		4.75	1.90	>		0.89	0.82	0.22		1.72	0.49	0.17		1.12
			Q	91	188	>		157	316	>		55	160	22		101	79	20		
			Stor.	30	-	>		15	-	>		60	-	60		60	-	60		
			Avail.	-61	-	>		-142	-	>		5	-	38		-41	-	40		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
< / > - Shared with through movement

TABLE 5.4A: ALTERNATIVE 2031 TOTAL OPERATIONS (AM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Trafalgar Rd & Lower Base Line	TCS	LOS	D	F	>	F	F	C	>	E	C	D	C	D	F	D	C	D	E
			Delay	42	112	>	99	109	24	>	72	31	54	32	50	103	36	22	46	57
			V/C	0.44	1.08	>		1.08	0.32	>		0.35	0.94	0.16		1.06	0.82	0.05		0.88
			Q	40	150	>		92	47	>		9	125	19		125	145	1		
			Stor.	45	-	>		110	-	>		90	-	90		90	-	90		
			Avail.	5	-	>		18	-	>		81	-	71		-35	-	89		
	Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off	TCS	LOS	<	C	>	C	C	D	C	C	A	A		A		B	A	B	B
			Delay	<	23	>	23	33	38	23	35	9	8		8		15	8	15	14
			V/C	<	0.03	>		0.66	0.72	0.01		0.17	0.49				0.77	0.00		0.58
			Q	<	0	>		32	20	0		1	52				110	0		
			Stor.	<	-	>		-	-	60		65	-				-	15		
			Avail.	<	-	>		-	-	60		64	-				-	15		
	Trafalgar Rd & Hwy 407 EB Off	TCS	LOS	B		C	C						B		B		B		B	B
			Delay	16		23	21						13		13		20		20	17
			V/C	0.17		0.55							0.70				0.90			0.58
			Q	14		35							61				94			
	Trafalgar Rd & William Halton Parkway	TCS	LOS	F	F	D	F	F	E	D	E	D	F	C	E	F	D	C	E	E
			Delay	91	119	36	100	126	67	43	71	40	81	33	66	109	44	34	62	72
			V/C	0.86	1.10	0.29		1.05	0.92	0.83		0.75	1.00	0.30		1.06	0.69	0.61		0.95
			Q	57	214	38		75	139	131		47	186	43		148	142	117		
			Stor.	100	-	100		100	-	150		150	-	75		150	-	150		
			Avail.	43	-	62		25	-	19		103	-	32		2	-	33		
	Trafalgar Rd & Burnhamthorpe Rd	TCS	LOS	D	D	>	D	F	C	>	F	D	D	C	D	D	C	B	C	E
			Delay	39	37	>	38	496	26	>	275	43	36	22	36	40	33	20	33	64
			V/C	0.68	0.74	>		1.98	0.37	>		0.63	0.83	0.11		0.63	0.76	0.04		0.88
			Q	75	126	>		111	45	>		15	154	16		16	139	7		
			Stor.	30	-	>		15	-	>		60	-	60		60	-	60		
			Avail.	-45	-	>		-96	-	>		45	-	44		44	-	53		
	ARGO/Street C & William Halton Parkway	TWSC	LOS		A	>	A		A	>	A			B	B			B	B	A
			Delay		0	>	0		0	>	0			13	13			11	11	1
			V/C		0.68	>			0.50	>				0.18				0.31		
			Q		0	>			0	>				5				11		
	ARGO/Street D & William Halton Parkway	TCS	LOS	D	B	>	C	D	D	>	D	D	B	>	C	B	B	>	B	C
			Delay	43	15	>	23	48	48	>	48	38	20	>	34	20	19	>	20	31
			V/C	0.86	0.71	>		0.58	0.94	>		0.82	0.17	>		0.13	0.11	>		0.92
			Q	82	132	>		31	131	>		77	20	>		14	13	>		
			Stor.	-	-	>		-	-	>		50	-	>		-	-	>		
			Avail.	-	-	>		-	-	>		-27	-	>		-	-	>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

TABLE 5.4B: ALTERNATIVE 2031 TOTAL OPERATIONS (PM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Trafalgar Rd & Lower Base Line	TCS	LOS	D	D	>	D	C	F	>	E	E	D	C	D	E	D	C	D	D
			Delay	38	39	>	39	26	86	>	70	63	50	28	48	74	39	26	42	49
			V/C	0.58	0.59	>		0.63	1.04	>		0.90	0.95	0.26		0.92	0.80	0.05		0.93
			Q	17	90	>		56	195	>		80	187	21		70	135	0		
			Stor.	45	-	>		110	-	>		90	-	90		90	-	90		
			Avail.	28	-	>		54	-	>		10	-	69		20	-	90		
	Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off	TCS	LOS	<	C	>	C	D	D	C	D	A	B		B		B	A	B	B
			Delay	<	24	>	24	38	46	24	41	10	14		14		15	10	15	18
			V/C	<	0.03	>		0.74	0.81	0.02		0.18	0.74				0.63	0.01		0.70
			Q	<	0	>		64	24	0		3	137				110	0		
			Stor.	<	-	>		-	-	60		65	-				-	15		
			Avail.	<	-	>		-	-	60		62	-				-	15		
	Trafalgar Rd & Hwy 407 EB Off	TCS	LOS	C		C	C						C		C		B		B	B
			Delay	21		25	24						21		21		15		15	18
			V/C	0.10		0.37							0.90				0.70			0.60
			Q	12		36							147				95			
	Trafalgar Rd & William Halton Parkway	TCS	LOS	F	F	D	F	F	F	F	F	E	F	D	F	F	D	D	D	F
			Delay	249	88	44	119	315	141	292	237	66	100	42	86	85	42	35	52	128
			V/C	1.36	1.01	0.16		1.53	1.17	1.54		0.76	1.09	0.45		0.96	0.72	0.37		1.12
			Q	98	168	24		100	213	445		60	235	31		124	133	61		
			Stor.	150	-	100		150	-	150		150	-	75		150	-	150		
			Avail.	52	-	76		50	-	-295		90	-	44		26	-	89		
	Trafalgar Rd & Burnhamthorpe Rd	TCS	LOS	E	F	>	F	F	F	>	F	D	F	C	F	F	C	C	E	F
			Delay	56	122	>	108	249	373	>	343	39	126	27	113	253	30	20	68	140
			V/C	0.83	1.13	>		1.42	1.71	>		0.71	1.18	0.18		1.43	0.69	0.15		1.08
			Q	51	159	>		107	288	>		21	228	13		95	121	17		
			Stor.	30	-	>		15	-	>		60	-	60		60	-	60		
			Avail.	-21	-	>		-92	-	>		39	-	47		-35	-	43		
	ARGO/Street C & William Halton Parkway	TWSC	LOS		A	>	A		A	>	A			B	B			C	C	A
			Delay		0	>	0		0	>	0			11	11			20	20	2
			V/C		0.60	>			0.76	>				0.07				0.63		
			Q		0	>			0	>				2				36		
	ARGO/Street D & William Halton Parkway	TCS	LOS	F	B	>	F	B	D	>	D	E	C	>	E	D	D	>	D	E
			Delay	319	18	>	128	16	42	>	40	72	30	>	65	52	48	>	49	80
			V/C	1.57	0.55	>		0.40	0.95	>		0.93	0.05	>		0.57	0.47	>		0.99
			Q	141	107	>		20	241	>		89	11	>		35	40	>		
			Stor.	120	-	>		55	-	>		115	-	>		-	-	>		
			Avail.	-21	-	>		35	-	>		26	-	>		-	-	>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

TABLE 5.5A: ALTERNATIVE 2036 TOTAL OPERATIONS (AM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Trafalgar Rd & Lower Base Line	TCS	LOS	D	F	>	F	F	C	>	F	F	F	C	E	F	C	B	D	E
			Delay	41	162	>	139	183	24	>	115	83	87	28	77	181	26	15	48	76
			V/C	0.51	1.22	>		1.29	0.37	>		0.70	1.09	0.26		1.27	0.81	0.05		1.09
			Q	40	162	>		109	50	>		21	164	24		137	140	4		
			Stor.	45	-	>		110	-	>		90	-	90		90	-	90		
			Avail.	5	-	>		1	-	>		69	-	66		-47	-	86		
	Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off	TCS	LOS	<	C	>	C	D	E	C	E	B	A		A		B	A	B	B
			Delay	<	29	>	29	55	68	29	60	13	10		10		18	8	18	18
			V/C	<	0.03	>		0.82	0.89	0.01		0.25	0.58				0.81	0.00		0.66
			Q	<	0	>		53	32	0		1	79				149	0		
			Stor.	<	-	>		-	-	60		65	-				-	15		
			Avail.	<	-	>		-	-	60		64	-				-	15		
	Trafalgar Rd & Hwy 407 EB Off	TCS	LOS	C		D	D						B		B		C		C	C
			Delay	25		48	43						17		17		24		24	23
			V/C	0.19		0.83							0.80				0.93			0.70
			Q	22		77							116				160			
	Trafalgar Rd & William Halton Parkway	TCS	LOS	F	F	C	F	F	F	F	F	F	F	C	E	F	E	C	F	F
			Delay	280	107	33	153	282	136	107	157	81	87	32	79	301	57	34	118	124
			V/C	1.46	1.09	0.44		1.44	1.15	1.08		0.99	1.05	0.40		1.51	0.94	0.75		1.04
			Q	167	226	64		90	162	159		82	209	59		179	191	142		
			Stor.	100	-	100		100	-	150		150	-	75		150	-	150		
			Avail.	-67	-	36		10	-	-9		68	-	16		-29	-	8		
	Trafalgar Rd & Burnhamthorpe Rd	TCS	LOS	F	F	>	F	F	F	>	F	F	D	C	E	F	E	C	E	F
			Delay	113	161	>	139	175	125	>	149	166	46	23	60	90	79	24	79	90
			V/C	1.11	1.22	>		1.24	1.08	>		1.22	0.94	0.08		0.98	1.06	0.05		0.97
			Q	159	199	>		67	93	>		77	187	10		38	220	0		
			Stor.	30	-	>		15	-	>		60	-	60		60	-	60		
			Avail.	-129	-	>		-52	-	>		-17	-	50		22	-	60		
	ARGO/Street C & William Halton Parkway	TWSC	LOS		A	>	A		A	>	A			B	B			B	B	A
			Delay		0	>	0		0	>	0			14	14			11	11	1
			V/C		0.76	>			0.53	>				0.19				0.32		
			Q		0	>			0	>				5				11		
	ARGO/Street D & William Halton Parkway	TCS	LOS	D	B	>	C	E	D	>	D	D	C	>	D	C	C	>	C	C
			Delay	49	17	>	26	58	39	>	40	47	24	>	41	23	23	>	23	31
			V/C	0.87	0.77	>		0.65	0.86	>		0.85	0.19	>		0.14	0.11	>		0.97
			Q	88	168	>		35	139	>		88	24	>		16	14	>		
			Stor.	-	-	>		-	-	>		50	-	>		-	-	>		
			Avail.	-	-	>		-	-	>		-38	-	>		-	-	>		
	Street F & William Halton Parkway	TWSC	LOS		A	>	A		A	A	A			B	B			B	B	A
			Delay		0	>	0		0	0	0			12	12			15	15	2
			V/C		0.74	>			0.43	0.43				0.14				0.53		
			Q		0	>			0	0				4				25		
			Stor.	-	-	>		-	-	50		-	-	-		-	-	-		
			Avail.	-	-	>		-	-	50		-	-	-		-	-	-		
	West Drive & William Halton Parkway	TCS	LOS	B	C	>	C	F	B	>	C	D	D	>	D	D	C	>	D	C
			Delay	16	33	>	33	87	16	>	26	35	49	>	48	36	27	>	36	31
			V/C	0.13	0.92	>		1.00	0.76	>		0.13	0.74	>		0.61	0.01	>		1.00
			Q	7	235	>		100	192	>		14	69	>		29	4	>		
			Stor.	100	-	>		100	-	>		50	-	>		50	-	>		
			Avail.	93	-	>		0	-	>		36	-	>		21	-	>		
	West Drive & Loyalist Trail	TWSC	LOS	<	A	>	A	<	A	>	A	<	B	>	B	<	C	>	C	A
			Delay	<	6	>	6	<	0	>	0	<	14	>	14	<	20	>	20	10
			V/C	<	0.03	>		<	0.00	>		<	0.33	>		<	0.56	>		
			Q	<	1	>		<	0	>		<	11	>		<	27	>		
	Loyalist Trail & Street F	TWSC	LOS	<	A		A		A	>	A					C		>	C	A
			Delay	<	2		2		0	>	0					15		>	15	6
			V/C	<	0.03				0.19	>						0.47		>		
			Q	<	1				0	>						20		>		
	Trafalgar Rd & Loyalist Trail/ARGO	TWSC	LOS			B	B			B	B		A	A	A		A	A	A	A
			Delay			12	12			11	11		0	0	0		0	0	0	1
			V/C			0.30				0.12			0.41	0.41			0.37	0.37		
			Q			10				3			0	0			0	0		
	Burnhamthorpe Rd & West Drive	TWSC	LOS	<	A		A		A	>	A					F		>	F	B
			Delay	<	0		0		0	>	0					69		>	69	10
			V/C	<	0.01				0.25	>						0.85		>		
			Q	<	0				0	>						54		>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

TABLE 5.5B: ALTERNATIVE 2036 TOTAL OPERATIONS (PM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Trafalgar Rd & Lower Base Line	TCS	LOS	D	D	>	D	D	F	>	F	F	E	C	E	F	D	C	D	E
			Delay	44	49	>	48	41	139	>	112	97	77	28	70	114	50	24	55	70
			V/C	0.63	0.74	>		0.82	1.19	>		1.01	1.07	0.39		1.06	0.96	0.06		1.02
			Q	18	103	>		75	229	>		94	240	36		82	197	0		
			Stor.	45	-	>		110	-	>		90	-	90		90	-	90		
			Avail.	27	-	>		35	-	>		-4	-	54		8	-	90		
	Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off	TCS	LOS	<	C	>	C	E	E	C	E	B	C		C		C	B	C	C
			Delay	<	27	>	27	60	80	27	68	15	22		22		21	11	21	27
			V/C	<	0.03	>		0.89	0.97	0.02		0.23	0.89				0.78	0.01		0.83
			Q	<	0	>		113	35	0		3	197				158	0		
			Stor.	<	-	>		-	-	60		65	-				-	15		
			Avail.	<	-	>		-	-	60		62	-				-	15		
	Trafalgar Rd & Hwy 407 EB Off	TCS	LOS	C		D	D						C		C		B		B	C
			Delay	26		51	47						33		33		17		17	27
			V/C	0.13		0.83							1.00				0.83			0.74
			Q	14		97							242				148			
	Trafalgar Rd & William Halton Parkway	TCS	LOS	F	F	D	F	F	F	F	F	F	F	D	F	F	E	D	F	F
			Delay	442	87	49	220	240	182	442	300	347	141	44	165	258	70	49	103	193
			V/C	1.82	1.00	0.44		1.35	1.26	1.86		1.59	1.19	0.48		1.40	1.00	0.70		1.31
			Q	233	198	69		105	250	536		135	295	35		166	225	141		
			Stor.	150	-	100		150	-	150		150	-	75		150	-	150		
			Avail.	-83	-	31		45	-	-386		15	-	40		-16	-	9		
	Trafalgar Rd & Burnhamthorpe Rd	TCS	LOS	F	F	>	F	F	F	>	F	F	F	C	F	F	E	C	F	F
			Delay	356	96	>	186	274	394	>	367	361	246	33	246	410	62	29	123	219
			V/C	1.67	1.06	>		1.48	1.76	>		1.68	1.44	0.23		1.79	1.00	0.23		1.28
			Q	163	162	>		122	351	>		159	301	19		143	206	33		
			Stor.	30	-	>		15	-	>		60	-	60		60	-	60		
			Avail.	-133	-	>		-107	-	>		-99	-	41		-83	-	27		
	ARGO/Street C & William Halton Parkway	TWSC	LOS		A	>	A		A	>	A			B	B			C	C	A
			Delay		0	>	0		0	>	0			12	12			18	18	2
			V/C		0.67	>			0.81	>				0.07				0.60		
			Q		0	>			0	>				2				33		
	ARGO/Street D & William Halton Parkway	TCS	LOS	F	C	>	E	C	F	>	F	F	C	>	E	C	C	>	C	F
			Delay	150	24	>	66	20	114	>	107	85	30	>	76	32	31	>	32	82
			V/C	1.18	0.67	>		0.46	1.15	>		0.96	0.05	>		0.21	0.16	>		1.04
			Q	126	142	>		20	297	>		119	12	>		29	20	>		
			Stor.	120	-	>		55	-	>		115	-	>		-	-	>		
			Avail.	-6	-	>		35	-	>		-4	-	>		-	-	>		
	Street F & William Halton Parkway	TWSC	LOS		A	>	A		A	A	A			B	B			C	C	A
			Delay		0	>	0		0	0	0			12	12			17	17	2
			V/C		0.77	>			0.48	0.48				0.14				0.56		
			Q		0	>			0	0				4				28		
			Stor.	-	-	>		-	-	50		-	-	-		-	-	-		
			Avail.	-	-	>		-	-	50		-	-	-		-	-	-		
	West Drive & William Halton Parkway	TCS	LOS	B	D	>	D	D	C	>	C	C	D	>	D	D	C	>	D	D
			Delay	19	50	>	49	50	26	>	28	34	55	>	53	45	26	>	44	40
			V/C	0.25	0.99	>		0.83	0.90	>		0.12	0.83	>		0.73	0.01	>		1.13
			Q	10	283	>		72	297	>		14	94	>		36	4	>		
			Stor.	100	-	>		100	-	>		50	-	>		50	-	>		
			Avail.	90	-	>		28	-	>		36	-	>		14	-	>		
	West Drive & Loyalist Trail	TWSC	LOS	<	A	>	A	<	A	>	A	<	B	>	B	<	D	>	D	B
			Delay	<	6	>	6	<	0	>	0	<	15	>	15	<	25	>	25	11
			V/C	<	0.08	>		<	0.00	>		<	0.42	>		<	0.58	>		
			Q	<	2	>		<	0	>		<	17	>		<	28	>		
	Loyalist Trail & Street F	TWSC	LOS	<	A		A		A	>	A					C		>	C	A
			Delay	<	4		4		0	>	0					17		>	17	6
			V/C	<	0.11				0.23	>						0.46		>		
			Q	<	3				0	>						19		>		
	Trafalgar Rd & Loyalist Trail/ARGO	TWSC	LOS			B	B			B	B		A	A	A		A	A	A	A
			Delay			12	12			10	10		0	0	0		0	0	0	1
			V/C			0.29				0.09			0.50	0.50			0.39	0.39		
			Q			10				2			0	0			0	0		
			Stor.	-	-	-		-	-	-		-	-	50		-	-	50		
			Avail.	-	-	-		-	-	-		-	-	50		-	-	50		
	Burnhamthorpe Rd & West Drive	TWSC	LOS	<	A		A		A	>	A					F		>	F	F
			Delay	<	0		0		0	>	0					694		>	694	68
			V/C	<	0.01				0.57	>						2.27		>		
			Q	<	0				0	>						131		>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

TABLE 5.6A: ALTERNATIVE 2041 TOTAL OPERATIONS (AM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Trafalgar Rd & Lower Base Line	TCS	LOS	C	F	>	F	F	D	>	F	C	F	C	E	F	D	B	E	F
			Delay	33	200	>	168	242	40	>	156	31	85	30	75	205	42	19	65	90
			V/C	0.40	1.30	>		1.42	0.57	>		0.39	1.08	0.31		1.32	0.95	0.06		1.02
			Q	31	186	>		131	75	>		9	184	35		157	190	0		
			Stor.	45	-	>		110	-	>		90	-	90		90	-	90		
			Avail.	14	-	>		-21	-	>		81	-	55		-67	-	90		
	Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off	TCS	LOS	<	C	>	C	D	D	C	D	C	B		B		B	A	B	B
			Delay	<	24	>	24	39	46	24	42	21	13		13		16	7	16	17
			V/C	<	0.03	>		0.74	0.80	0.01		0.36	0.68				0.84	0.00		0.69
			Q	<	0	>		50	31	0		2	110				150	0		
			Stor.	<	-	>		-	-	60		65	-				-	15		
			Avail.	<	-	>		-	-	60		63	-				-	15		
	Trafalgar Rd & Hwy 407 EB Off	TCS	LOS	C		E	E						B		B		C		C	C
			Delay	26		76	66						16		16		25		25	25
			V/C	0.22		0.99							0.80				0.95			0.74
			Q	23		98							117				170			
	Trafalgar Rd & William Halton Parkway	TCS	LOS	F	F	D	F	F	F	F	F	F	F	D	F	F	E	D	F	F
			Delay	307	155	36	186	267	151	122	165	88	116	35	99	296	59	36	123	140
			V/C	1.51	1.20	0.42		1.40	1.18	1.12		1.00	1.12	0.45		1.50	0.94	0.76		1.09
			Q	182	266	61		98	177	190		91	241	70		212	211	157		
			Stor.	100	-	100		100	-	150		150	-	75		150	-	150		
			Avail.	-82	-	39		2	-	-40		59	-	5		-62	-	-7		
	Trafalgar Rd & Burnhamthorpe Rd	TCS	LOS	F	F	>	F	F	F	>	F	F	D	C	E	F	E	C	E	F
			Delay	157	189	>	175	199	145	>	170	189	50	24	65	102	78	25	78	100
			V/C	1.21	1.28	>		1.30	1.13	>		1.26	0.95	0.09		1.01	1.06	0.05		1.00
			Q	186	224	>		77	108	>		86	214	13		44	243	0		
			Stor.	30	-	>		15	-	>		60	-	60		60	-	60		
			Avail.	-156	-	>		-62	-	>		-26	-	47		16	-	60		
	ARGO/Street C & William Halton Parkway	TWSC	LOS		A	>	A		A	>	A			C	C			B	B	A
			Delay		0	>	0		0	>	0			17	17			12	12	1
			V/C		0.84	>			0.56	>				0.24				0.32		
			Q		0	>			0	>				7				11		
	ARGO/Street D & William Halton Parkway	TCS	LOS	E	C	>	C	F	D	>	D	E	C	>	E	C	C	>	C	D
			Delay	70	20	>	33	95	39	>	42	72	31	>	62	31	30	>	30	39
			V/C	0.94	0.80	>		0.81	0.79	>		0.94	0.19	>		0.14	0.12	>		1.02
			Q	111	198	>		41	142	>		129	29	>		20	18	>		
			Stor.	100	-	>		100	-	>		50	-	>		-	-	>		
			Avail.	-11	-	>		59	-	>		-79	-	>		-	-	>		

TABLE 5.6A: ALTERNATIVE 2041 TOTAL OPERATIONS (AM PEAK HOUR) CON'T

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																Overall
				Eastbound				Westbound				Northbound				Southbound				
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Street F & William Halton Parkway	TWSC	LOS		A	>	A		A	A	A			B	B			C	C	A
			Delay		0	>	0		0	0	0			12	12			15	15	2
			V/C		0.77	>			0.44	0.44				0.14				0.55		
			Q		0	>			0	0				4				28		
			Stor.	-	-	>		-	-	50		-	-	-		-	-	-		
			Avail.	-	-	>		-	-	50		-	-	-		-	-	-		
	West Drive & William Halton Parkway	TCS	LOS	B	D	>	D	E	B	>	C	D	D	>	D	D	C	>	D	C
			Delay	16	42	>	41	69	16	>	23	36	48	>	48	37	28	>	36	33
			V/C	0.14	0.97	>		0.94	0.77	>		0.14	0.72	>		0.61	0.01	>		1.01
			Q	7	257	>		96	198	>		14	66	>		30	4	>		
			Stor.	100	-	>		100	-	>		50	-	>		50	-	>		
			Avail.	93	-	>		4	-	>		36	-	>		20	-	>		
	West Drive & Loyalist Trail	TWSC	LOS	<	A	>	A	<	A	>	A	<	B	>	B	<	C	>	C	A
			Delay	<	6	>	6	<	0	>	0	<	14	>	14	<	20	>	20	10
			V/C	<	0.03	>		<	0.00	>		<	0.33	>		<	0.56	>		
			Q	<	1	>		<	0	>		<	11	>		<	27	>		
	Loyalist Trail & Street F	TWSC	LOS	<	A		A		A	>	A					C		>	C	A
			Delay	<	2		2		0	>	0					15		>	15	6
			V/C	<	0.03				0.19	>						0.47		>		
			Q	<	1				0	>						20		>		
	Trafalgar Rd & Loyalist Trail/ARGO	TWSC	LOS			B	B			B	B		A	A	A		A	A	A	A
			Delay			12	12			11	11		0	0	0		0	0	0	1
			V/C			0.30				0.12			0.44	0.44			0.39	0.39		
			Q			10				3			0	0			0	0		
			Stor.	-	-	-		-	-	-		-	-	100		-	-	100		
			Avail.	-	-	-		-	-	-		-	-	100		-	-	100		
	Burnhamthorpe Rd & West Drive	TWSC	LOS	A	A		A		A	>	A					F		>	F	B
			Delay	8	0		0		0	>	0					81		>	81	12
			V/C	0.01	0.45				0.26	>						0.90		>		
			Q	0	0				0	>						59		>		
			Stor.	50	-				-	>						-		>		
			Avail.	50	-				-	>						-		>		
	William Halton Parkway & Street E	TWSC	LOS	B	A		A		A	>	A					C		>	C	A
			Delay	11	0		1		0	>	0					20		>	20	1
			V/C	0.14	0.48				0.39	>						0.14		>		
			Q	4	0				0	>						4		>		
			Stor.	100	-				-	>						-		>		
			Avail.	96	-				-	>						-		>		
	Street D & Street B	TWSC	LOS					B		>	B		A	>	A	<	A		A	A
			Delay					12		>	12		0	>	0	<	0		0	0
			V/C					0.03		>			0.15	>		<	0.00			
			Q					1		>			0	>		<	0			
	Street D & Street A	TWSC	LOS		A	>	A	<	A		A	A		A	A					A
			Delay		0	>	0	<	0		0	10		9	9					8
			V/C		0.04	>		<	0.00			0.19		0.18						
			Q		0	>		<	0			6		5						
	Street E & Street A	TWSC	LOS		A	>	A	<	A		A	A		>	A					A
			Delay		0	>	0	<	0		0	9		>	9					6
			V/C		0.02	>		<	0.00			0.07		>						
			Q		0	>		<	0			2		>						
	Street E & Street B	TWSC	LOS	A		>	A					<	A		A		A	>	A	A
			Delay	8		>	8					<	0		0		0	>	0	0
			V/C	0.00		>						<	0.00				0.02	>		
			Q	0		>						<	0				0	>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

TABLE 5.6B: ALTERNATIVE 2041 TOTAL OPERATIONS (PM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Trafalgar Rd & Lower Base Line	TCS	LOS	D	D	>	D	D	F	>	F	F	F	B	F	F	D	C	E	F
			Delay	41	54	>	52	53	186	>	148	140	96	19	87	138	51	20	58	85
			V/C	0.58	0.80	>		0.89	1.29	>		1.15	1.12	0.50		1.13	0.97	0.06		1.07
			Q	19	116	>		93	250	>		104	259	59		89	205	2		
			Stor.	45	-	>		110	-	>		90	-	90		90	-	90		
			Avail.	26	-	>		17	-	>		-14	-	31		1	-	88		
	Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off	TCS	LOS	<	C	>	C	E	F	C	E	B	C		C		C	B	C	C
			Delay	<	25	>	25	65	90	25	75	16	28		28		22	11	22	32
			V/C	<	0.03	>		0.93	1.02	0.02		0.23	0.97				0.85	0.01		0.86
			Q	<	0	>		112	34	0		3	230				177	0		
			Stor.	<	-	>		-	-	60		65	-				-	15		
			Avail.	<	-	>		-	-	60		62	-				-	15		
	Trafalgar Rd & Hwy 407 EB Off	TCS	LOS	C		E	E						C		C		B		B	C
			Delay	32		78	71						31		31		16		16	27
			V/C	0.15		0.96							0.99				0.82			0.77
			Q	17		119							278				158			
	Trafalgar Rd & William Halton Parkway	TCS	LOS	F	E	D	F	F	F	F	F	F	F	C	F	F	F	C	F	F
			Delay	451	79	38	217	418	202	503	371	374	176	35	192	275	80	34	112	222
			V/C	1.84	0.98	0.49		1.75	1.30	2.00		1.65	1.27	0.56		1.44	1.04	0.72		1.38
			Q	236	198	86		135	263	596		142	320	62		180	239	162		
			Stor.	150	-	100		150	-	150		150	-	75		150	-	150		
			Avail.	-86	-	14		15	-	-446		8	-	13		-30	-	-12		
	Trafalgar Rd & Burnhamthorpe Rd	TCS	LOS	F	F	>	F	F	F	>	F	F	F	C	F	F	F	C	F	F
			Delay	353	113	>	196	285	441	>	406	357	272	31	266	454	82	27	145	241
			V/C	1.67	1.11	>		1.51	1.87	>		1.68	1.51	0.24		1.90	1.07	0.24		1.33
			Q	154	170	>		117	348	>		149	298	18		143	214	33		
			Stor.	30	-	>		15	-	>		60	-	60		60	-	60		
			Avail.	-124	-	>		-102	-	>		-89	-	42		-83	-	27		
	ARGO/Street C & William Halton Parkway	TWSC	LOS		A	>	A		A	>	A			B	B			C	C	A
			Delay		0	>	0		0	>	0			12	12			21	21	2
			V/C		0.71	>			0.90	>				0.07				0.65		
			Q		0	>			0	>				2				38		
	ARGO/Street D & William Halton Parkway	TCS	LOS	F	B	>	E	B	F	>	F	E	D	>	E	<	D	D	D	E
			Delay	135	20	>	58	18	108	>	103	66	36	>	61	<	39	38	38	76
			V/C	1.14	0.64	>		0.45	1.15	>		0.87	0.05	>		<	0.30	0.23		0.98
			Q	141	154	>		20	357	>		102	12	>		<	36	30		
			Stor.	120	-	>		55	-	>		115	-	>		<	-	-		
			Avail.	-21	-	>		35	-	>		13	-	>		<	-	-		

TABLE 5.6B: ALTERNATIVE 2041 TOTAL OPERATIONS (PM PEAK HOUR) – CON'T

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Street F & William Halton Parkway	TWSC	LOS		A	>	A		A	A	A			B	B			C	C	A
			Delay		0	>	0		0	0	0			12	12			19	19	2
			V/C		0.78	>			0.50	0.50				0.14				0.62		
			Q		0	>			0	0				4				34		
			Stor.	-	-	>		-	-	50		-	-	-		-	-	-		
			Avail.	-	-	>		-	-	50		-	-	-		-	-	-		
	West Drive & William Halton Parkway	TCS	LOS	B	D	>	D	E	C	>	C	D	E	>	E	E	C	>	E	D
			Delay	20	44	>	44	56	27	>	29	38	62	>	60	61	30	>	59	39
			V/C	0.27	0.96	>		0.83	0.90	>		0.12	0.85	>		0.80	0.01	>		1.15
			Q	11	299	>		76	323	>		16	104	>		45	4	>		
			Stor.	100	-	>		100	-	>		50	-	>		50	-	>		
			Avail.	89	-	>		24	-	>		34	-	>		5	-	>		
	West Drive & Loyalist Trail	TWSC	LOS	<	A	>	A	<	A	>	A	<	B	>	B	<	D	>	D	B
			Delay	<	6	>	6	<	0	>	0	<	15	>	15	<	25	>	25	11
			V/C	<	0.08	>		<	0.00	>		<	0.42	>		<	0.58	>		
			Q	<	2	>		<	0	>		<	17	>		<	28	>		
	Loyalist Trail & Street F	TWSC	LOS	<	A		A		A	>	A					C		>	C	A
			Delay	<	4		4		0	>	0					17		>	17	6
			V/C	<	0.11				0.23	>						0.46		>		
			Q	<	3				0	>						19		>		
	Trafalgar Rd & Loyalist Trail/ARGO	TWSC	LOS			B	B			B	B		A	A	A		A	A	A	A
			Delay			12	12			10	10		0	0	0		0	0	0	1
			V/C			0.30				0.09			0.52	0.52			0.42	0.42		
			Q			10				2			0	0			0	0		
			Stor.	-	-	-		-	-	-		-	-	50		-	-	50		
			Avail.	-	-	-		-	-	-		-	-	50		-	-	50		
	Burnhamthorpe Rd & West Drive	TWSC	LOS	B	A		A		A	>	A					F		>	F	F
			Delay	12	0		0		0	>	0					828		>	828	79
			V/C	0.01	0.39				0.59	>						2.54		>		
			Q	0	0				0	>						138		>		
			Stor.	50	-				-	>						-		>		
			Avail.	50	-				-	>						-		>		
	William Halton Parkway & Street E	TWSC	LOS	C	A		A		A	>	A					F		>	F	B
			Delay	17	0		1		0	>	0					345		>	345	14
			V/C	0.13	0.35				0.71	>						1.46		>		
			Q	4	0				0	>						78		>		
			Stor.	100	-				-	>						-		>		
			Avail.	96	-				-	>						-		>		
	Street D & Street B	TWSC	LOS					B		>	B		A	>	A	<	A		A	A
			Delay					11		>	11		0	>	0	<	0		0	1
			V/C					0.10		>			0.10	>		<	0.00			
			Q					3		>			0	>		<	0			
	Street D & Street A	TWSC	LOS		A	>	A	<	A		A	B		A	B					A
			Delay		0	>	0	<	8		8	13		9	11					10
			V/C		0.00	>		<	0.11			0.22		0.12						
			Q		0	>		<	3			7		3						
	Street E & Street A	TWSC	LOS		A	>	A	<	A		A	A		>	A					A
			Delay		0	>	0	<	7		7	10		>	10					8
			V/C		0.00	>		<	0.05			0.04		>						
			Q		0	>		<	1			1		>						
	Street E & Street B	TWSC	LOS	A		>	A					<	A		A		A	>	A	A
			Delay	9		>	9					<	0		0		0	>	0	2
			V/C	0.04		>						<	0.00				0.05	>		
			Q	1		>						<	0				0	>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

6 Conclusions and Recommendations

6.1 Conclusions

Based on the investigations carried out, it is concluded that:

- **Existing Traffic Operations:** Capacity issues are identified along the Trafalgar Road corridor. Trafalgar Road has over 30,000 vehicles per day near the Highway 407 Ramp terminal which reflects the higher end of the capacity of an arterial road.
- **Estimated Site Generated Traffic:** Based on the illustrative concept plan, the subject site, following 2031 build-out, is estimated to generate approximately 917 vehicle trips during the AM peak hour and 1,196 vehicle trips during the PM peak hour. Following 2036 build-out, it is estimated to generate a total of 2,465 vehicle trips during the AM peak hour and 3,176 vehicle trips during the PM peak hour. Following 2041 build-out, it is estimated to generate a total of 2,658 vehicle trips during the AM peak hour and 3,411 vehicle trips during the trips during the PM peak hour.
- **Background Traffic Operations:** As the traffic volumes increase at the study area intersections, capacity issues continue along Trafalgar Road. Under the 203, 2036 and 2041 background horizon years, Trafalgar Road, near the Highway 407 ramp terminal, is forecast to have more than 39,000 and 50,000 vehicles per day.
- **Total Traffic Operations:** The capacity deficiencies identified under background conditions will continue to occur with the addition of site generated traffic. With the addition of the site generated traffic for the 2031, 2036 and 2041 total horizon years, Trafalgar Road, near the Highway 407 ramp terminal, is forecast to have more than 50,000 and 68,000 vehicles per day, respectively.

6.2 Recommendations

Based on the findings of this study, it is recommended that:

- When each parcel is pursuing Zoning Bylaw Amendment or Site Plan Application, that detailed Transportation Impact Study and Transit Facilities Plan be prepared as part of submission.
- That Halton Region and the Town of Oakville monitor the future traffic volumes along the Trafalgar Road corridor and optimize the signal timings accordingly. The need for improvements at

the study area intersections are noted to occur with or without the development of the subject site.

- That Halton Region and the Town of Oakville prioritize public transit and active transportation modes along the Trafalgar Road corridor to reduce the need for single-occupant vehicles.

Appendix A

Pre-Study Consultation

From: Krusto, Matt
To: Andrew Evans; Erica Bayley
Subject: RE: (210156/210157) Trafalgar & Hwy 407 TIS - Scope of Work
Date: July 26, 2021 2:05:59 PM
Attachments: image001.png

Hi Andrew,

Sorry for the delay on this one, the William Halton Parkway numbers took a bit more time to produce.

Trafalgar Road:

For the Trafalgar Road growth rate, our transportation modeler recommends to use a standard 2%.

William Halton Parkway:

The peak hour volumes (4 lanes, two directions) just west of Trafalgar are 2031 AM: 1700, 2031 PM: 2100.

I hope this helps.

Matt

From: Krusto, Matt <Matt.Krusto@halton.ca>
Sent: Tuesday, July 13, 2021 3:40 PM
To: Andrew Evans <aevans@ptsl.com>
Cc: Erica Bayley <ebayley@ptsl.com>
Subject: Re: (210156/210157) Trafalgar & Hwy 407 TIS - Scope of Work

Hi Andrew,

I will follow up on this one asap tomorrow. Sorry for the delay.

Matt

Sent via BlackBerry Hub+ Inbox for Android

From: aevans@ptsl.com
Sent: July 13, 2021 2:57 p.m.
To: Matt.Krusto@halton.ca
Cc: ebayley@ptsl.com
Subject: RE: (210156/210157) Trafalgar & Hwy 407 TIS - Scope of Work

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Hi Matt,

Just following up with regards to the Emme growth rate.

Thank you and regards.

Andrew Evans, M.Sc.
Transportation Planner

Paradigm Transportation Solutions Limited
p: 905.381.2229 x **305**
m: 519.497.3239

From: Krusto, Matt <Matt.Krusto@halton.ca>
Sent: June 18, 2021 8:28 AM
To: Andrew Evans <aevans@ptsl.com>
Cc: Erica Bayley <ebayley@ptsl.com>; Steiger, Bernie <Bernie.Steiger@halton.ca>; Tricia Collingwood <tricia.collingwood@oakville.ca>; Routledge, Graham (MTO) <Graham.Routledge@ontario.ca>; White, Mark J. (MTO) <Mark.J.White@ontario.ca>; Pasquini-Smith, Alexsandria <Alex.Pasquini@halton.ca>; 'Asadullah Yousfani' <asad.yousfani@oakville.ca>
Subject: RE: (210156/210157) Trafalgar & Hwy 407 TIS - Scope of Work

Hi Andrew,

Thank you for the scope of work, sorry for the delay in responding.

I agree with Asad's additional comment, as that is an important issue.

For any traffic data (counts, signal timing) for the Trafalgar Road Regional intersections, please send your request to our Road Operations group at trafficdatarequests@halton.ca

I will provide you a growth rate from our EMME modeler shortly.

Regarding Access:

To Trafalgar Road:

The proposed access (east leg) at the existing signalized intersection to the GO Lot will require road works for the completion of the 4-leg intersection. This includes, but not limited to, southbound left-turn lane, northbound right-turn lane, completion of intersection signalization, illumination, signage and pavement markings.

The proposed access to Trafalgar Road between William Halton Parkway (WHP) and Burnhamthorpe Road will be restricted to right-in/right-out movements. The location, mid-way and approximately 200m from WHP and 250m from Burnhamhtorpe Road is generally acceptable. The location must also be in accordance to the approved North Oakville Secondary Plan and at a location supported by the Town of Oakville.

All costs associated with the design & construction of all new intersections/intersection works is the responsibility of the developer.

To William Halton Parkway:

The proposed access to William Halton Parkway immediately to the east and west of Trafalgar Road will be restricted to right-in/right-out movements. The location must also be in accordance to the approved North Oakville Secondary Plan and at a location supported by the Town of Oakville.

The proposed access to William Halton Parkway approximately 350m to the east and 375m to the west of Trafalgar Road is generally acceptable. The location must also be in accordance to the approved North Oakville Secondary Plan and at a location supported by the Town of Oakville.

All intersections/accesses are subject to the review and approval of a transportation impact study. Access to a Regional road must comply with the Region's By-law No. 32-17, a By-law to prohibit, restrict and regulate access to the Regional road system and the Region's Access Management Guideline (2015).

Matt

Matt Krusto
Project Manager II, Transportation Planning Coordination
Infrastructure Planning & Policy
Public Works
Halton Region
905-825-6000, ext. 7225 | 1-866-442-5866

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From: Asadullah Yousfani <asad.yousfani@oakville.ca>
Sent: Tuesday, June 15, 2021 2:00 PM

To: 'Andrew Evans' <aevans@ptsl.com>
Cc: Erica Bayley <ebayley@ptsl.com>; Krusto, Matt <Matt.Krusto@halton.ca>; Steiger, Bernie <Bernie.Steiger@halton.ca>; Tricia Collingwood <tricia.collingwood@oakville.ca>; Routledge, Graham (MTO) <Graham.Routledge@ontario.ca>; White, Mark J. (MTO) <Mark.J.White@ontario.ca>
Subject: RE: (210156/210157) Trafalgar & Hwy 407 TIS - Scope of Work

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Hi Andrew,

The intersections to be analysed are under the jurisdiction of Halton and MTO. I've added a comment in yellow.

Thanks,

Asad

Asadullah Yousfani, M.Eng., P. Eng. PMP
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: Andrew Evans <aevans@ptsl.com>
Sent: June 4, 2021 1:51 PM
To: Krusto, Matt <Matt.Krusto@halton.ca>; Bernie.Steiger@halton.ca; Tricia Collingwood <tricia.collingwood@oakville.ca>; Asadullah Yousfani <asad.yousfani@oakville.ca>; Routledge, Graham (MTO) <Graham.Routledge@ontario.ca>; White, Mark J. (MTO) <Mark.J.White@ontario.ca>
Cc: Erica Bayley <ebayley@ptsl.com>
Subject: (210156/210157) Trafalgar & Hwy 407 TIS - Scope of Work

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Greetings,

Paradigm was retained to undertake a transportation impact study for the proposed Infrastructure Ontario Lands located east and west of Trafalgar Road and south of Highway 407. Infrastructure Ontario is proposing two scenarios: a residential focus

scenario with 5,660 residential units and 2.3M square feet of employment land uses (8,450 jobs); and a employment focus scenario with 4,060 residential units and 3.8M square feet of employment land uses (14,200 jobs).

Below is our scope of work for your review and approval. The study will be based on Region of Halton TIS Guidelines, North Oakville Transportation Impact Studies and Transportation Functional Design Studies, and MTO TIS Guidelines.

Please let us know you availability next week so we can schedule an online meeting to go over our proposed scope.

Study Area Intersections:

- Trafalgar Road and Lower Baseline Road (signalized);
- Trafalgar Road and Hwy 407 Westbound Ramp Terminal (signalized);
- Trafalgar Road and Hwy 407 Eastbound Ramp Terminal (signalized);
- Trafalgar Road and Hwy 407 GO/Carpool Lot Driveway (signalized);
- Trafalgar Road and William Halton Parkway (signalized);
- Trafalgar Road and Burnhamthorpe Road (signalized); and
- Up to 11 proposed new intersections.

Planning Horizons:

- Build-Out (assumed Year 2031);
- Five-Years post Build-Out (Year 2036); and
- Ten-Years post Build-Out (Year 2041).

Analysis Periods:

- Weekday AM and PM peak hours.

Existing Traffic:

- Derived from Turning Movement Counts at study area intersections

Background Traffic:

- A provided background growth rate applied to the existing turning movement counts; or
- The use of 2031 volumes from the Regional travel demand forecasting model, then factored using a provided growth rate to the 2036 and 2041 horizon years.

Site Generated Traffic:

- ITE Trip Generation Manual (10^{th} Edition) land uses to include, but limited to:
  - LUC 221 – Multifamily Housing, Mid-Rise;
  - LUC 222 – Multifamily Housing, High-Rise;
  - LUC 710 – General Office; and
  - LUC 820 – Shopping Centre.
- Reductions for modal split, TDM measures, and internal capture based on 2016 TTS or information provided by review agencies.

Trip Distribution based on 2016 Transportation Tomorrow Survey

Traffic Analysis

- Using the worst case scenario (based on trip generation) we will analyze the operation of the study area intersections for the Existing, Future Background (without the development) and Future Total (with the development) traffic conditions for each analysis period using Synchro v10 software. Volume to capacity (v/c) rations, Level of Service (LOS) and 95th percentile queueing will be assessed.
- Based on the analysis results, we will identify any operational deficiencies as well as the net impact of the proposed development on the study area road network. The need for road improvements (e.g. auxiliary turn lanes) and/or other mitigating measures (e.g. traffic control device modifications & modifications to existing storage lengths/tapers at turning lanes) to address deficiencies (if any) will be determined.
- A sensitivity analysis will be conducted to determine what traffic impacts the second scenario have on the road network under the full build-out planning horizon.

Thank you and regards

Andrew Evans, M.Sc.
Transportation Planner

Paradigm Transportation Solutions Limited
5A-150 Pinebush Road Cambridge ON N1R 8J8
p: 905.381.2229 x **305**
m: 519.497.3239
e: aevans@ptsl.com
w: www.ptsl.com

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liability for any damage caused by any virus transmitted by this e-mail.

Matt Krusto
Supervisor, Transportation Development Review
Infrastructure Planning & Policy
Public Works
Halton Region
905-825-6000, ext. 7225 | 1-866-442-5866



From:	Krusto, Matt
To:	Andrew Evans
Cc:	Erica Bayley; Steiger, Bernie; Tricia Collingwood; Routledge, Graham (MTO); White, Mark J. (MTO); Pasquini-Smith, Alexsandria; "Asadullah Yousfani"
Subject:	RE: (210156/210157) Trafalgar & Hwy 407 TIS - Scope of Work
Date:	June 18, 2021 8:28:16 AM
Attachments:	image001.png

Hi Andrew,

Thank you for the scope of work, sorry for the delay in responding.

I agree with Asad's additional comment, as that is an important issue.

For any traffic data (counts, signal timing) for the Trafalgar Road Regional intersections, please send your request to our Road Operations group at trafficdatarequests@halton.ca

I will provide you a growth rate from our EMME modeler shortly.

Regarding Access:

To Trafalgar Road:

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All costs associated with the design & construction of all new intersections/intersection works is the responsibility of the developer.

To William Halton Parkway:

The proposed access to William Halton Parkway immediately to the east and west of Trafalgar Road will be restricted to right-in/right-out movements. The location must also be in accordance to the approved North Oakville Secondary Plan and at a location supported by the Town of Oakville.

The proposed access to William Halton Parkway approximately 350m to the east and 375m to the west of Trafalgar Road is generally acceptable. The location must also be in accordance to the approved North Oakville Secondary Plan and at a location supported by the Town of Oakville.

All intersections/accesses are subject to the review and approval of a transportation impact study. Access to a Regional road must comply with the Region's By-law No. 32-17, a By-law to prohibit, restrict and regulate access to the Regional road system and the Region's Access Management Guideline (2015).

Matt

Matt Krusto
Project Manager II, Transportation Planning Coordination
Infrastructure Planning & Policy
Public Works
Halton Region
905-825-6000, ext. 7225 | 1-866-442-5866



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From: Asadullah Yousfani <asad.yousfani@oakville.ca>
Sent: Tuesday, June 15, 2021 2:00 PM
To: 'Andrew Evans' <aevans@ptsl.com>
Cc: Erica Bayley <ebayley@ptsl.com>; Krusto, Matt <Matt.Krusto@halton.ca>; Steiger, Bernie <Bernie.Steiger@halton.ca>; Tricia Collingwood <tricia.collingwood@oakville.ca>; Routledge, Graham (MTO) <Graham.Routledge@ontario.ca>; White, Mark J. (MTO) <Mark.J.White@ontario.ca>
Subject: RE: (210156/210157) Trafalgar & Hwy 407 TIS - Scope of Work

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Hi Andrew,

The intersections to be analysed are under the jurisdiction of Halton and MTO. I've added a comment in yellow.

Thanks,

Asad

Asadullah Yousfani, M.Eng., P. Eng. PMP
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: Andrew Evans <aevans@ptsl.com>
Sent: June 4, 2021 1:51 PM
To: Krusto, Matt <Matt.Krusto@halton.ca>; Bernie.Steiger@halton.ca; Tricia Collingwood <tricia.collingwood@oakville.ca>; Asadullah Yousfani <asad.yousfani@oakville.ca>; Routledge, Graham (MTO) <Graham.Routledge@ontario.ca>; White, Mark J. (MTO) <Mark.J.White@ontario.ca>
Cc: Erica Bayley <ebayley@ptsl.com>
Subject: (210156/210157) Trafalgar & Hwy 407 TIS - Scope of Work

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Greetings,

Paradigm was retained to undertake a transportation impact study for the proposed Infrastructure Ontario Lands located east and west of Trafalgar Road and south of Highway 407. Infrastructure Ontario is proposing two scenarios: a residential focus scenario with 5,660 residential units and 2.3M square feet of employment land uses (8,450 jobs); and a employment focus scenario with 4,060 residential units and 3.8M square feet of employment land uses (14,200 jobs).

Below is our scope of work for your review and approval. The study will be based on Region of Halton TIS Guidelines, North Oakville Transportation Impact Studies and Transportation Functional Design Studies, and MTO TIS Guidelines.

Please let us know you availability next week so we can schedule an online meeting to go over our proposed scope.

Study Area Intersections:

- Trafalgar Road and Lower Baseline Road (signalized);
- Trafalgar Road and Hwy 407 Westbound Ramp Terminal (signalized);
- Trafalgar Road and Hwy 407 Eastbound Ramp Terminal (signalized);
- Trafalgar Road and Hwy 407 GO/Carpool Lot Driveway (signalized);
- Trafalgar Road and William Halton Parkway (signalized);
- Trafalgar Road and Burnhamthorpe Road (signalized); and
- Up to 11 proposed new intersections.

Planning Horizons:

- Build-Out (assumed Year 2031);
- Five-Years post Build-Out (Year 2036); and
- Ten-Years post Build-Out (Year 2041).

Analysis Periods:
- Weekday AM and PM peak hours.

Existing Traffic:
- Derived from Turning Movement Counts at study area intersections

Background Traffic:
- A provided background growth rate applied to the existing turning movement counts; or
- The use of 2031 volumes from the Regional travel demand forecasting model, then factored using a provided growth rate to the 2036 and 2041 horizon years.

Site Generated Traffic:
- ITE Trip Generation Manual (10th Edition) land uses to include, but limited to:
  - LUC 221 – Multifamily Housing, Mid-Rise;
  - LUC 222 – Multifamily Housing, High-Rise;
  - LUC 710 – General Office; and
  - LUC 820 – Shopping Centre.
- Reductions for modal split, TDM measures, and internal capture based on 2016 TTS or information provided by review agencies.
- Trip Distribution based on 2016 Transportation Tomorrow Survey

Traffic Analysis
- Using the worst case scenario (based on trip generation) we will analyze the operation of the study area intersections for the Existing, Future Background (without the development) and Future Total (with the development) traffic conditions for each analysis period using Synchro v10 software. Volume to capacity (v/c) rations, Level of Service (LOS) and 95th percentile queueing will be assessed.
- Based on the analysis results, we will identify any operational deficiencies as well as the net impact of the proposed development on the study area road network. The need for road improvements (e.g. auxiliary turn lanes) and/or other mitigating measures (e.g. traffic control device modifications & modifications to existing storage lengths/tapers at turning lanes) to address deficiencies (if any) will be determined.
- A sensitivity analysis will be conducted to determine what traffic impacts the second scenario have on the road network under the full build-out planning horizon.

Thank you and regards

Andrew Evans, M.Sc.

Transportation Planner



Paradigm Transportation Solutions Limited
5A-150 Pinebush Road Cambridge ON N1R 8J8
p: 905.381.2229 x **305**
m: 519.497.3239
e: aevans@ptsl.com
w: www.ptsl.com

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From: Routledge, Graham (MTO)
To: Andrew Evans
Subject: FW: (210156/210157) Trafalgar & Hwy 407 TIS - Scope of Work
Date: June 11, 2021 11:20:06 AM
Attachments: image001.png
210157) Trafalgar & Hwy 407 TIS - Scope of Work.docx

Good morning Andrew,

Please find MTO's comments on your proposed ToR attached.

Thank you

Graham

From: Andrew Evans <aevans@ptsl.com>
Sent: June 4, 2021 1:51 PM
To: Krusto, Matt <Matt.Krusto@halton.ca>; Bernie.Steiger@halton.ca; tricia.collingwood@oakville.ca; asad.yousfani@oakville.ca; Routledge, Graham (MTO) <Graham.Routledge@ontario.ca>; White, Mark J. (MTO) <Mark.J.White@ontario.ca>
Cc: Erica Bayley <ebayley@ptsl.com>
Subject: (210156/210157) Trafalgar & Hwy 407 TIS - Scope of Work

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Please let us know you availability next week so we can schedule an online meeting to go over our proposed scope.

Study Area Intersections:

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Planning Horizons:
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- Five-Years post Build-Out (Year 2036); and
- Ten-Years post Build-Out (Year 2041).

Analysis Periods:
- Weekday AM and PM peak hours.

Existing Traffic:
- Derived from Turning Movement Counts at study area intersections

Background Traffic:
- A provided background growth rate applied to the existing turning movement counts; or
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Site Generated Traffic:
- ITE Trip Generation Manual (10^{th} Edition) land uses to include, but limited to:
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  - LUC 222 – Multifamily Housing, High-Rise;
  - LUC 710 – General Office; and
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- A sensitivity analysis will be conducted to determine what traffic impacts the second scenario have on the road network under the full build-out planning

horizon.

Thank you and regards

Andrew Evans, M.Sc.
Transportation Planner

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w: www.ptsl.com

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RE: (210156/210157) Trafalgar & Hwy 407 TIS - Scope of Work

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Below is our scope of work for your review and approval. The study will be based on Region of Halton TIS Guidelines, North Oakville Transportation Impact Studies and Transportation Functional Design Studies, and MTO TIS Guidelines.

Please let us know you availability next week so we can schedule an online meeting to go over our proposed scope.

Please include more detail of

- The type of land uses proposed
- More detail information of the size, type of each proposed development,
- Stages or phasing schemes of the development if applicable.
- Other developments that under construction, approved or in the approval process that have the potential to impact on the study area
- Any road improvement that are planned or currently under construction within the defined study area

Study Area Intersections:

- Trafalgar Road and Lower Baseline Road (signalized);
- Trafalgar Road and Hwy 407 Westbound Ramp Terminal (signalized);
- Trafalgar Road and Hwy 407 Eastbound Ramp Terminal (signalized);
- Trafalgar Road and Hwy 407 GO/Carpool Lot Driveway (signalized);
- Trafalgar Road and William Halton Parkway (signalized);
- Trafalgar Road and Burnhamthorpe Road (signalized); and
- Up to 11 proposed new intersections.

Planning Horizons:

- Existing year 2021
- Build-Out (assumed Year 2031);
- Five-Years post Build-Out (Year 2036); and
- Ten-Years post Build-Out (Year 2041).

Analysis Periods:

- Weekday AM and PM peak hours.

Existing Traffic:

- Derived from Turning Movement Counts at study area intersections

Under current COVID-19 pandemic, new data counts are not being available for the study, however, the appropriateness of the data shall be confirmed with MTO prior to stating work on TIS.

Background Traffic:

- A provided background growth rate applied to the existing turning movement counts; or
- The use of 2031 volumes from the Regional travel demand forecasting model, then factored using a provided growth rate to the 2036 and 2041 horizon years.

Please apply 2% annual growth rate for MTO owned intersections.

Site Generated Traffic:

- ITE Trip Generation Manual (10th Edition) land uses to include, but limited to:
  - LUC 221 – Multifamily Housing, Mid-Rise;
  - LUC 222 – Multifamily Housing, High-Rise;
  - LUC 710 – General Office; and
  - LUC 820 – Shopping Centre.

  Trip generation assumptions and results identifying the categories and quantities of land used, with corresponding trip generation rates or equations and the resulting number of trips.

- Reductions for modal split, TDM measures, and internal capture based on 2016 TTS or information provided by review agencies.
- Trip Distribution based on 2016 Transportation Tomorrow Survey

  All assumption should be explained in a detail, such as the report should explained in a detail of the method, procedure, and should attached any reference file used.

  Assumption for origin/destination and percent distribution shall be presented in tabular form, traffic assignment should be presented as a diagram with detail explanation.

Traffic Analysis

- Using the worst case scenario (based on trip generation) we will analyze the operation of the study area intersections for the Existing, Future Background (without the development) and Future Total (with the development) traffic conditions for each analysis period using Synchro v10 software. Volume to capacity (v/c) rations, Delay, Level of Service (LOS) and 95th percentile queueing will be assessed.
  For ramps, a v/c ratio for terminal ramp approaches with a value grater than 0.75 would be deemed a critical and shall be evaluated for possible operational improvement.

- Based on the analysis results, we will identify any operational deficiencies as well as the net impact of the proposed development on the study area road network. The need for road improvements (e.g. auxiliary turn lanes) and/or other mitigating measures (e.g. traffic control device modifications) to address deficiencies (if any) will be determined.
- A sensitivity analysis will be conducted to determine what traffic impacts the second scenario have on the road network under the full build-out planning horizon.
- Please submit Synchro files along with the TIS report, not a report only.

Appendix B

Traffic Data

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Trafalgar Road & Lower Base Line
Site Code: 210156
Start Date: 11/19/2025

Turning Movement Data

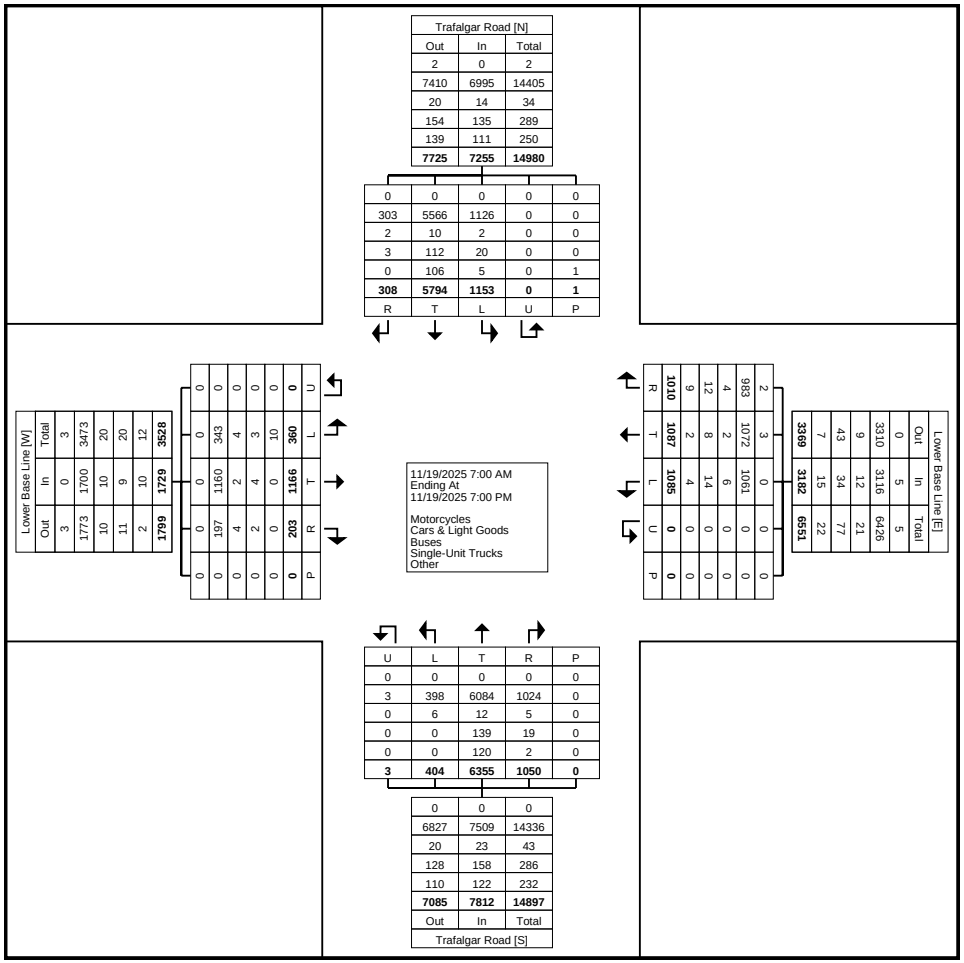
Start Time	Lower Base Line Eastbound						Lower Base Line Westbound						Trafalgar Road Northbound						Trafalgar Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	7	25	6	0	0	38	19	17	13	0	0	49	0	125	15	0	0	140	44	189	19	0	1	252	479
7:15 AM	18	41	9	0	0	68	36	25	15	0	0	76	1	151	15	0	0	167	46	238	12	0	0	296	607
7:30 AM	15	52	10	0	0	77	42	24	20	0	0	86	7	185	34	0	0	226	60	285	13	0	0	358	747
7:45 AM	24	66	14	0	0	104	41	16	23	0	0	80	5	197	42	0	0	244	58	251	17	0	0	326	754
Hourly Total	64	184	39	0	0	287	138	82	71	0	0	291	13	658	106	0	0	777	208	963	61	0	1	1232	2587
8:00 AM	14	51	20	0	0	85	37	22	21	0	0	80	7	197	45	0	0	249	65	226	9	0	0	300	714
8:15 AM	25	79	11	0	0	115	64	25	35	0	0	124	3	213	34	0	0	250	58	255	12	0	0	325	814
8:30 AM	21	46	9	0	0	76	44	20	28	0	0	92	8	265	40	0	0	313	72	303	10	0	0	385	866
8:45 AM	4	48	7	0	0	59	34	29	15	0	0	78	4	185	31	0	0	220	44	266	5	0	0	315	672
Hourly Total	64	224	47	0	0	335	179	96	99	0	0	374	22	860	150	0	0	1032	239	1050	36	0	0	1325	3066
9:00 AM	16	42	4	0	0	62	28	16	14	0	0	58	2	153	28	0	0	183	47	195	9	0	0	251	554
9:15 AM	13	31	5	0	0	49	39	13	15	0	0	67	0	124	18	0	0	142	57	191	10	0	0	258	516
9:30 AM	19	32	4	0	0	55	28	23	19	0	0	70	3	138	27	0	0	168	48	177	11	0	0	236	529
9:45 AM	13	37	6	0	0	56	22	14	18	0	0	54	4	120	24	0	0	148	31	185	7	0	0	223	481
Hourly Total	61	142	19	0	0	222	117	66	66	0	0	249	9	535	97	0	0	641	183	748	37	0	0	968	2080
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	10	17	5	0	0	32	36	39	42	0	0	117	11	219	40	0	0	270	35	149	6	0	0	190	609
3:15 PM	16	22	5	0	0	43	37	65	42	0	0	144	17	277	23	1	0	318	24	164	16	0	0	204	709
3:30 PM	10	36	6	0	0	52	37	69	34	0	0	140	18	271	42	0	0	331	34	206	18	0	0	258	781
3:45 PM	5	56	6	0	0	67	49	61	45	0	0	155	29	212	38	0	0	279	30	169	8	0	0	207	708
Hourly Total	41	131	22	0	0	194	159	234	163	0	0	556	75	979	143	1	0	1198	123	688	48	0	0	859	2807
4:00 PM	8	41	8	0	0	57	49	68	53	0	0	170	25	305	51	0	0	381	32	188	7	0	0	227	835
4:15 PM	11	31	3	0	0	45	58	60	44	0	0	162	27	314	43	0	0	384	28	202	9	0	0	239	830
4:30 PM	9	43	4	0	0	56	56	58	52	0	0	166	26	316	40	0	0	382	31	225	12	0	0	268	872
4:45 PM	13	52	6	0	0	71	37	61	56	0	0	154	36	283	39	0	0	358	34	198	8	0	0	240	823
Hourly Total	41	167	21	0	0	229	200	247	205	0	0	652	114	1218	173	0	0	1505	125	813	36	0	0	974	3360
5:00 PM	10	42	5	0	0	57	44	49	50	0	0	143	28	308	55	0	0	391	38	224	18	0	0	280	871
5:15 PM	16	43	14	0	0	73	44	70	59	0	0	173	41	289	58	0	0	388	29	205	4	0	0	238	872
5:30 PM	10	38	5	0	0	53	42	42	73	0	0	157	41	302	43	0	0	386	34	237	15	0	0	286	882
5:45 PM	6	49	5	0	0	60	31	45	47	0	0	123	26	266	56	0	0	348	32	203	15	0	0	250	781
Hourly Total	42	172	29	0	0	243	161	206	229	0	0	596	136	1165	212	0	0	1513	133	869	52	0	0	1054	3406
6:00 PM	12	45	7	0	0	64	37	53	56	0	0	146	13	279	52	2	0	346	35	181	8	0	0	224	780
6:15 PM	11	35	3	0	0	49	37	46	42	0	0	125	8	209	48	0	0	265	36	155	6	0	0	197	636
6:30 PM	11	32	13	0	0	56	28	39	41	0	0	108	4	262	36	0	0	302	37	191	14	0	0	242	708
6:45 PM	13	34	3	0	0	50	29	18	38	0	0	85	10	190	33	0	0	233	34	136	10	0	0	180	548

Hourly Total	47	146	26	0	0	219	131	156	177	0	0	464	35	940	169	2	0	1146	142	663	38	0	0	843	2672
Grand Total	360	1166	203	0	0	1729	1085	1087	1010	0	0	3182	404	6355	1050	3	0	7812	1153	5794	308	0	1	7255	19978
Approach %	20.8	67.4	11.7	0.0	-	-	34.1	34.2	31.7	0.0	-	-	5.2	81.3	13.4	0.0	-	-	15.9	79.9	4.2	0.0	-	-	-
Total %	1.8	5.8	1.0	0.0	-	8.7	5.4	5.4	5.1	0.0	-	15.9	2.0	31.8	5.3	0.0	-	39.1	5.8	29.0	1.5	0.0	-	36.3	-
Motorcycles	0	0	0	0	-	0	0	3	2	0	-	5	0	0	0	0	-	0	0	0	0	0	-	0	5
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.3	0.2	-	-	0.2	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	343	1160	197	0	-	1700	1061	1072	983	0	-	3116	398	6084	1024	3	-	7509	1126	5566	303	0	-	6995	19320
% Cars & Light Goods	95.3	99.5	97.0	-	-	98.3	97.8	98.6	97.3	-	-	97.9	98.5	95.7	97.5	100.0	-	96.1	97.7	96.1	98.4	-	-	96.4	96.7
Buses	4	2	4	0	-	10	6	2	4	0	-	12	6	12	5	0	-	23	2	10	2	0	-	14	59
% Buses	1.1	0.2	2.0	-	-	0.6	0.6	0.2	0.4	-	-	0.4	1.5	0.2	0.5	0.0	-	0.3	0.2	0.2	0.6	-	-	0.2	0.3
Single-Unit Trucks	3	4	2	0	-	9	14	8	12	0	-	34	0	139	19	0	-	158	20	112	3	0	-	135	336
% Single-Unit Trucks	0.8	0.3	1.0	-	-	0.5	1.3	0.7	1.2	-	-	1.1	0.0	2.2	1.8	0.0	-	2.0	1.7	1.9	1.0	-	-	1.9	1.7
Articulated Trucks	10	0	0	0	-	10	3	1	9	0	-	13	0	120	2	0	-	122	5	106	0	0	-	111	256
% Articulated Trucks	2.8	0.0	0.0	-	-	0.6	0.3	0.1	0.9	-	-	0.4	0.0	1.9	0.2	0.0	-	1.6	0.4	1.8	0.0	-	-	1.5	1.3
Bicycles on Road	0	0	0	0	-	0	1	1	0	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	2
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.1	0.1	0.0	-	-	0.1	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Trafalgar Road & Lower Base Line
Site Code: 210156
Start Date: 11/19/2025
Page No: 3



Turning Movement Data Plot

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Trafalgar Road & Lower Base Line
Site Code: 210156
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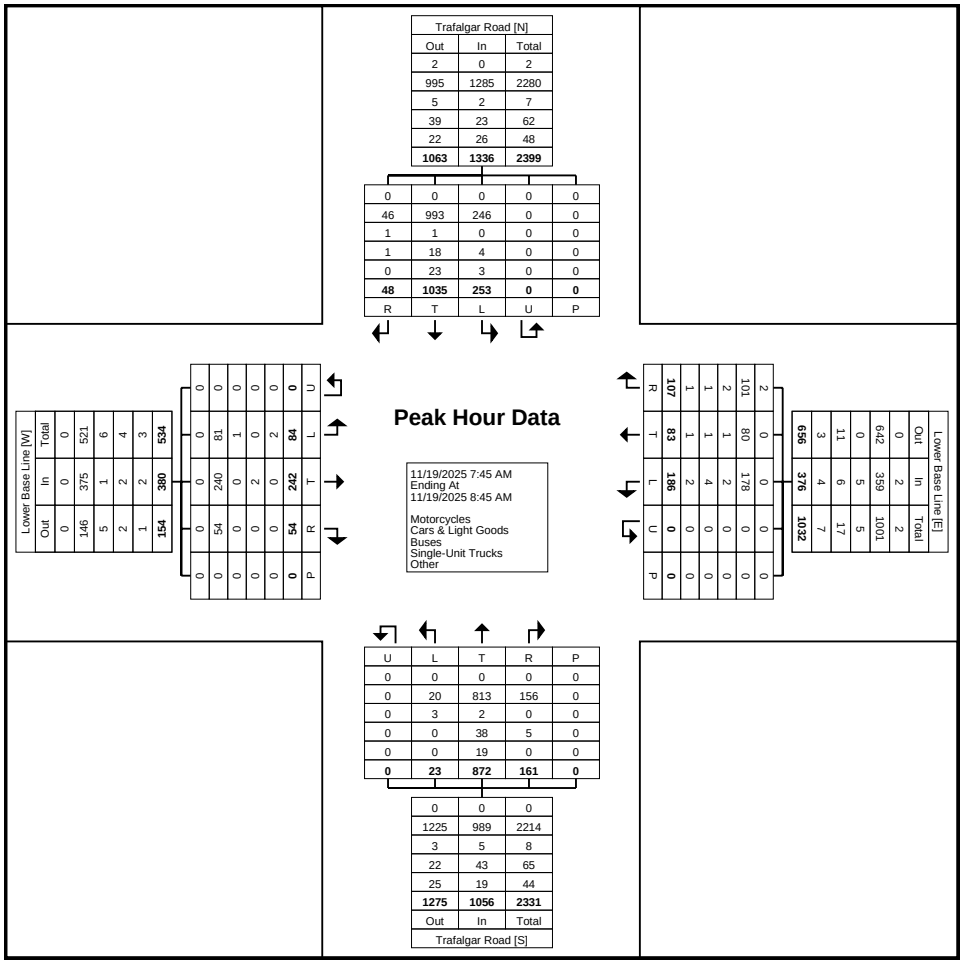
Turning Movement Peak Hour Data (7:45 AM)

Start Time	Lower Base Line Eastbound						Lower Base Line Westbound						Trafalgar Road Northbound						Trafalgar Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:45 AM	24	66	14	0	0	104	41	16	23	0	0	80	5	197	42	0	0	244	58	251	17	0	0	326	754
8:00 AM	14	51	20	0	0	85	37	22	21	0	0	80	7	197	45	0	0	249	65	226	9	0	0	300	714
8:15 AM	25	79	11	0	0	115	64	25	35	0	0	124	3	213	34	0	0	250	58	255	12	0	0	325	814
8:30 AM	21	46	9	0	0	76	44	20	28	0	0	92	8	265	40	0	0	313	72	303	10	0	0	385	866
Total	84	242	54	0	0	380	186	83	107	0	0	376	23	872	161	0	0	1056	253	1035	48	0	0	1336	3148
Approach %	22.1	63.7	14.2	0.0	-	-	49.5	22.1	28.5	0.0	-	-	2.2	82.6	15.2	0.0	-	-	18.9	77.5	3.6	0.0	-	-	-
Total %	2.7	7.7	1.7	0.0	-	12.1	5.9	2.6	3.4	0.0	-	11.9	0.7	27.7	5.1	0.0	-	33.5	8.0	32.9	1.5	0.0	-	42.4	-
PHF	0.840	0.766	0.675	0.000	-	0.826	0.727	0.830	0.764	0.000	-	0.758	0.719	0.823	0.894	0.000	-	0.843	0.878	0.854	0.706	0.000	-	0.868	0.909
Motorcycles	0	0	0	0	-	0	0	0	2	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	2
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	1.9	-	-	0.5	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.1
Cars & Light Goods	81	240	54	0	-	375	178	80	101	0	-	359	20	813	156	0	-	989	246	993	46	0	-	1285	3008
% Cars & Light Goods	96.4	99.2	100.0	-	-	98.7	95.7	96.4	94.4	-	-	95.5	87.0	93.2	96.9	-	-	93.7	97.2	95.9	95.8	-	-	96.2	95.6
Buses	1	0	0	0	-	1	2	1	2	0	-	5	3	2	0	0	-	5	0	1	1	0	-	2	13
% Buses	1.2	0.0	0.0	-	-	0.3	1.1	1.2	1.9	-	-	1.3	13.0	0.2	0.0	-	-	0.5	0.0	0.1	2.1	-	-	0.1	0.4
Single-Unit Trucks	0	2	0	0	-	2	4	1	1	0	-	6	0	38	5	0	-	43	4	18	1	0	-	23	74
% Single-Unit Trucks	0.0	0.8	0.0	-	-	0.5	2.2	1.2	0.9	-	-	1.6	0.0	4.4	3.1	-	-	4.1	1.6	1.7	2.1	-	-	1.7	2.4
Articulated Trucks	2	0	0	0	-	2	2	0	1	0	-	3	0	19	0	0	-	19	3	23	0	0	-	26	50
% Articulated Trucks	2.4	0.0	0.0	-	-	0.5	1.1	0.0	0.9	-	-	0.8	0.0	2.2	0.0	-	-	1.8	1.2	2.2	0.0	-	-	1.9	1.6
Bicycles on Road	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	1.2	0.0	-	-	0.3	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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Count Name: Trafalgar Road & Lower Base Line
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Start Date: 11/19/2025



Turning Movement Peak Hour Data Plot (7:45 AM)

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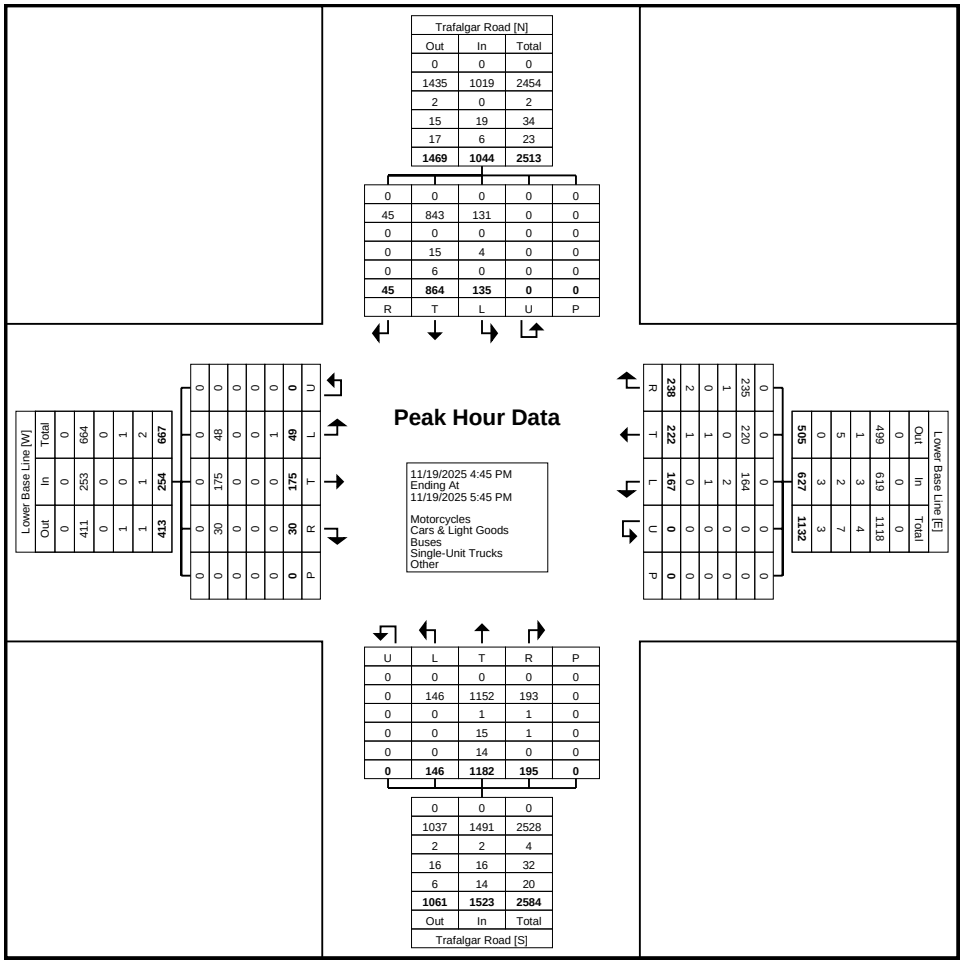
Turning Movement Peak Hour Data (4:45 PM)

Start Time	Lower Base Line Eastbound						Lower Base Line Westbound						Trafalgar Road Northbound						Trafalgar Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:45 PM	13	52	6	0	0	71	37	61	56	0	0	154	36	283	39	0	0	358	34	198	8	0	0	240	823
5:00 PM	10	42	5	0	0	57	44	49	50	0	0	143	28	308	55	0	0	391	38	224	18	0	0	280	871
5:15 PM	16	43	14	0	0	73	44	70	59	0	0	173	41	289	58	0	0	388	29	205	4	0	0	238	872
5:30 PM	10	38	5	0	0	53	42	42	73	0	0	157	41	302	43	0	0	386	34	237	15	0	0	286	882
Total	49	175	30	0	0	254	167	222	238	0	0	627	146	1182	195	0	0	1523	135	864	45	0	0	1044	3448
Approach %	19.3	68.9	11.8	0.0	-	-	26.6	35.4	38.0	0.0	-	-	9.6	77.6	12.8	0.0	-	-	12.9	82.8	4.3	0.0	-	-	-
Total %	1.4	5.1	0.9	0.0	-	7.4	4.8	6.4	6.9	0.0	-	18.2	4.2	34.3	5.7	0.0	-	44.2	3.9	25.1	1.3	0.0	-	30.3	-
PHF	0.766	0.841	0.536	0.000	-	0.870	0.949	0.793	0.815	0.000	-	0.906	0.890	0.959	0.841	0.000	-	0.974	0.888	0.911	0.625	0.000	-	0.913	0.977
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	48	175	30	0	-	253	164	220	235	0	-	619	146	1152	193	0	-	1491	131	843	45	0	-	1019	3382
% Cars & Light Goods	98.0	100.0	100.0	-	-	99.6	98.2	99.1	98.7	-	-	98.7	100.0	97.5	99.0	-	-	97.9	97.0	97.6	100.0	-	-	97.6	98.1
Buses	0	0	0	0	-	0	2	0	1	0	-	3	0	1	1	0	-	2	0	0	0	0	-	0	5
% Buses	0.0	0.0	0.0	-	-	0.0	1.2	0.0	0.4	-	-	0.5	0.0	0.1	0.5	-	-	0.1	0.0	0.0	0.0	-	-	0.0	0.1
Single-Unit Trucks	0	0	0	0	-	0	1	1	0	0	-	2	0	15	1	0	-	16	4	15	0	0	-	19	37
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	0.6	0.5	0.0	-	-	0.3	0.0	1.3	0.5	-	-	1.1	3.0	1.7	0.0	-	-	1.8	1.1
Articulated Trucks	1	0	0	0	-	1	0	1	2	0	-	3	0	14	0	0	-	14	0	6	0	0	-	6	24
% Articulated Trucks	2.0	0.0	0.0	-	-	0.4	0.0	0.5	0.8	-	-	0.5	0.0	1.2	0.0	-	-	0.9	0.0	0.7	0.0	-	-	0.6	0.7
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Turning Movement Peak Hour Data Plot (4:45 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Trafalgar Road & Hwy 407 WB Ramp
Site Code: 210156
Start Date: 11/19/2025

Turning Movement Data

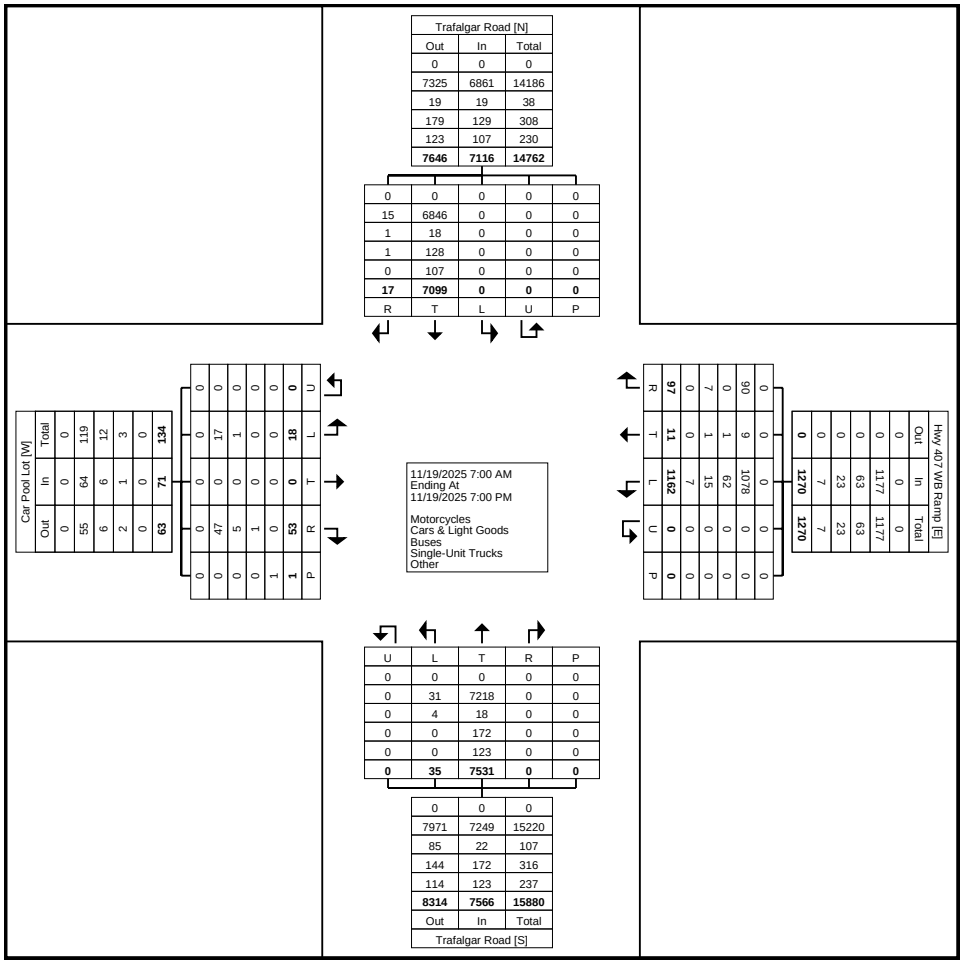
Start Time	Car Pool Lot Eastbound						Hwy 407 WB Ramp Westbound						Trafalgar Road Northbound						Trafalgar Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	0	0	1	0	0	1	15	0	0	0	0	15	0	143	0	0	0	143	0	224	0	0	0	224	383
7:15 AM	0	0	0	0	0	0	23	0	1	0	0	24	0	188	0	0	0	188	0	271	0	0	0	271	483
7:30 AM	0	0	2	0	0	2	34	0	4	0	0	38	3	214	0	0	0	217	0	336	1	0	0	337	594
7:45 AM	2	0	5	0	0	7	34	0	0	0	0	34	5	242	0	0	0	247	0	307	2	0	0	309	597
Hourly Total	2	0	8	0	0	10	106	0	5	0	0	111	8	787	0	0	0	795	0	1138	3	0	0	1141	2057
8:00 AM	1	0	0	0	0	1	32	1	2	0	0	35	0	260	0	0	0	260	0	268	0	0	0	268	564
8:15 AM	0	0	0	0	1	0	29	1	0	0	0	30	0	251	0	0	0	251	0	355	0	0	0	355	636
8:30 AM	0	0	1	0	0	1	46	0	3	0	0	49	1	282	0	0	0	283	0	310	0	0	0	310	643
8:45 AM	0	0	0	0	0	0	33	0	4	0	0	37	1	202	0	0	0	203	0	324	0	0	0	324	564
Hourly Total	1	0	1	0	1	2	140	2	9	0	0	151	2	995	0	0	0	997	0	1257	0	0	0	1257	2407
9:00 AM	0	0	2	0	0	2	30	0	1	0	0	31	1	183	0	0	0	184	0	219	0	0	0	219	436
9:15 AM	0	0	0	0	0	0	35	0	0	0	0	35	0	147	0	0	0	147	0	245	0	0	0	245	427
9:30 AM	0	0	0	0	0	0	28	0	3	0	0	31	0	157	0	0	0	157	0	229	0	0	0	229	417
9:45 AM	0	0	0	0	0	0	16	0	2	0	0	18	1	149	0	0	0	150	0	214	0	0	0	214	382
Hourly Total	0	0	2	0	0	2	109	0	6	0	0	115	2	636	0	0	0	638	0	907	0	0	0	907	1662
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	0	0	0	0	0	0	40	0	6	0	0	46	1	240	0	0	0	241	0	186	0	0	0	186	473
3:15 PM	0	0	1	0	0	1	40	0	5	0	0	45	0	331	0	0	0	331	0	213	1	0	0	214	591
3:30 PM	0	0	4	0	0	4	35	0	4	0	0	39	1	302	0	0	0	303	0	248	1	0	0	249	595
3:45 PM	1	0	0	0	0	1	50	0	4	0	0	54	4	285	0	0	0	289	0	229	2	0	0	231	575
Hourly Total	1	0	5	0	0	6	165	0	19	0	0	184	6	1158	0	0	0	1164	0	876	4	0	0	880	2234
4:00 PM	3	0	6	0	0	9	54	2	8	0	0	64	0	333	0	0	0	333	0	246	0	0	0	246	652
4:15 PM	2	0	2	0	0	4	45	0	9	0	0	54	3	366	0	0	0	369	0	273	2	0	0	275	702
4:30 PM	1	0	3	0	0	4	60	0	4	0	0	64	0	356	0	0	0	356	0	252	0	0	0	252	676
4:45 PM	1	0	1	0	0	2	70	0	9	0	0	79	0	340	0	0	0	340	0	237	3	0	0	240	661
Hourly Total	7	0	12	0	0	19	229	2	30	0	0	261	3	1395	0	0	0	1398	0	1008	5	0	0	1013	2691
5:00 PM	2	0	3	0	0	5	80	0	6	0	0	86	5	336	0	0	0	341	0	281	2	0	0	283	715
5:15 PM	1	0	4	0	0	5	75	2	4	0	0	81	2	390	0	0	0	392	0	255	1	0	0	256	734
5:30 PM	0	0	2	0	0	2	78	1	6	0	0	85	2	398	0	0	0	400	0	300	1	0	0	301	788
5:45 PM	0	0	6	0	0	6	52	0	7	0	0	59	1	366	0	0	0	367	0	253	0	0	0	253	685
Hourly Total	3	0	15	0	0	18	285	3	23	0	0	311	10	1490	0	0	0	1500	0	1089	4	0	0	1093	2922
6:00 PM	2	0	5	0	0	7	44	3	2	0	0	49	2	285	0	0	0	287	0	204	1	0	0	205	548
6:15 PM	2	0	3	0	0	5	25	0	2	0	0	27	1	261	0	0	0	262	0	211	0	0	0	211	505
6:30 PM	0	0	1	0	0	1	30	1	1	0	0	32	1	295	0	0	0	296	0	232	0	0	0	232	561
6:45 PM	0	0	1	0	0	1	29	0	0	0	0	29	0	229	0	0	0	229	0	177	0	0	0	177	436

Hourly Total	4	0	10	0	0	14	128	4	5	0	0	137	4	1070	0	0	0	1074	0	824	1	0	0	825	2050
Grand Total	18	0	53	0	1	71	1162	11	97	0	0	1270	35	7531	0	0	0	7566	0	7099	17	0	0	7116	16023
Approach %	25.4	0.0	74.6	0.0	-	-	91.5	0.9	7.6	0.0	-	-	0.5	99.5	0.0	0.0	-	-	0.0	99.8	0.2	0.0	-	-	-
Total %	0.1	0.0	0.3	0.0	-	0.4	7.3	0.1	0.6	0.0	-	7.9	0.2	47.0	0.0	0.0	-	47.2	0.0	44.3	0.1	0.0	-	44.4	-
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	17	0	47	0	-	64	1078	9	90	0	-	1177	31	7218	0	0	-	7249	0	6846	15	0	-	6861	15351
% Cars & Light Goods	94.4	-	88.7	-	-	90.1	92.8	81.8	92.8	-	-	92.7	88.6	95.8	-	-	-	95.8	-	96.4	88.2	-	-	96.4	95.8
Buses	1	0	5	0	-	6	62	1	0	0	-	63	4	18	0	0	-	22	0	18	1	0	-	19	110
% Buses	5.6	-	9.4	-	-	8.5	5.3	9.1	0.0	-	-	5.0	11.4	0.2	-	-	-	0.3	-	0.3	5.9	-	-	0.3	0.7
Single-Unit Trucks	0	0	1	0	-	1	15	1	7	0	-	23	0	172	0	0	-	172	0	128	1	0	-	129	325
% Single-Unit Trucks	0.0	-	1.9	-	-	1.4	1.3	9.1	7.2	-	-	1.8	0.0	2.3	-	-	-	2.3	-	1.8	5.9	-	-	1.8	2.0
Articulated Trucks	0	0	0	0	-	0	7	0	0	0	-	7	0	123	0	0	-	123	0	107	0	0	-	107	237
% Articulated Trucks	0.0	-	0.0	-	-	0.0	0.6	0.0	0.0	-	-	0.6	0.0	1.6	-	-	-	1.6	-	1.5	0.0	-	-	1.5	1.5
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Count Name: Trafalgar Road & Hwy 407 WB Ramp
Site Code: 210156
Start Date: 11/19/2025

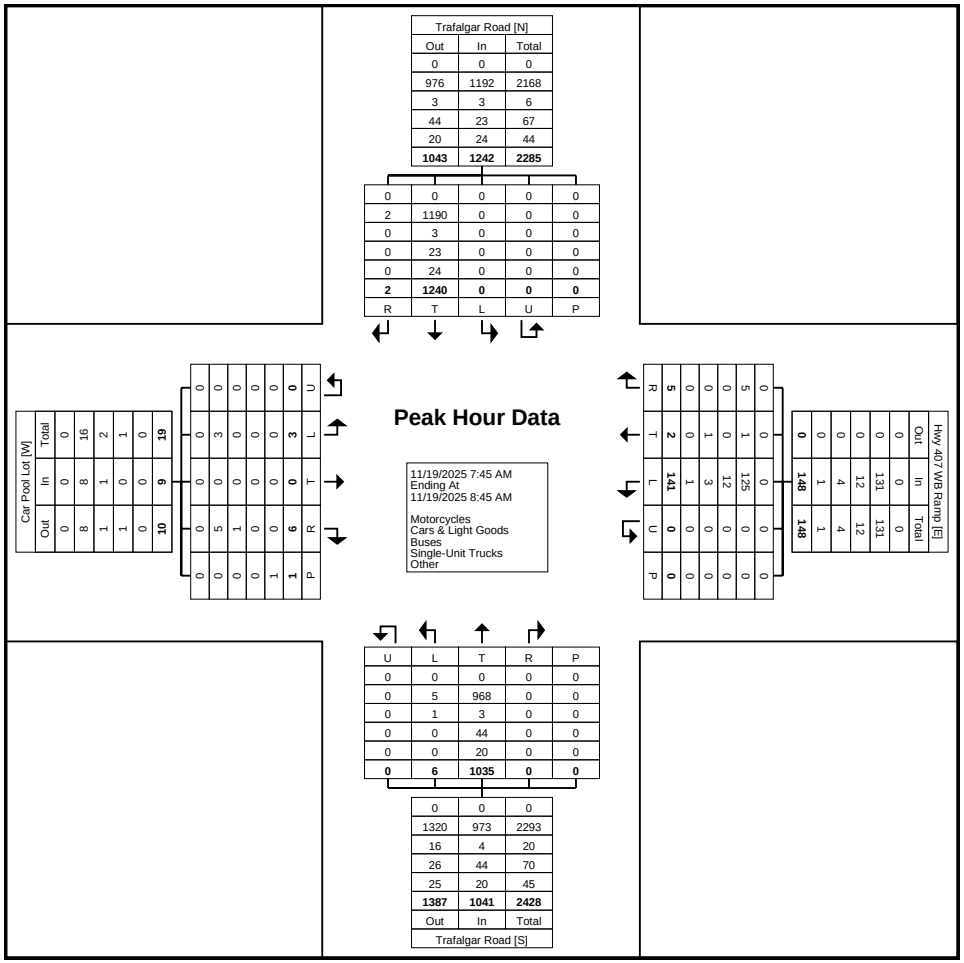
Turning Movement Peak Hour Data (7:45 AM)

Start Time	Car Pool Lot Eastbound						Hwy 407 WB Ramp Westbound						Trafalgar Road Northbound						Trafalgar Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:45 AM	2	0	5	0	0	7	34	0	0	0	0	34	5	242	0	0	0	247	0	307	2	0	0	309	597
8:00 AM	1	0	0	0	0	1	32	1	2	0	0	35	0	260	0	0	0	260	0	268	0	0	0	268	564
8:15 AM	0	0	0	0	1	0	29	1	0	0	0	30	0	251	0	0	0	251	0	355	0	0	0	355	636
8:30 AM	0	0	1	0	0	1	46	0	3	0	0	49	1	282	0	0	0	283	0	310	0	0	0	310	643
Total	3	0	6	0	1	9	141	2	5	0	0	148	6	1035	0	0	0	1041	0	1240	2	0	0	1242	2440
Approach %	33.3	0.0	66.7	0.0	-	-	95.3	1.4	3.4	0.0	-	-	0.6	99.4	0.0	0.0	-	-	0.0	99.8	0.2	0.0	-	-	-
Total %	0.1	0.0	0.2	0.0	-	0.4	5.8	0.1	0.2	0.0	-	6.1	0.2	42.4	0.0	0.0	-	42.7	0.0	50.8	0.1	0.0	-	50.9	-
PHF	0.375	0.000	0.300	0.000	-	0.321	0.766	0.500	0.417	0.000	-	0.755	0.300	0.918	0.000	0.000	-	0.920	0.000	0.873	0.250	0.000	-	0.875	0.949
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	3	0	5	0	-	8	125	1	5	0	-	131	5	968	0	0	-	973	0	1190	2	0	-	1192	2304
% Cars & Light Goods	100.0	-	83.3	-	-	88.9	88.7	50.0	100.0	-	-	88.5	83.3	93.5	-	-	-	93.5	-	96.0	100.0	-	-	96.0	94.4
Buses	0	0	1	0	-	1	12	0	0	0	-	12	1	3	0	0	-	4	0	3	0	0	-	3	20
% Buses	0.0	-	16.7	-	-	11.1	8.5	0.0	0.0	-	-	8.1	16.7	0.3	-	-	-	0.4	-	0.2	0.0	-	-	0.2	0.8
Single-Unit Trucks	0	0	0	0	-	0	3	1	0	0	-	4	0	44	0	0	-	44	0	23	0	0	-	23	71
% Single-Unit Trucks	0.0	-	0.0	-	-	0.0	2.1	50.0	0.0	-	-	2.7	0.0	4.3	-	-	-	4.2	-	1.9	0.0	-	-	1.9	2.9
Articulated Trucks	0	0	0	0	-	0	1	0	0	0	-	1	0	20	0	0	-	20	0	24	0	0	-	24	45
% Articulated Trucks	0.0	-	0.0	-	-	0.0	0.7	0.0	0.0	-	-	0.7	0.0	1.9	-	-	-	1.9	-	1.9	0.0	-	-	1.9	1.8
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Trafalgar Road & Hwy 407 WB Ramp
Site Code: 210156
Start Date: 11/19/2025



Turning Movement Peak Hour Data Plot (7:45 AM)

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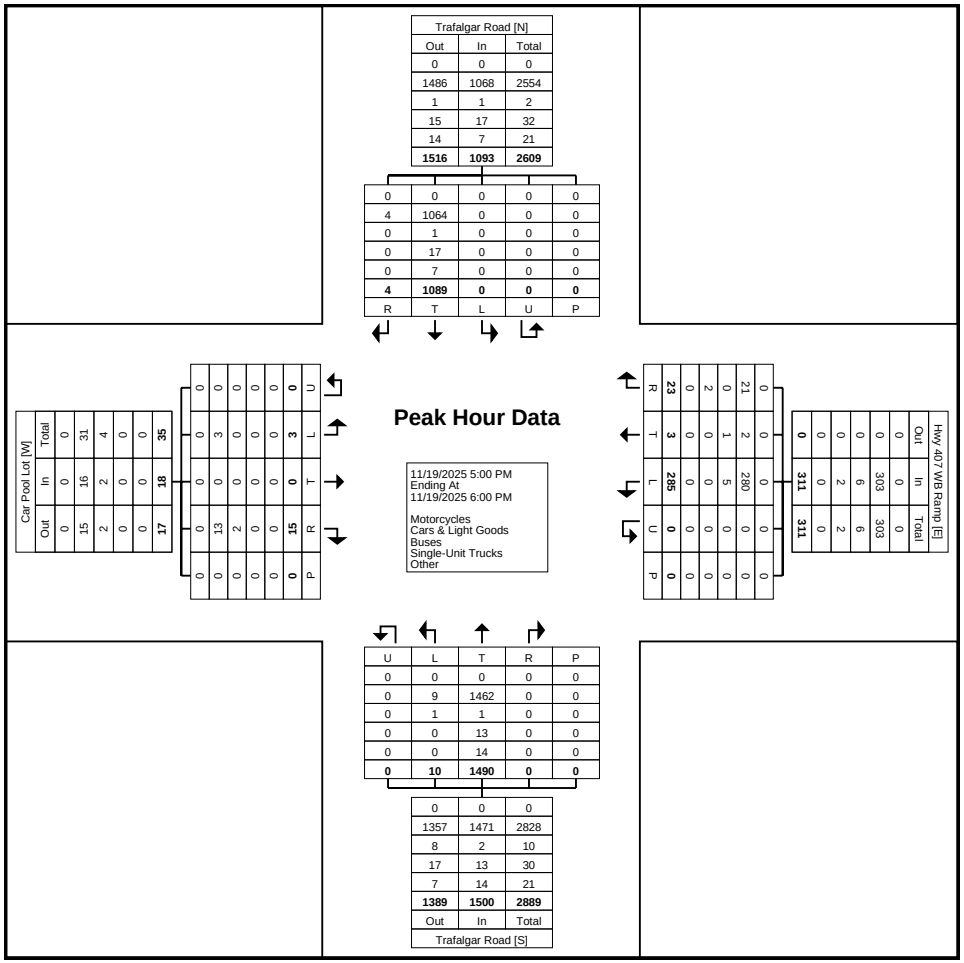
Turning Movement Peak Hour Data (5:00 PM)

Start Time	Car Pool Lot Eastbound						Hwy 407 WB Ramp Westbound						Trafalgar Road Northbound						Trafalgar Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
5:00 PM	2	0	3	0	0	5	80	0	6	0	0	86	5	336	0	0	0	341	0	281	2	0	0	283	715
5:15 PM	1	0	4	0	0	5	75	2	4	0	0	81	2	390	0	0	0	392	0	255	1	0	0	256	734
5:30 PM	0	0	2	0	0	2	78	1	6	0	0	85	2	398	0	0	0	400	0	300	1	0	0	301	788
5:45 PM	0	0	6	0	0	6	52	0	7	0	0	59	1	366	0	0	0	367	0	253	0	0	0	253	685
Total	3	0	15	0	0	18	285	3	23	0	0	311	10	1490	0	0	0	1500	0	1089	4	0	0	1093	2922
Approach %	16.7	0.0	83.3	0.0	-	-	91.6	1.0	7.4	0.0	-	-	0.7	99.3	0.0	0.0	-	-	0.0	99.6	0.4	0.0	-	-	-
Total %	0.1	0.0	0.5	0.0	-	0.6	9.8	0.1	0.8	0.0	-	10.6	0.3	51.0	0.0	0.0	-	51.3	0.0	37.3	0.1	0.0	-	37.4	-
PHF	0.375	0.000	0.625	0.000	-	0.750	0.891	0.375	0.821	0.000	-	0.904	0.500	0.936	0.000	0.000	-	0.938	0.000	0.908	0.500	0.000	-	0.908	0.927
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	3	0	13	0	-	16	280	2	21	0	-	303	9	1462	0	0	-	1471	0	1064	4	0	-	1068	2858
% Cars & Light Goods	100.0	-	86.7	-	-	88.9	98.2	66.7	91.3	-	-	97.4	90.0	98.1	-	-	-	98.1	-	97.7	100.0	-	-	97.7	97.8
Buses	0	0	2	0	-	2	5	1	0	0	-	6	1	1	0	0	-	2	0	1	0	0	-	1	11
% Buses	0.0	-	13.3	-	-	11.1	1.8	33.3	0.0	-	-	1.9	10.0	0.1	-	-	-	0.1	-	0.1	0.0	-	-	0.1	0.4
Single-Unit Trucks	0	0	0	0	-	0	0	0	2	0	-	2	0	13	0	0	-	13	0	17	0	0	-	17	32
% Single-Unit Trucks	0.0	-	0.0	-	-	0.0	0.0	0.0	8.7	-	-	0.6	0.0	0.9	-	-	-	0.9	-	1.6	0.0	-	-	1.6	1.1
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	14	0	0	-	14	0	7	0	0	-	7	21
% Articulated Trucks	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.9	-	-	-	0.9	-	0.6	0.0	-	-	0.6	0.7
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Trafalgar Road & Hwy 407 WB Ramp
Site Code: 210156
Start Date: 11/19/2025



Turning Movement Peak Hour Data Plot (5:00 PM)

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5A-150 Pinebush Rd

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Turning Movement Data

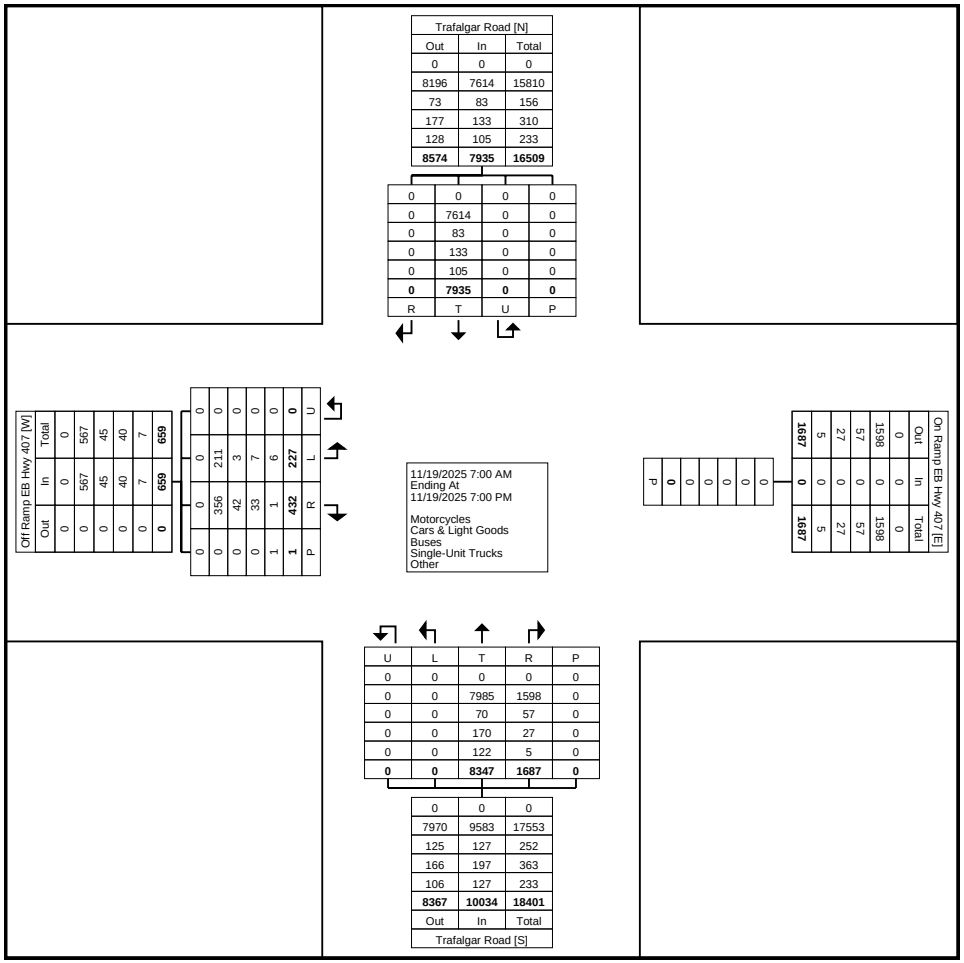
Start Time	Off Ramp EB Hwy 407 Eastbound					On Ramp EB Hwy 407 Westbound		Trafalgar Road Northbound						Trafalgar Road Southbound					
	Left	Right	U-Turn	Peds	App. Total	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
7:00 AM	6	14	0	0	20	0	0	0	146	53	0	0	199	233	0	0	0	233	452
7:15 AM	6	15	0	0	21	0	0	0	179	66	0	0	245	289	0	0	0	289	555
7:30 AM	12	23	0	0	35	0	0	0	204	93	0	0	297	332	0	0	0	332	664
7:45 AM	19	31	0	0	50	0	0	0	236	102	0	0	338	335	0	0	0	335	723
Hourly Total	43	83	0	0	126	0	0	0	765	314	0	0	1079	1189	0	0	0	1189	2394
8:00 AM	16	23	0	0	39	0	0	0	273	95	0	0	368	274	0	0	0	274	681
8:15 AM	14	18	0	1	32	0	0	0	263	98	0	0	361	393	0	0	0	393	786
8:30 AM	11	25	0	0	36	0	0	0	320	103	0	0	423	342	0	0	0	342	801
8:45 AM	7	23	0	0	30	0	0	0	213	77	0	0	290	328	0	0	0	328	648
Hourly Total	48	89	0	1	137	0	0	0	1069	373	0	0	1442	1337	0	0	0	1337	2916
9:00 AM	11	14	0	0	25	0	0	0	176	58	0	0	234	249	0	0	0	249	508
9:15 AM	9	23	0	0	32	0	0	0	160	56	0	0	216	257	0	0	0	257	505
9:30 AM	4	11	0	0	15	0	0	0	172	28	0	0	200	246	0	0	0	246	461
9:45 AM	10	12	0	0	22	0	0	0	146	25	0	0	171	205	0	0	0	205	398
Hourly Total	34	60	0	0	94	0	0	0	654	167	0	0	821	957	0	0	0	957	1872
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	4	14	0	0	18	0	0	0	279	22	0	0	301	214	0	0	0	214	533
3:15 PM	5	11	0	0	16	0	0	0	365	39	0	0	404	241	0	0	0	241	661
3:30 PM	4	13	0	0	17	0	0	0	345	46	0	0	391	263	0	0	0	263	671
3:45 PM	6	12	0	0	18	0	0	0	352	52	0	0	404	264	0	0	0	264	686
Hourly Total	19	50	0	0	69	0	0	0	1341	159	0	0	1500	982	0	0	0	982	2551
4:00 PM	11	17	0	0	28	0	0	0	394	70	0	0	464	266	0	0	0	266	758
4:15 PM	9	13	0	0	22	0	0	0	469	59	0	0	528	335	0	0	0	335	885
4:30 PM	10	11	0	0	21	0	0	0	431	59	0	0	490	305	0	0	0	305	816
4:45 PM	8	17	0	0	25	0	0	0	416	74	0	0	490	300	0	0	0	300	815
Hourly Total	38	58	0	0	96	0	0	0	1710	262	0	0	1972	1206	0	0	0	1206	3274
5:00 PM	11	18	0	0	29	0	0	0	406	74	0	0	480	346	0	0	0	346	855
5:15 PM	5	18	0	0	23	0	0	0	443	100	0	0	543	324	0	0	0	324	890
5:30 PM	9	15	0	0	24	0	0	0	402	78	0	0	480	363	0	0	0	363	867
5:45 PM	4	10	0	0	14	0	0	0	392	43	0	0	435	311	0	0	0	311	760
Hourly Total	29	61	0	0	90	0	0	0	1643	295	0	0	1938	1344	0	0	0	1344	3372
6:00 PM	6	6	0	0	12	0	0	0	314	39	0	0	353	242	0	0	0	242	607
6:15 PM	4	12	0	0	16	0	0	0	275	32	0	0	307	227	0	0	0	227	550
6:30 PM	4	6	0	0	10	0	0	0	325	25	0	0	350	253	0	0	0	253	613
6:45 PM	2	7	0	0	9	0	0	0	251	21	0	0	272	198	0	0	0	198	479
Hourly Total	16	31	0	0	47	0	0	0	1165	117	0	0	1282	920	0	0	0	920	2249

Grand Total	227	432	0	1	659	0	0	0	8347	1687	0	0	10034	7935	0	0	0	7935	18628
Approach %	34.4	65.6	0.0	-	-	-	-	0.0	83.2	16.8	0.0	-	-	100.0	0.0	0.0	-	-	-
Total %	1.2	2.3	0.0	-	3.5	-	0.0	0.0	44.8	9.1	0.0	-	53.9	42.6	0.0	0.0	-	42.6	-
Motorcycles	0	0	0	-	0	-	0	0	0	0	0	-	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	-	-	0.0	-	-	-	0.0	0.0	-	-	0.0	0.0	-	-	-	0.0	0.0
Cars & Light Goods	211	356	0	-	567	-	0	0	7985	1598	0	-	9583	7614	0	0	-	7614	17764
% Cars & Light Goods	93.0	82.4	-	-	86.0	-	-	-	95.7	94.7	-	-	95.5	96.0	-	-	-	96.0	95.4
Buses	3	42	0	-	45	-	0	0	70	57	0	-	127	83	0	0	-	83	255
% Buses	1.3	9.7	-	-	6.8	-	-	-	0.8	3.4	-	-	1.3	1.0	-	-	-	1.0	1.4
Single-Unit Trucks	7	33	0	-	40	-	0	0	170	27	0	-	197	133	0	0	-	133	370
% Single-Unit Trucks	3.1	7.6	-	-	6.1	-	-	-	2.0	1.6	-	-	2.0	1.7	-	-	-	1.7	2.0
Articulated Trucks	6	1	0	-	7	-	0	0	122	5	0	-	127	104	0	0	-	104	238
% Articulated Trucks	2.6	0.2	-	-	1.1	-	-	-	1.5	0.3	-	-	1.3	1.3	-	-	-	1.3	1.3
Bicycles on Road	0	0	0	-	0	-	0	0	0	0	0	-	0	1	0	0	-	1	1
% Bicycles on Road	0.0	0.0	-	-	0.0	-	-	-	0.0	0.0	-	-	0.0	0.0	-	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	0	-	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	1	-	0	-	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Page No: 3



Turning Movement Data Plot

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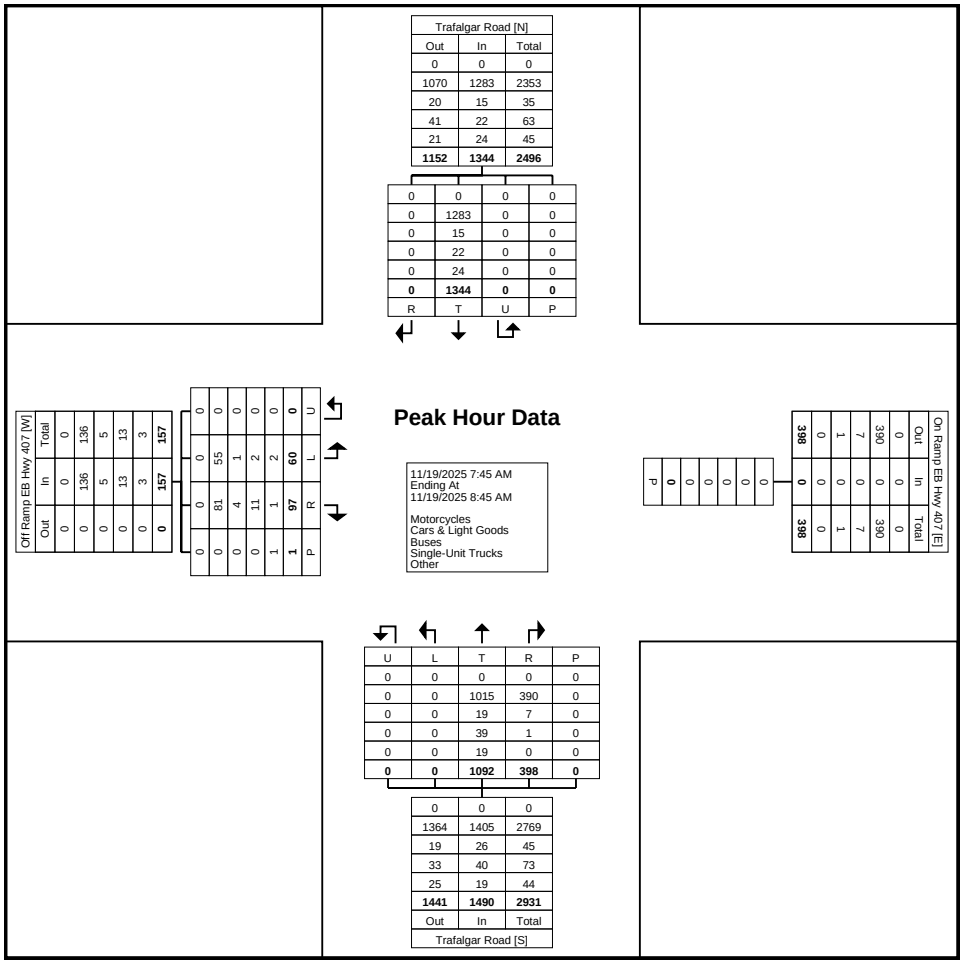
Turning Movement Peak Hour Data (7:45 AM)

Start Time	Off Ramp EB Hwy 407 Eastbound					On Ramp EB Hwy 407 Westbound		Trafalgar Road Northbound						Trafalgar Road Southbound					
	Left	Right	U-Turn	Peds	App. Total	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
7:45 AM	19	31	0	0	50	0	0	0	236	102	0	0	338	335	0	0	0	335	723
8:00 AM	16	23	0	0	39	0	0	0	273	95	0	0	368	274	0	0	0	274	681
8:15 AM	14	18	0	1	32	0	0	0	263	98	0	0	361	393	0	0	0	393	786
8:30 AM	11	25	0	0	36	0	0	0	320	103	0	0	423	342	0	0	0	342	801
Total	60	97	0	1	157	0	0	0	1092	398	0	0	1490	1344	0	0	0	1344	2991
Approach %	38.2	61.8	0.0	-	-	-	-	0.0	73.3	26.7	0.0	-	-	100.0	0.0	0.0	-	-	-
Total %	2.0	3.2	0.0	-	5.2	-	0.0	0.0	36.5	13.3	0.0	-	49.8	44.9	0.0	0.0	-	44.9	-
PHF	0.789	0.782	0.000	-	0.785	-	0.000	0.000	0.853	0.966	0.000	-	0.881	0.855	0.000	0.000	-	0.855	0.934
Motorcycles	0	0	0	-	0	-	0	0	0	0	0	-	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	-	-	0.0	-	-	-	0.0	0.0	-	-	0.0	0.0	-	-	-	0.0	0.0
Cars & Light Goods	55	81	0	-	136	-	0	0	1015	390	0	-	1405	1283	0	0	-	1283	2824
% Cars & Light Goods	91.7	83.5	-	-	86.6	-	-	-	92.9	98.0	-	-	94.3	95.5	-	-	-	95.5	94.4
Buses	1	4	0	-	5	-	0	0	19	7	0	-	26	15	0	0	-	15	46
% Buses	1.7	4.1	-	-	3.2	-	-	-	1.7	1.8	-	-	1.7	1.1	-	-	-	1.1	1.5
Single-Unit Trucks	2	11	0	-	13	-	0	0	39	1	0	-	40	22	0	0	-	22	75
% Single-Unit Trucks	3.3	11.3	-	-	8.3	-	-	-	3.6	0.3	-	-	2.7	1.6	-	-	-	1.6	2.5
Articulated Trucks	2	1	0	-	3	-	0	0	19	0	0	-	19	24	0	0	-	24	46
% Articulated Trucks	3.3	1.0	-	-	1.9	-	-	-	1.7	0.0	-	-	1.3	1.8	-	-	-	1.8	1.5
Bicycles on Road	0	0	0	-	0	-	0	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	-	-	-	0.0	0.0	-	-	0.0	0.0	-	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	0	-	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	1	-	0	-	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Trafalgar Road & Hwy 407 EB Ramp
Site Code: 210156
Start Date: 11/19/2025



Turning Movement Peak Hour Data Plot (7:45 AM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Trafalgar Road & Hwy 407 EB Ramp
Site Code: 210156
Start Date: 11/19/2025

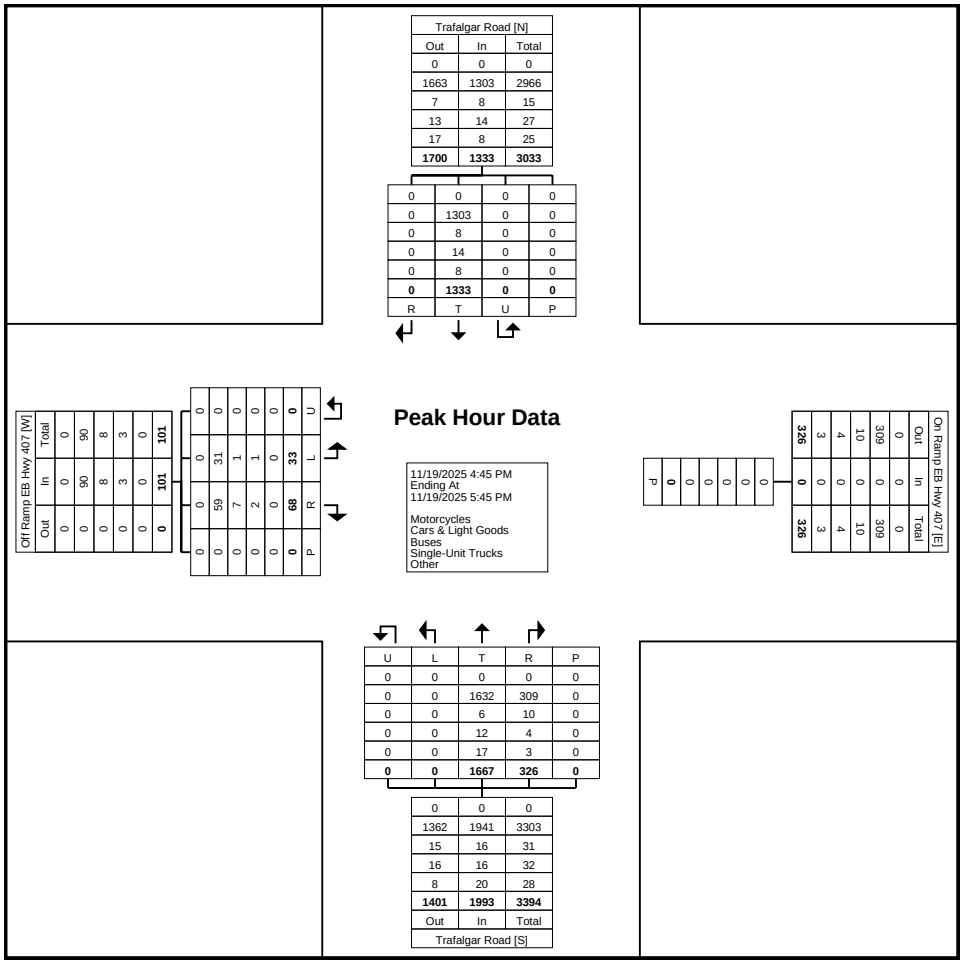
Turning Movement Peak Hour Data (4:45 PM)

Start Time	Off Ramp EB Hwy 407 Eastbound					On Ramp EB Hwy 407 Westbound		Trafalgar Road Northbound						Trafalgar Road Southbound					
	Left	Right	U-Turn	Peds	App. Total	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
4:45 PM	8	17	0	0	25	0	0	0	416	74	0	0	490	300	0	0	0	300	815
5:00 PM	11	18	0	0	29	0	0	0	406	74	0	0	480	346	0	0	0	346	855
5:15 PM	5	18	0	0	23	0	0	0	443	100	0	0	543	324	0	0	0	324	890
5:30 PM	9	15	0	0	24	0	0	0	402	78	0	0	480	363	0	0	0	363	867
Total	33	68	0	0	101	0	0	0	1667	326	0	0	1993	1333	0	0	0	1333	3427
Approach %	32.7	67.3	0.0	-	-	-	-	0.0	83.6	16.4	0.0	-	-	100.0	0.0	0.0	-	-	-
Total %	1.0	2.0	0.0	-	2.9	-	0.0	0.0	48.6	9.5	0.0	-	58.2	38.9	0.0	0.0	-	38.9	-
PHF	0.750	0.944	0.000	-	0.871	-	0.000	0.000	0.941	0.815	0.000	-	0.918	0.918	0.000	0.000	-	0.918	0.963
Motorcycles	0	0	0	-	0	-	0	0	0	0	0	-	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	-	-	0.0	-	-	-	0.0	0.0	-	-	0.0	0.0	-	-	-	0.0	0.0
Cars & Light Goods	31	59	0	-	90	-	0	0	1632	309	0	-	1941	1303	0	0	-	1303	3334
% Cars & Light Goods	93.9	86.8	-	-	89.1	-	-	-	97.9	94.8	-	-	97.4	97.7	-	-	-	97.7	97.3
Buses	1	7	0	-	8	-	0	0	6	10	0	-	16	8	0	0	-	8	32
% Buses	3.0	10.3	-	-	7.9	-	-	-	0.4	3.1	-	-	0.8	0.6	-	-	-	0.6	0.9
Single-Unit Trucks	1	2	0	-	3	-	0	0	12	4	0	-	16	14	0	0	-	14	33
% Single-Unit Trucks	3.0	2.9	-	-	3.0	-	-	-	0.7	1.2	-	-	0.8	1.1	-	-	-	1.1	1.0
Articulated Trucks	0	0	0	-	0	-	0	0	17	3	0	-	20	8	0	0	-	8	28
% Articulated Trucks	0.0	0.0	-	-	0.0	-	-	-	1.0	0.9	-	-	1.0	0.6	-	-	-	0.6	0.8
Bicycles on Road	0	0	0	-	0	-	0	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	-	-	-	0.0	0.0	-	-	0.0	0.0	-	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	0	-	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	0	-	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Trafalgar Road & Hwy 407 EB Ramp
Site Code: 210156
Start Date: 11/19/2025



Turning Movement Peak Hour Data Plot (4:45 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Trafalgar Road & Car Pool Lot
Site Code: 210156
Start Date: 11/19/2025

Turning Movement Data

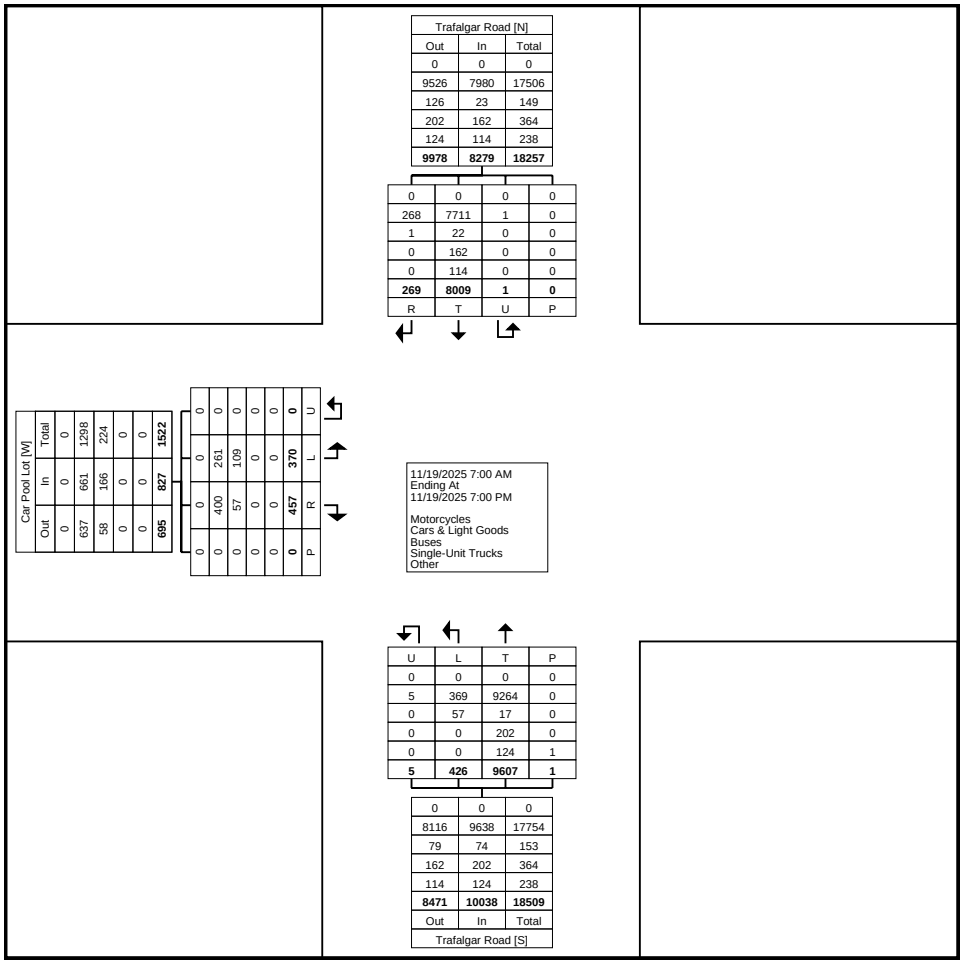
Start Time	Car Pool Lot Eastbound					Trafalgar Road Northbound					Trafalgar Road Southbound					
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
7:00 AM	12	15	0	0	27	17	202	0	0	219	223	15	0	0	238	484
7:15 AM	11	24	0	0	35	19	229	0	0	248	279	22	0	0	301	584
7:30 AM	16	24	0	0	40	31	331	0	0	362	350	13	0	0	363	765
7:45 AM	15	18	0	0	33	18	312	0	0	330	334	13	0	0	347	710
Hourly Total	54	81	0	0	135	85	1074	0	0	1159	1186	63	0	0	1249	2543
8:00 AM	11	18	0	0	29	15	356	0	0	371	277	12	0	0	289	689
8:15 AM	13	11	0	0	24	20	359	0	0	379	377	17	0	0	394	797
8:30 AM	13	13	0	0	26	17	392	1	0	410	359	16	0	0	375	811
8:45 AM	8	10	0	0	18	13	277	0	0	290	352	11	0	0	363	671
Hourly Total	45	52	0	0	97	65	1384	1	0	1450	1365	56	0	0	1421	2968
9:00 AM	13	18	0	0	31	20	208	0	0	228	247	6	0	0	253	512
9:15 AM	10	13	0	0	23	16	204	0	0	220	272	9	0	0	281	524
9:30 AM	7	17	0	0	24	19	187	0	0	206	250	8	0	0	258	488
9:45 AM	7	13	0	0	20	12	165	0	0	177	211	7	0	0	218	415
Hourly Total	37	61	0	0	98	67	764	0	0	831	980	30	0	0	1010	1939
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	9	12	0	0	21	13	298	0	0	311	206	11	0	0	217	549
3:15 PM	18	16	0	0	34	8	374	1	0	383	245	12	0	0	257	674
3:30 PM	9	5	0	0	14	4	384	0	0	388	260	4	0	0	264	666
3:45 PM	7	18	0	0	25	6	418	0	0	424	272	2	0	0	274	723
Hourly Total	43	51	0	0	94	31	1474	1	0	1506	983	29	0	0	1012	2612
4:00 PM	9	7	0	0	16	16	452	0	1	468	288	7	0	0	295	779
4:15 PM	15	27	0	0	42	17	524	1	0	542	315	2	0	0	317	901
4:30 PM	9	6	0	0	15	4	470	0	0	474	317	3	0	0	320	809
4:45 PM	10	21	0	0	31	15	466	0	0	481	302	4	0	0	306	818
Hourly Total	43	61	0	0	104	52	1912	1	1	1965	1222	16	0	0	1238	3307
5:00 PM	13	14	0	0	27	11	457	0	0	468	328	11	0	0	339	834
5:15 PM	26	23	0	0	49	16	523	0	0	539	337	11	0	0	348	936
5:30 PM	15	14	0	0	29	20	503	0	0	523	370	8	0	0	378	930
5:45 PM	22	17	0	0	39	16	378	1	0	395	304	6	0	0	310	744
Hourly Total	76	68	0	0	144	63	1861	1	0	1925	1339	36	0	0	1375	3444
6:00 PM	18	22	0	0	40	20	328	0	0	348	245	8	0	0	253	641
6:15 PM	14	26	0	0	40	21	275	0	0	296	223	12	1	0	236	572
6:30 PM	22	18	0	0	40	9	312	0	0	321	259	6	0	0	265	626
6:45 PM	18	17	0	0	35	13	223	1	0	237	207	13	0	0	220	492
Hourly Total	72	83	0	0	155	63	1138	1	0	1202	934	39	1	0	974	2331

Grand Total	370	457	0	0	827	426	9607	5	1	10038	8009	269	1	0	8279	19144
Approach %	44.7	55.3	0.0	-	-	4.2	95.7	0.0	-	-	96.7	3.2	0.0	-	-	-
Total %	1.9	2.4	0.0	-	4.3	2.2	50.2	0.0	-	52.4	41.8	1.4	0.0	-	43.2	-
Motorcycles	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Cars & Light Goods	261	400	0	-	661	369	9264	5	-	9638	7711	268	1	-	7980	18279
% Cars & Light Goods	70.5	87.5	-	-	79.9	86.6	96.4	100.0	-	96.0	96.3	99.6	100.0	-	96.4	95.5
Buses	109	57	0	-	166	57	17	0	-	74	22	1	0	-	23	263
% Buses	29.5	12.5	-	-	20.1	13.4	0.2	0.0	-	0.7	0.3	0.4	0.0	-	0.3	1.4
Single-Unit Trucks	0	0	0	-	0	0	202	0	-	202	162	0	0	-	162	364
% Single-Unit Trucks	0.0	0.0	-	-	0.0	0.0	2.1	0.0	-	2.0	2.0	0.0	0.0	-	2.0	1.9
Articulated Trucks	0	0	0	-	0	0	124	0	-	124	114	0	0	-	114	238
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	1.3	0.0	-	1.2	1.4	0.0	0.0	-	1.4	1.2
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Trafalgar Road & Car Pool Lot
Site Code: 210156
Start Date: 11/19/2025



Turning Movement Data Plot

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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Count Name: Trafalgar Road & Car Pool Lot
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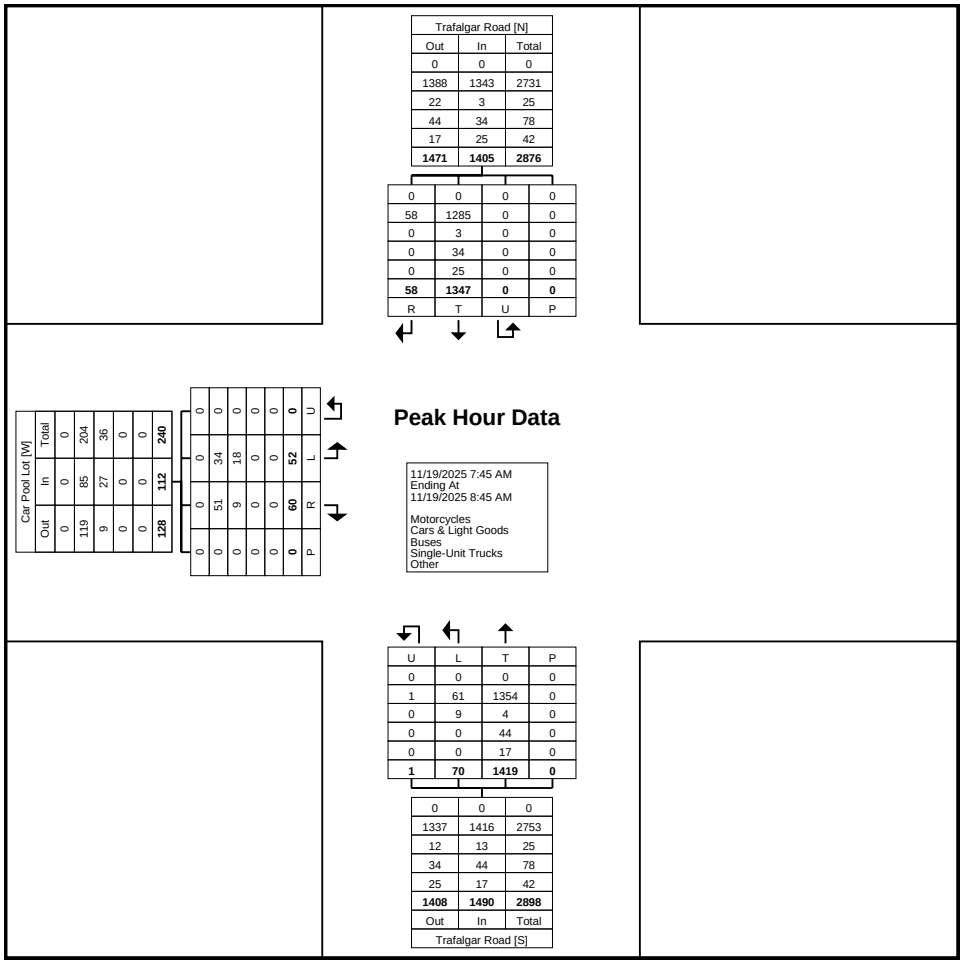
Turning Movement Peak Hour Data (7:45 AM)

Start Time	Car Pool Lot Eastbound					Trafalgar Road Northbound					Trafalgar Road Southbound					
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
7:45 AM	15	18	0	0	33	18	312	0	0	330	334	13	0	0	347	710
8:00 AM	11	18	0	0	29	15	356	0	0	371	277	12	0	0	289	689
8:15 AM	13	11	0	0	24	20	359	0	0	379	377	17	0	0	394	797
8:30 AM	13	13	0	0	26	17	392	1	0	410	359	16	0	0	375	811
Total	52	60	0	0	112	70	1419	1	0	1490	1347	58	0	0	1405	3007
Approach %	46.4	53.6	0.0	-	-	4.7	95.2	0.1	-	-	95.9	4.1	0.0	-	-	-
Total %	1.7	2.0	0.0	-	3.7	2.3	47.2	0.0	-	49.6	44.8	1.9	0.0	-	46.7	-
PHF	0.867	0.833	0.000	-	0.848	0.875	0.905	0.250	-	0.909	0.893	0.853	0.000	-	0.891	0.927
Motorcycles	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	34	51	0	-	85	61	1354	1	-	1416	1285	58	0	-	1343	2844
% Cars & Light Goods	65.4	85.0	-	-	75.9	87.1	95.4	100.0	-	95.0	95.4	100.0	-	-	95.6	94.6
Buses	18	9	0	-	27	9	4	0	-	13	3	0	0	-	3	43
% Buses	34.6	15.0	-	-	24.1	12.9	0.3	0.0	-	0.9	0.2	0.0	-	-	0.2	1.4
Single-Unit Trucks	0	0	0	-	0	0	44	0	-	44	34	0	0	-	34	78
% Single-Unit Trucks	0.0	0.0	-	-	0.0	0.0	3.1	0.0	-	3.0	2.5	0.0	-	-	2.4	2.6
Articulated Trucks	0	0	0	-	0	0	17	0	-	17	25	0	0	-	25	42
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	1.2	0.0	-	1.1	1.9	0.0	-	-	1.8	1.4
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: Trafalgar Road & Car Pool Lot
Site Code: 210156
Start Date: 11/19/2025



Turning Movement Peak Hour Data Plot (7:45 AM)

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519-896-3163 cbowness@ptsl.com

Count Name: Trafalgar Road & Car Pool Lot
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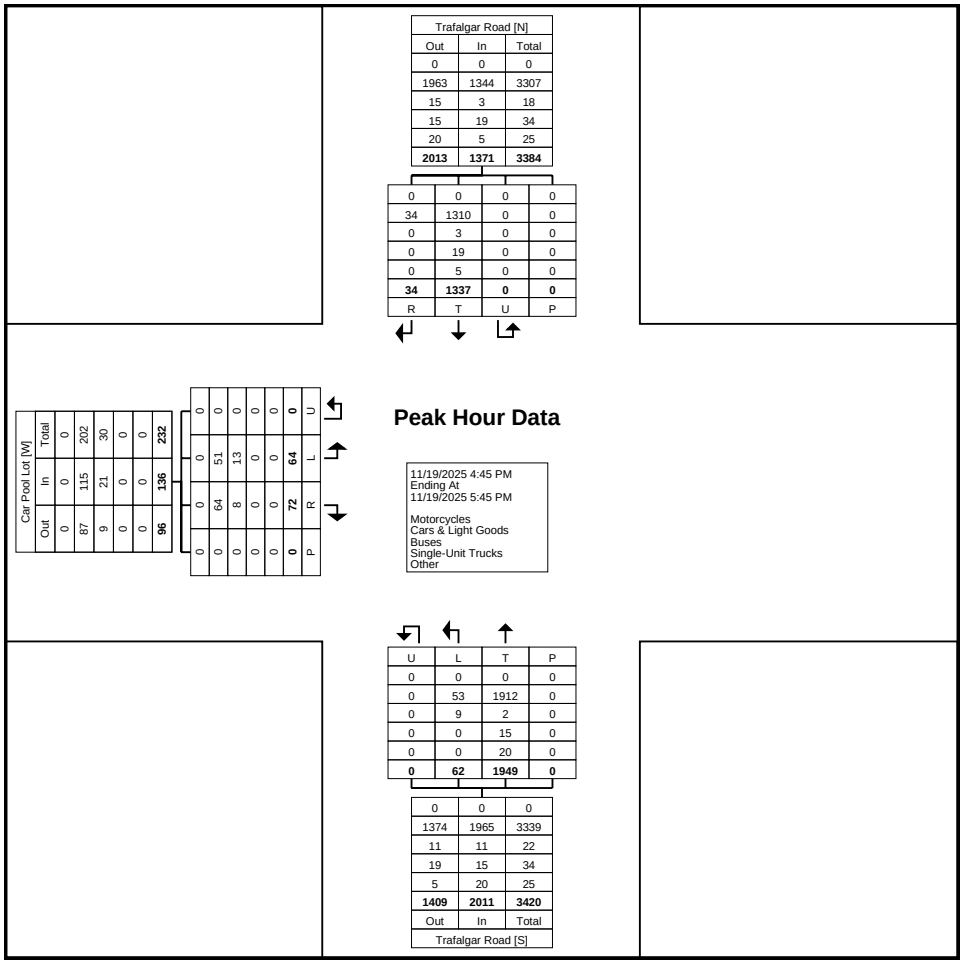
Turning Movement Peak Hour Data (4:45 PM)

Start Time	Car Pool Lot Eastbound					Trafalgar Road Northbound					Trafalgar Road Southbound					
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
4:45 PM	10	21	0	0	31	15	466	0	0	481	302	4	0	0	306	818
5:00 PM	13	14	0	0	27	11	457	0	0	468	328	11	0	0	339	834
5:15 PM	26	23	0	0	49	16	523	0	0	539	337	11	0	0	348	936
5:30 PM	15	14	0	0	29	20	503	0	0	523	370	8	0	0	378	930
Total	64	72	0	0	136	62	1949	0	0	2011	1337	34	0	0	1371	3518
Approach %	47.1	52.9	0.0	-	-	3.1	96.9	0.0	-	-	97.5	2.5	0.0	-	-	-
Total %	1.8	2.0	0.0	-	3.9	1.8	55.4	0.0	-	57.2	38.0	1.0	0.0	-	39.0	-
PHF	0.615	0.783	0.000	-	0.694	0.775	0.932	0.000	-	0.933	0.903	0.773	0.000	-	0.907	0.940
Motorcycles	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	51	64	0	-	115	53	1912	0	-	1965	1310	34	0	-	1344	3424
% Cars & Light Goods	79.7	88.9	-	-	84.6	85.5	98.1	-	-	97.7	98.0	100.0	-	-	98.0	97.3
Buses	13	8	0	-	21	9	2	0	-	11	3	0	0	-	3	35
% Buses	20.3	11.1	-	-	15.4	14.5	0.1	-	-	0.5	0.2	0.0	-	-	0.2	1.0
Single-Unit Trucks	0	0	0	-	0	0	15	0	-	15	19	0	0	-	19	34
% Single-Unit Trucks	0.0	0.0	-	-	0.0	0.0	0.8	-	-	0.7	1.4	0.0	-	-	1.4	1.0
Articulated Trucks	0	0	0	-	0	0	20	0	-	20	5	0	0	-	5	25
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	1.0	-	-	1.0	0.4	0.0	-	-	0.4	0.7
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Trafalgar Road & Car Pool Lot
Site Code: 210156
Start Date: 11/19/2025



Turning Movement Peak Hour Data Plot (4:45 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Trafalgar Road & William Halton Parkway
Site Code: 210156
Start Date: 11/19/2025

Turning Movement Data

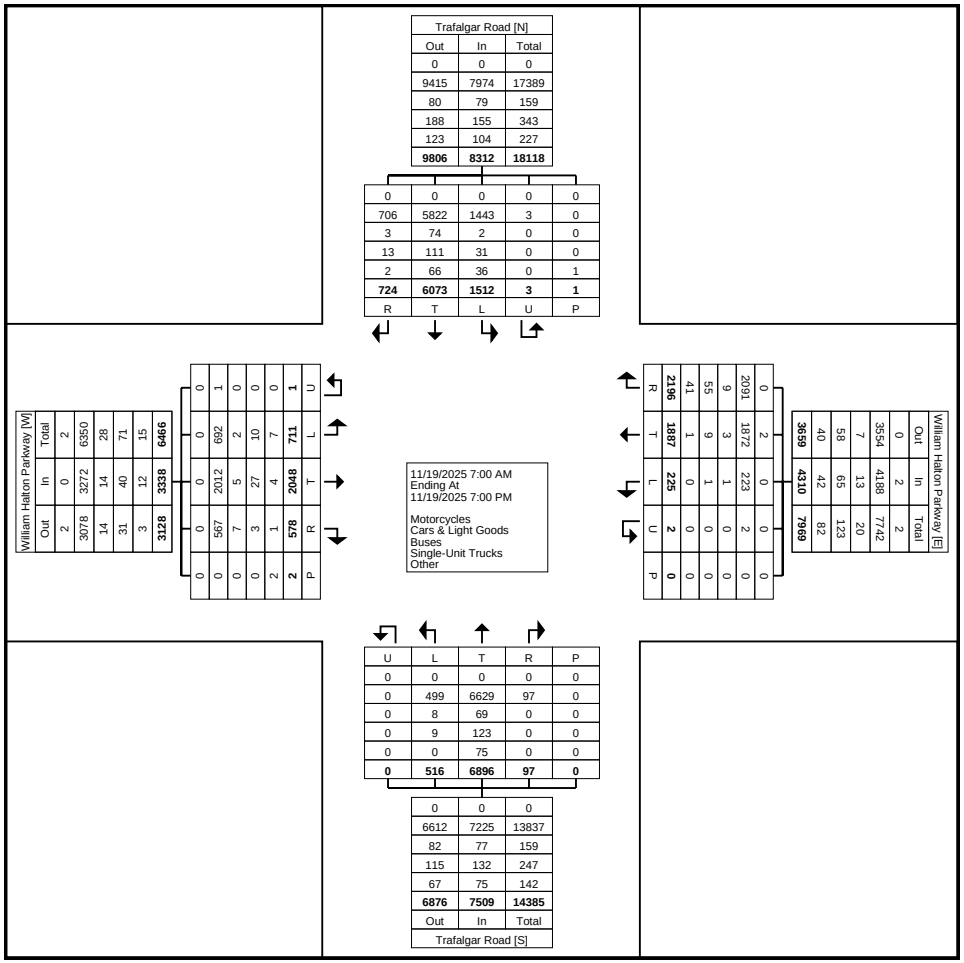
Start Time	William Halton Parkway Eastbound						William Halton Parkway Westbound						Trafalgar Road Northbound						Trafalgar Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	9	37	11	0	0	57	1	19	28	0	0	48	5	166	0	0	0	171	74	163	5	0	0	242	518
7:15 AM	23	74	17	1	0	115	5	26	41	0	0	72	11	176	3	0	0	190	90	196	13	0	0	299	676
7:30 AM	35	84	27	0	1	146	5	38	55	0	0	98	10	237	3	0	0	250	81	266	19	0	0	366	860
7:45 AM	38	140	32	0	1	210	3	22	41	0	0	66	15	241	6	0	0	262	90	237	23	0	0	350	888
Hourly Total	105	335	87	1	2	528	14	105	165	0	0	284	41	820	12	0	0	873	335	862	60	0	0	1257	2942
8:00 AM	42	137	43	0	0	222	3	34	69	0	0	106	14	254	8	0	0	276	75	214	17	0	0	306	910
8:15 AM	44	122	36	0	0	202	9	47	41	1	0	98	20	284	6	0	0	310	64	282	29	0	0	375	985
8:30 AM	46	145	34	0	0	225	8	54	52	0	0	114	20	296	6	0	0	322	65	258	29	0	0	352	1013
8:45 AM	25	126	49	0	0	200	7	33	45	0	0	85	15	227	7	0	0	249	90	259	25	0	0	374	908
Hourly Total	157	530	162	0	0	849	27	168	207	1	0	403	69	1061	27	0	0	1157	294	1013	100	0	0	1407	3816
9:00 AM	23	99	19	0	0	141	6	33	32	0	0	71	4	177	3	0	0	184	65	181	22	1	0	269	665
9:15 AM	17	56	12	0	0	85	5	25	36	0	0	66	6	158	4	0	0	168	70	201	13	0	0	284	603
9:30 AM	17	56	18	0	0	91	7	22	33	0	0	62	4	152	4	0	0	160	58	171	7	0	0	236	549
9:45 AM	19	92	12	0	0	123	7	23	41	0	0	71	5	117	4	0	0	126	55	169	14	0	0	238	558
Hourly Total	76	303	61	0	0	440	25	103	142	0	0	270	19	604	15	0	0	638	248	722	56	1	0	1027	2375
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	12	53	17	0	0	82	6	62	68	0	0	136	18	238	3	0	0	259	23	173	21	1	0	218	695
3:15 PM	23	41	21	0	0	85	11	87	81	0	0	179	21	265	3	0	0	289	33	176	34	0	0	243	796
3:30 PM	23	68	31	0	0	122	15	91	99	0	0	205	33	274	1	0	0	308	32	189	25	0	0	246	881
3:45 PM	17	50	21	0	0	88	10	90	85	0	0	185	40	298	0	0	0	338	17	224	28	0	0	269	880
Hourly Total	75	212	90	0	0	377	42	330	333	0	0	705	112	1075	7	0	0	1194	105	762	108	1	0	976	3252
4:00 PM	26	56	11	0	0	93	8	138	133	0	0	279	14	267	0	0	0	281	38	190	36	0	0	264	917
4:15 PM	34	57	16	0	0	107	6	113	129	0	0	248	34	337	0	0	0	371	50	266	35	0	0	351	1077
4:30 PM	24	61	16	0	0	101	15	99	158	0	0	272	20	275	4	0	0	299	53	237	33	0	0	323	995
4:45 PM	36	62	22	0	0	120	7	110	145	0	0	262	31	297	2	0	0	330	47	222	41	0	0	310	1022
Hourly Total	120	236	65	0	0	421	36	460	565	0	0	1061	99	1176	6	0	0	1281	188	915	145	0	0	1248	4011
5:00 PM	28	61	18	0	0	107	9	101	101	0	0	211	36	338	6	0	0	380	45	266	44	0	0	355	1053
5:15 PM	34	62	19	0	0	115	10	124	151	0	0	285	39	365	6	0	0	410	41	259	41	0	1	341	1151
5:30 PM	32	55	21	0	0	108	14	89	116	0	0	219	20	387	1	0	0	408	50	305	47	0	0	402	1137
5:45 PM	34	62	17	0	0	113	10	118	98	0	0	226	15	291	0	0	0	306	38	233	42	0	0	313	958
Hourly Total	128	240	75	0	0	443	43	432	466	0	0	941	110	1381	13	0	0	1504	174	1063	174	0	1	1411	4299
6:00 PM	25	37	10	0	0	72	16	74	92	0	0	182	20	228	4	0	0	252	46	205	24	0	0	275	781
6:15 PM	9	54	12	0	0	75	10	83	68	1	0	162	15	194	2	0	0	211	38	172	21	0	0	231	679
6:30 PM	9	61	8	0	0	78	10	81	91	0	0	182	18	193	3	0	0	214	55	197	23	1	0	276	750
6:45 PM	7	40	8	0	0	55	2	51	67	0	0	120	13	164	8	0	0	185	29	162	13	0	0	204	564

Hourly Total	50	192	38	0	0	280	38	289	318	1	0	646	66	779	17	0	0	862	168	736	81	1	0	986	2774
Grand Total	711	2048	578	1	2	3338	225	1887	2196	2	0	4310	516	6896	97	0	0	7509	1512	6073	724	3	1	8312	23469
Approach %	21.3	61.4	17.3	0.0	-	-	5.2	43.8	51.0	0.0	-	-	6.9	91.8	1.3	0.0	-	-	18.2	73.1	8.7	0.0	-	-	-
Total %	3.0	8.7	2.5	0.0	-	14.2	1.0	8.0	9.4	0.0	-	18.4	2.2	29.4	0.4	0.0	-	32.0	6.4	25.9	3.1	0.0	-	35.4	-
Motorcycles	0	0	0	0	-	0	0	2	0	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	2
% Motorcycles	0.0	0.0	0.0	0.0	-	0.0	0.0	0.1	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0
Cars & Light Goods	692	2012	567	1	-	3272	223	1872	2091	2	-	4188	499	6629	97	0	-	7225	1443	5822	706	3	-	7974	22659
% Cars & Light Goods	97.3	98.2	98.1	100.0	-	98.0	99.1	99.2	95.2	100.0	-	97.2	96.7	96.1	100.0	-	-	96.2	95.4	95.9	97.5	100.0	-	95.9	96.5
Buses	2	5	7	0	-	14	1	3	9	0	-	13	8	69	0	0	-	77	2	74	3	0	-	79	183
% Buses	0.3	0.2	1.2	0.0	-	0.4	0.4	0.2	0.4	0.0	-	0.3	1.6	1.0	0.0	-	-	1.0	0.1	1.2	0.4	0.0	-	1.0	0.8
Single-Unit Trucks	10	27	3	0	-	40	1	9	55	0	-	65	9	123	0	0	-	132	31	111	13	0	-	155	392
% Single-Unit Trucks	1.4	1.3	0.5	0.0	-	1.2	0.4	0.5	2.5	0.0	-	1.5	1.7	1.8	0.0	-	-	1.8	2.1	1.8	1.8	0.0	-	1.9	1.7
Articulated Trucks	7	3	1	0	-	11	0	1	41	0	-	42	0	75	0	0	-	75	36	65	2	0	-	103	231
% Articulated Trucks	1.0	0.1	0.2	0.0	-	0.3	0.0	0.1	1.9	0.0	-	1.0	0.0	1.1	0.0	-	-	1.0	2.4	1.1	0.3	0.0	-	1.2	1.0
Bicycles on Road	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	2
% Bicycles on Road	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Trafalgar Road & William Halton Parkway
Site Code: 210156
Start Date: 11/19/2025



Turning Movement Data Plot

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Trafalgar Road & William Halton Parkway
Site Code: 210156
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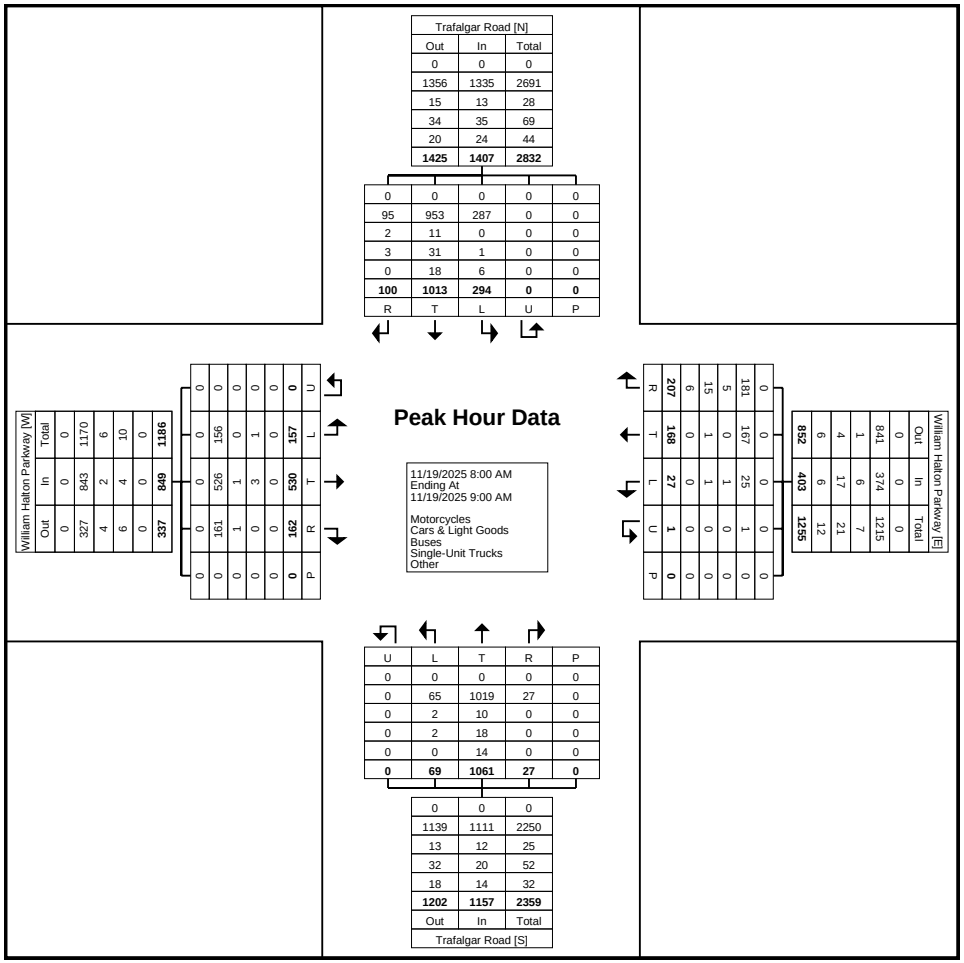
Turning Movement Peak Hour Data (8:00 AM)

Start Time	William Halton Parkway Eastbound						William Halton Parkway Westbound						Trafalgar Road Northbound						Trafalgar Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
8:00 AM	42	137	43	0	0	222	3	34	69	0	0	106	14	254	8	0	0	276	75	214	17	0	0	306	910
8:15 AM	44	122	36	0	0	202	9	47	41	1	0	98	20	284	6	0	0	310	64	282	29	0	0	375	985
8:30 AM	46	145	34	0	0	225	8	54	52	0	0	114	20	296	6	0	0	322	65	258	29	0	0	352	1013
8:45 AM	25	126	49	0	0	200	7	33	45	0	0	85	15	227	7	0	0	249	90	259	25	0	0	374	908
Total	157	530	162	0	0	849	27	168	207	1	0	403	69	1061	27	0	0	1157	294	1013	100	0	0	1407	3816
Approach %	18.5	62.4	19.1	0.0	-	-	6.7	41.7	51.4	0.2	-	-	6.0	91.7	2.3	0.0	-	-	20.9	72.0	7.1	0.0	-	-	-
Total %	4.1	13.9	4.2	0.0	-	22.2	0.7	4.4	5.4	0.0	-	10.6	1.8	27.8	0.7	0.0	-	30.3	7.7	26.5	2.6	0.0	-	36.9	-
PHF	0.853	0.914	0.827	0.000	-	0.943	0.750	0.778	0.750	0.250	-	0.884	0.863	0.896	0.844	0.000	-	0.898	0.817	0.898	0.862	0.000	-	0.938	0.942
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	156	526	161	0	-	843	25	167	181	1	-	374	65	1019	27	0	-	1111	287	953	95	0	-	1335	3663
% Cars & Light Goods	99.4	99.2	99.4	-	-	99.3	92.6	99.4	87.4	100.0	-	92.8	94.2	96.0	100.0	-	-	96.0	97.6	94.1	95.0	-	-	94.9	96.0
Buses	0	1	1	0	-	2	1	0	5	0	-	6	2	10	0	0	-	12	0	11	2	0	-	13	33
% Buses	0.0	0.2	0.6	-	-	0.2	3.7	0.0	2.4	0.0	-	1.5	2.9	0.9	0.0	-	-	1.0	0.0	1.1	2.0	-	-	0.9	0.9
Single-Unit Trucks	1	3	0	0	-	4	1	1	15	0	-	17	2	18	0	0	-	20	1	31	3	0	-	35	76
% Single-Unit Trucks	0.6	0.6	0.0	-	-	0.5	3.7	0.6	7.2	0.0	-	4.2	2.9	1.7	0.0	-	-	1.7	0.3	3.1	3.0	-	-	2.5	2.0
Articulated Trucks	0	0	0	0	-	0	0	0	6	0	-	6	0	14	0	0	-	14	6	18	0	0	-	24	44
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	2.9	0.0	-	1.5	0.0	1.3	0.0	-	-	1.2	2.0	1.8	0.0	-	-	1.7	1.2
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Trafalgar Road & William Halton Parkway
Site Code: 210156
Start Date: 11/19/2025



Turning Movement Peak Hour Data Plot (8:00 AM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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Count Name: Trafalgar Road & William Halton Parkway
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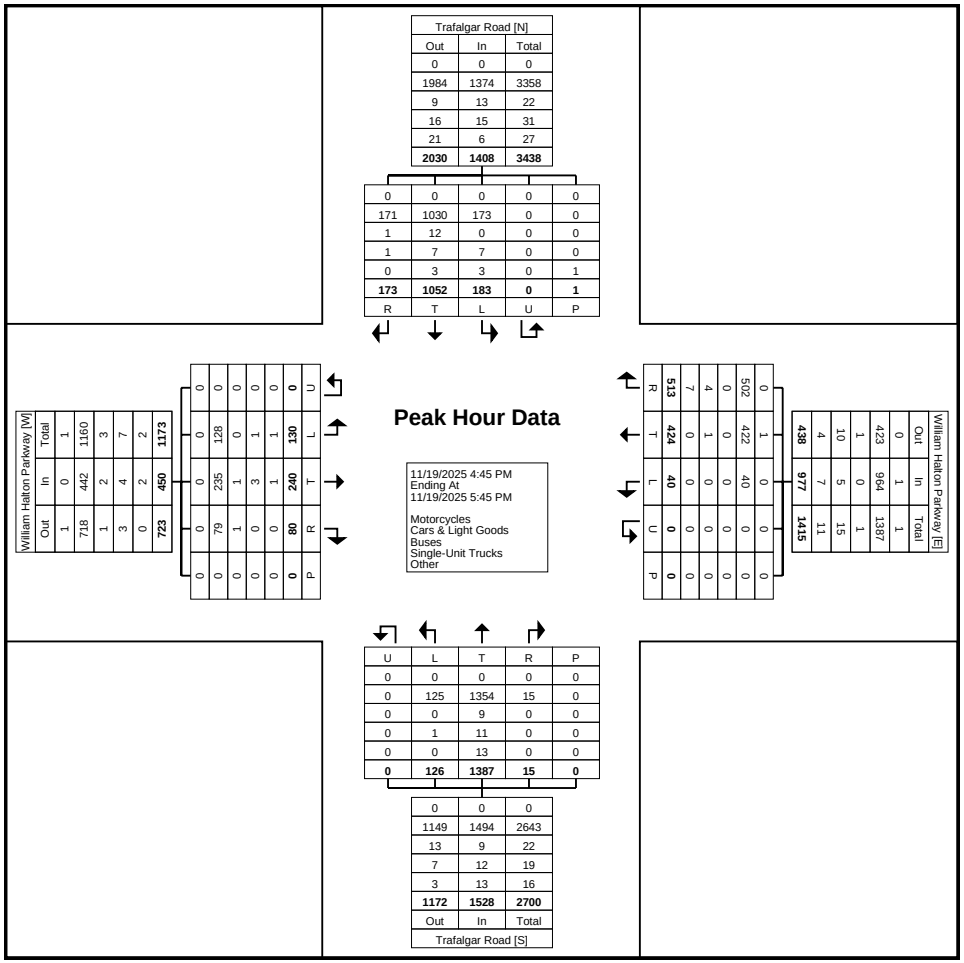
Turning Movement Peak Hour Data (4:45 PM)

Start Time	William Halton Parkway Eastbound						William Halton Parkway Westbound						Trafalgar Road Northbound						Trafalgar Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:45 PM	36	62	22	0	0	120	7	110	145	0	0	262	31	297	2	0	0	330	47	222	41	0	0	310	1022
5:00 PM	28	61	18	0	0	107	9	101	101	0	0	211	36	338	6	0	0	380	45	266	44	0	0	355	1053
5:15 PM	34	62	19	0	0	115	10	124	151	0	0	285	39	365	6	0	0	410	41	259	41	0	1	341	1151
5:30 PM	32	55	21	0	0	108	14	89	116	0	0	219	20	387	1	0	0	408	50	305	47	0	0	402	1137
Total	130	240	80	0	0	450	40	424	513	0	0	977	126	1387	15	0	0	1528	183	1052	173	0	1	1408	4363
Approach %	28.9	53.3	17.8	0.0	-	-	4.1	43.4	52.5	0.0	-	-	8.2	90.8	1.0	0.0	-	-	13.0	74.7	12.3	0.0	-	-	-
Total %	3.0	5.5	1.8	0.0	-	10.3	0.9	9.7	11.8	0.0	-	22.4	2.9	31.8	0.3	0.0	-	35.0	4.2	24.1	4.0	0.0	-	32.3	-
PHF	0.903	0.968	0.909	0.000	-	0.938	0.714	0.855	0.849	0.000	-	0.857	0.808	0.896	0.625	0.000	-	0.932	0.915	0.862	0.920	0.000	-	0.876	0.948
Motorcycles	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.2	0.0	-	-	0.1	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	128	235	79	0	-	442	40	422	502	0	-	964	125	1354	15	0	-	1494	173	1030	171	0	-	1374	4274
% Cars & Light Goods	98.5	97.9	98.8	-	-	98.2	100.0	99.5	97.9	-	-	98.7	99.2	97.6	100.0	-	-	97.8	94.5	97.9	98.8	-	-	97.6	98.0
Buses	0	1	1	0	-	2	0	0	0	0	-	0	0	9	0	0	-	9	0	12	1	0	-	13	24
% Buses	0.0	0.4	1.3	-	-	0.4	0.0	0.0	0.0	-	-	0.0	0.0	0.6	0.0	-	-	0.6	0.0	1.1	0.6	-	-	0.9	0.6
Single-Unit Trucks	1	3	0	0	-	4	0	1	4	0	-	5	1	11	0	0	-	12	7	7	1	0	-	15	36
% Single-Unit Trucks	0.8	1.3	0.0	-	-	0.9	0.0	0.2	0.8	-	-	0.5	0.8	0.8	0.0	-	-	0.8	3.8	0.7	0.6	-	-	1.1	0.8
Articulated Trucks	1	1	0	0	-	2	0	0	7	0	-	7	0	13	0	0	-	13	3	3	0	0	-	6	28
% Articulated Trucks	0.8	0.4	0.0	-	-	0.4	0.0	0.0	1.4	-	-	0.7	0.0	0.9	0.0	-	-	0.9	1.6	0.3	0.0	-	-	0.4	0.6
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Trafalgar Road & William Halton Parkway
Site Code: 210156
Start Date: 11/19/2025



Turning Movement Peak Hour Data Plot (4:45 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Trafalgar Road & Burnhamhorpe Road
Site Code: 210156
Start Date: 11/19/2025

Turning Movement Data

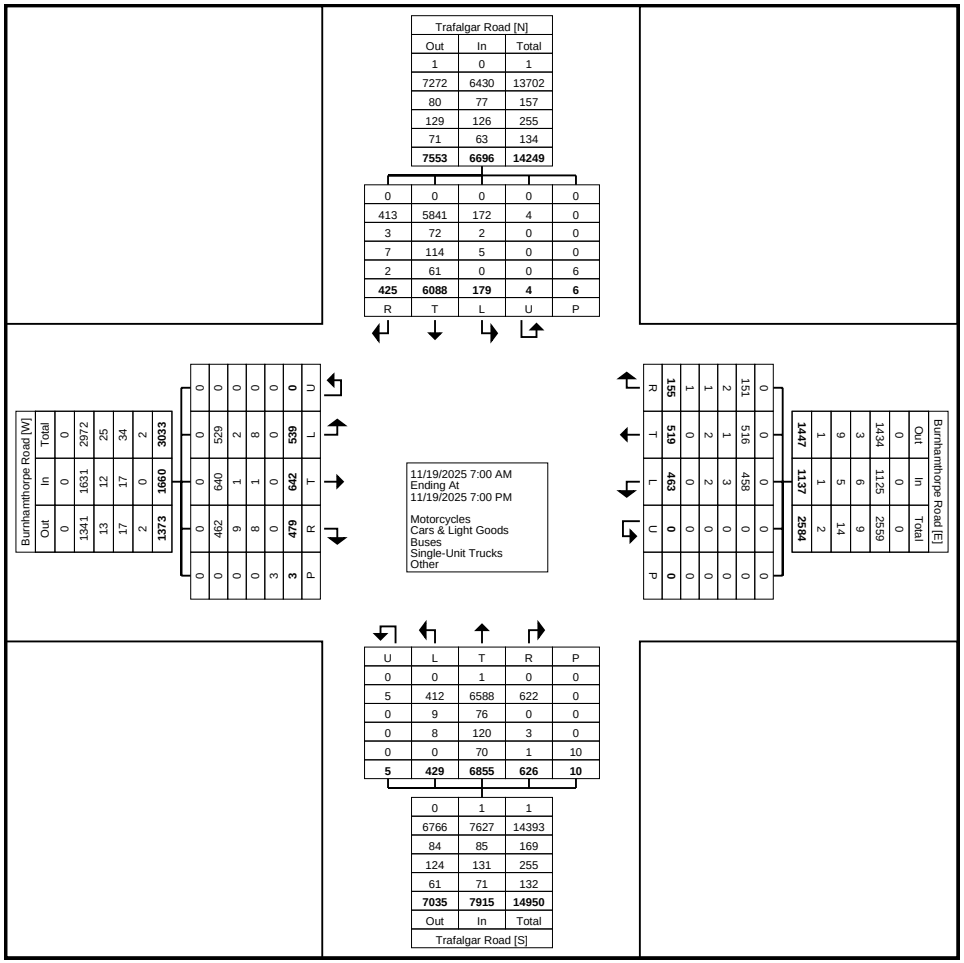
Start Time	Burnhamthorpe Road Eastbound						Burnhamthorpe Road Westbound						Trafalgar Road Northbound						Trafalgar Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	10	9	15	0	0	34	11	9	3	0	0	23	9	168	5	0	0	182	2	162	8	0	0	172	411
7:15 AM	23	9	19	0	0	51	6	6	3	0	0	15	2	192	9	0	1	203	3	205	10	0	0	218	487
7:30 AM	31	14	30	0	1	75	4	7	1	0	0	12	7	237	12	0	0	256	1	262	9	0	0	272	615
7:45 AM	41	18	31	0	0	90	6	6	3	0	0	15	13	240	15	0	1	268	5	282	6	0	0	293	666
Hourly Total	105	50	95	0	1	250	27	28	10	0	0	65	31	837	41	0	2	909	11	911	33	0	0	955	2179
8:00 AM	29	37	29	0	0	95	11	9	0	0	0	20	11	268	20	0	0	299	5	240	9	0	0	254	668
8:15 AM	41	29	23	0	0	93	13	14	5	0	0	32	6	253	21	0	0	280	14	277	11	0	0	302	707
8:30 AM	26	39	15	0	0	80	21	17	13	0	0	51	17	286	23	1	1	327	15	293	11	0	0	319	777
8:45 AM	27	37	25	0	0	89	25	15	21	0	0	61	13	172	37	0	0	222	24	256	9	0	0	289	661
Hourly Total	123	142	92	0	0	357	70	55	39	0	0	164	47	979	101	1	1	1128	58	1066	40	0	0	1164	2813
9:00 AM	29	24	21	0	0	74	21	14	8	0	0	43	18	171	12	0	1	201	4	192	11	1	1	208	526
9:15 AM	25	20	16	0	0	61	6	14	3	0	0	23	12	139	21	0	0	172	4	168	12	0	0	184	440
9:30 AM	20	22	15	0	0	57	9	5	1	0	0	15	10	152	15	0	0	177	6	177	6	0	0	189	438
9:45 AM	10	13	7	0	0	30	7	10	1	0	0	18	12	119	14	0	0	145	1	148	8	0	0	157	350
Hourly Total	84	79	59	0	0	222	43	43	13	0	0	99	52	581	62	0	1	695	15	685	37	1	1	738	1754
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	12	14	10	0	0	36	14	11	3	0	0	28	14	238	19	0	1	271	5	181	11	0	1	197	532
3:15 PM	9	25	11	0	1	45	15	32	4	0	0	51	15	283	19	0	1	317	14	160	10	1	0	185	598
3:30 PM	14	27	18	0	0	59	21	30	29	0	0	80	11	301	33	0	0	345	16	220	18	0	0	254	738
3:45 PM	11	18	16	0	0	45	25	25	19	0	0	69	19	309	26	1	1	355	10	213	21	0	0	244	713
Hourly Total	46	84	55	0	1	185	75	98	55	0	0	228	59	1131	97	1	3	1288	45	774	60	1	1	880	2581
4:00 PM	16	25	14	0	0	55	14	32	2	0	0	48	20	247	23	0	1	290	3	204	21	1	0	229	622
4:15 PM	7	22	7	0	0	36	26	19	5	0	0	50	23	288	25	0	0	336	4	229	22	0	0	255	677
4:30 PM	15	26	19	0	0	60	22	13	5	0	0	40	15	266	38	0	0	319	3	259	27	0	0	289	708
4:45 PM	19	40	21	0	0	80	20	25	4	0	0	49	24	269	49	0	0	342	3	215	21	1	1	240	711
Hourly Total	57	113	61	0	0	231	82	89	16	0	0	187	82	1070	135	0	1	1287	13	907	91	2	1	1013	2718
5:00 PM	22	18	19	0	0	59	27	21	5	0	0	53	16	355	31	0	1	402	7	261	31	0	0	299	813
5:15 PM	16	28	9	0	0	53	30	27	4	0	0	61	15	405	30	0	0	450	2	261	27	0	0	290	854
5:30 PM	24	26	22	0	0	72	18	39	3	0	0	60	20	353	23	0	0	396	6	292	28	0	0	326	854
5:45 PM	12	21	16	0	0	49	17	26	3	0	0	46	28	286	20	2	0	336	6	241	17	0	1	264	695
Hourly Total	74	93	66	0	0	233	92	113	15	0	0	220	79	1399	104	2	1	1584	21	1055	103	0	1	1179	3216
6:00 PM	11	14	10	0	0	35	26	30	0	0	0	56	21	240	20	0	1	281	4	188	19	0	0	211	583
6:15 PM	10	22	15	0	0	47	15	26	1	0	0	42	16	238	22	1	0	277	2	165	19	0	1	186	552
6:30 PM	15	22	11	0	1	48	22	17	2	0	0	41	18	206	16	0	0	240	8	181	10	0	0	199	528
6:45 PM	14	23	15	0	0	52	11	20	4	0	0	35	24	174	28	0	0	226	2	156	13	0	1	171	484

Hourly Total	50	81	51	0	1	182	74	93	7	0	0	174	79	858	86	1	1	1024	16	690	61	0	2	767	2147
Grand Total	539	642	479	0	3	1660	463	519	155	0	0	1137	429	6855	626	5	10	7915	179	6088	425	4	6	6696	17408
Approach %	32.5	38.7	28.9	0.0	-	-	40.7	45.6	13.6	0.0	-	-	5.4	86.6	7.9	0.1	-	-	2.7	90.9	6.3	0.1	-	-	-
Total %	3.1	3.7	2.8	0.0	-	9.5	2.7	3.0	0.9	0.0	-	6.5	2.5	39.4	3.6	0.0	-	45.5	1.0	35.0	2.4	0.0	-	38.5	-
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	1
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0
Cars & Light Goods	529	640	462	0	-	1631	458	516	151	0	-	1125	412	6588	622	5	-	7627	172	5841	413	4	-	6430	16813
% Cars & Light Goods	98.1	99.7	96.5	-	-	98.3	98.9	99.4	97.4	-	-	98.9	96.0	96.1	99.4	100.0	-	96.4	96.1	95.9	97.2	100.0	-	96.0	96.6
Buses	2	1	9	0	-	12	3	1	2	0	-	6	9	76	0	0	-	85	2	72	3	0	-	77	180
% Buses	0.4	0.2	1.9	-	-	0.7	0.6	0.2	1.3	-	-	0.5	2.1	1.1	0.0	0.0	-	1.1	1.1	1.2	0.7	0.0	-	1.1	1.0
Single-Unit Trucks	8	1	8	0	-	17	2	2	1	0	-	5	8	120	3	0	-	131	5	114	7	0	-	126	279
% Single-Unit Trucks	1.5	0.2	1.7	-	-	1.0	0.4	0.4	0.6	-	-	0.4	1.9	1.8	0.5	0.0	-	1.7	2.8	1.9	1.6	0.0	-	1.9	1.6
Articulated Trucks	0	0	0	0	-	0	0	0	1	0	-	1	0	70	1	0	-	71	0	61	2	0	-	63	135
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.6	-	-	0.1	0.0	1.0	0.2	0.0	-	0.9	0.0	1.0	0.5	0.0	-	0.9	0.8
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	10	-	-	-	-	-	6	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Trafalgar Road & Burnhamhorpe Road
Site Code: 210156
Start Date: 11/19/2025



Turning Movement Data Plot

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Trafalgar Road & Burnhamhorpe Road
Site Code: 210156
Start Date: 11/19/2025

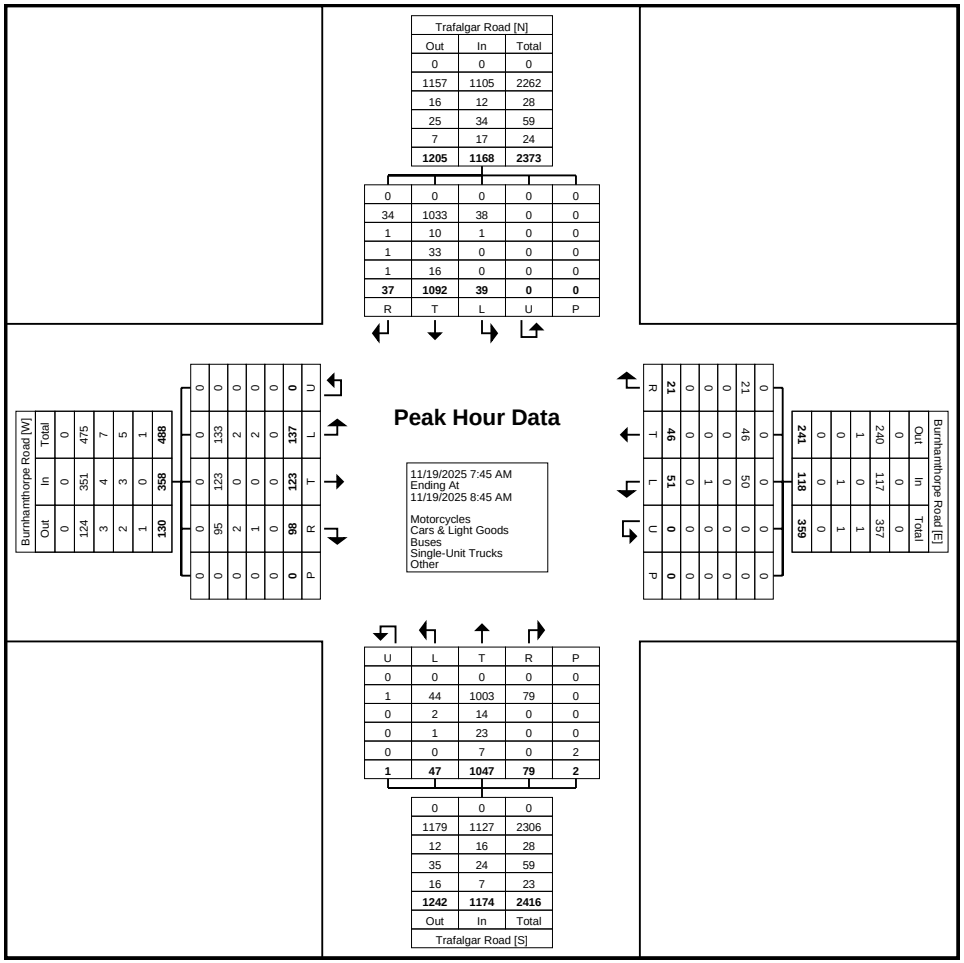
Turning Movement Peak Hour Data (7:45 AM)

Start Time	Burnhamthorpe Road Eastbound						Burnhamthorpe Road Westbound						Trafalgar Road Northbound						Trafalgar Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:45 AM	41	18	31	0	0	90	6	6	3	0	0	15	13	240	15	0	1	268	5	282	6	0	0	293	666
8:00 AM	29	37	29	0	0	95	11	9	0	0	0	20	11	268	20	0	0	299	5	240	9	0	0	254	668
8:15 AM	41	29	23	0	0	93	13	14	5	0	0	32	6	253	21	0	0	280	14	277	11	0	0	302	707
8:30 AM	26	39	15	0	0	80	21	17	13	0	0	51	17	286	23	1	1	327	15	293	11	0	0	319	777
Total	137	123	98	0	0	358	51	46	21	0	0	118	47	1047	79	1	2	1174	39	1092	37	0	0	1168	2818
Approach %	38.3	34.4	27.4	0.0	-	-	43.2	39.0	17.8	0.0	-	-	4.0	89.2	6.7	0.1	-	-	3.3	93.5	3.2	0.0	-	-	-
Total %	4.9	4.4	3.5	0.0	-	12.7	1.8	1.6	0.7	0.0	-	4.2	1.7	37.2	2.8	0.0	-	41.7	1.4	38.8	1.3	0.0	-	41.4	-
PHF	0.835	0.788	0.790	0.000	-	0.942	0.607	0.676	0.404	0.000	-	0.578	0.691	0.915	0.859	0.250	-	0.898	0.650	0.932	0.841	0.000	-	0.915	0.907
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	133	123	95	0	-	351	50	46	21	0	-	117	44	1003	79	1	-	1127	38	1033	34	0	-	1105	2700
% Cars & Light Goods	97.1	100.0	96.9	-	-	98.0	98.0	100.0	100.0	-	-	99.2	93.6	95.8	100.0	100.0	-	96.0	97.4	94.6	91.9	-	-	94.6	95.8
Buses	2	0	2	0	-	4	0	0	0	0	-	0	2	14	0	0	-	16	1	10	1	0	-	12	32
% Buses	1.5	0.0	2.0	-	-	1.1	0.0	0.0	0.0	-	-	0.0	4.3	1.3	0.0	0.0	-	1.4	2.6	0.9	2.7	-	-	1.0	1.1
Single-Unit Trucks	2	0	1	0	-	3	1	0	0	0	-	1	1	23	0	0	-	24	0	33	1	0	-	34	62
% Single-Unit Trucks	1.5	0.0	1.0	-	-	0.8	2.0	0.0	0.0	-	-	0.8	2.1	2.2	0.0	0.0	-	2.0	0.0	3.0	2.7	-	-	2.9	2.2
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	7	0	0	-	7	0	16	1	0	-	17	24
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.7	0.0	0.0	-	0.6	0.0	1.5	2.7	-	-	1.5	0.9
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Trafalgar Road & Burnhamhorpe Road
Site Code: 210156
Start Date: 11/19/2025



Turning Movement Peak Hour Data Plot (7:45 AM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Trafalgar Road & Burnhamhorpe Road
Site Code: 210156
Start Date: 11/19/2025

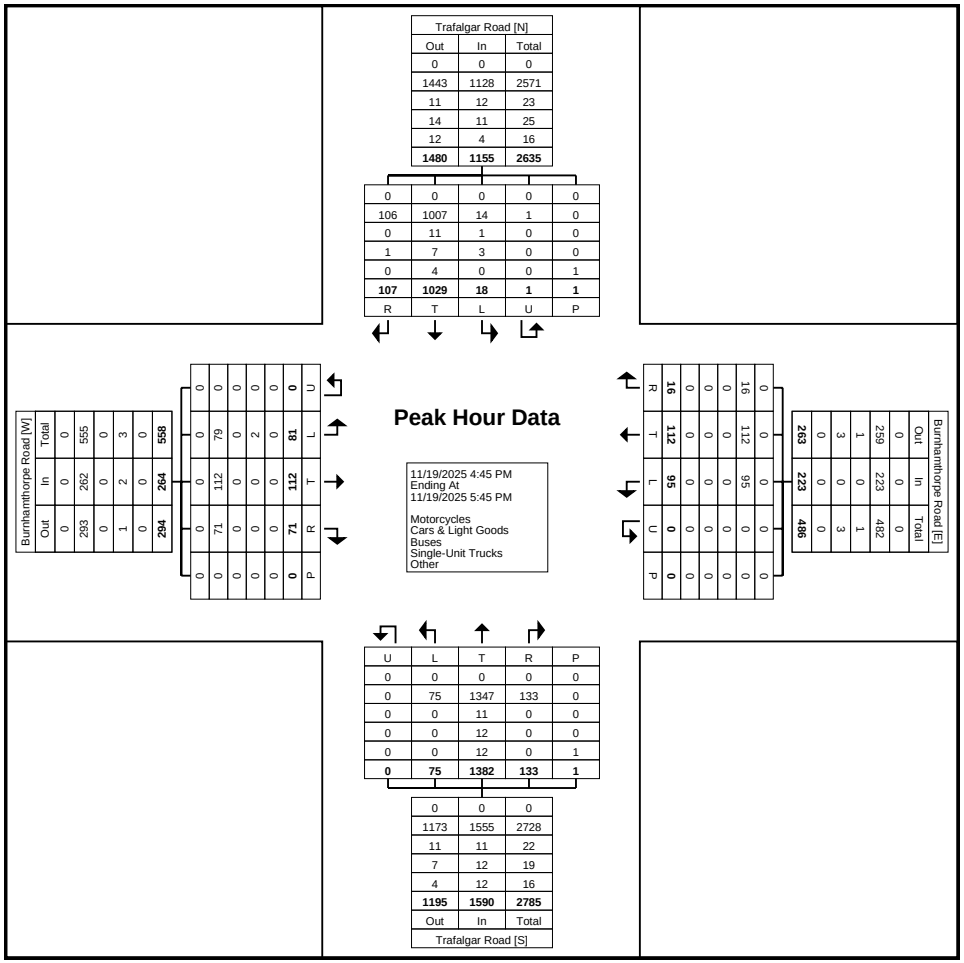
Turning Movement Peak Hour Data (4:45 PM)

Start Time	Burnhamthorpe Road Eastbound						Burnhamthorpe Road Westbound						Trafalgar Road Northbound						Trafalgar Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:45 PM	19	40	21	0	0	80	20	25	4	0	0	49	24	269	49	0	0	342	3	215	21	1	1	240	711
5:00 PM	22	18	19	0	0	59	27	21	5	0	0	53	16	355	31	0	1	402	7	261	31	0	0	299	813
5:15 PM	16	28	9	0	0	53	30	27	4	0	0	61	15	405	30	0	0	450	2	261	27	0	0	290	854
5:30 PM	24	26	22	0	0	72	18	39	3	0	0	60	20	353	23	0	0	396	6	292	28	0	0	326	854
Total	81	112	71	0	0	264	95	112	16	0	0	223	75	1382	133	0	1	1590	18	1029	107	1	1	1155	3232
Approach %	30.7	42.4	26.9	0.0	-	-	42.6	50.2	7.2	0.0	-	-	4.7	86.9	8.4	0.0	-	-	1.6	89.1	9.3	0.1	-	-	-
Total %	2.5	3.5	2.2	0.0	-	8.2	2.9	3.5	0.5	0.0	-	6.9	2.3	42.8	4.1	0.0	-	49.2	0.6	31.8	3.3	0.0	-	35.7	-
PHF	0.844	0.700	0.807	0.000	-	0.825	0.792	0.718	0.800	0.000	-	0.914	0.781	0.853	0.679	0.000	-	0.883	0.643	0.881	0.863	0.250	-	0.886	0.946
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0
Cars & Light Goods	79	112	71	0	-	262	95	112	16	0	-	223	75	1347	133	0	-	1555	14	1007	106	1	-	1128	3168
% Cars & Light Goods	97.5	100.0	100.0	-	-	99.2	100.0	100.0	100.0	-	-	100.0	100.0	97.5	100.0	-	-	97.8	77.8	97.9	99.1	100.0	-	97.7	98.0
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	11	0	0	-	11	1	11	0	0	-	12	23
% Buses	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.8	0.0	-	-	0.7	5.6	1.1	0.0	0.0	-	1.0	0.7
Single-Unit Trucks	2	0	0	0	-	2	0	0	0	0	-	0	0	12	0	0	-	12	3	7	1	0	-	11	25
% Single-Unit Trucks	2.5	0.0	0.0	-	-	0.8	0.0	0.0	0.0	-	-	0.0	0.0	0.9	0.0	-	-	0.8	16.7	0.7	0.9	0.0	-	1.0	0.8
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	12	0	0	-	12	0	4	0	0	-	4	16
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.9	0.0	-	-	0.8	0.0	0.4	0.0	0.0	-	0.3	0.5
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Trafalgar Road & Burnhamhorpe Road
Site Code: 210156
Start Date: 11/19/2025

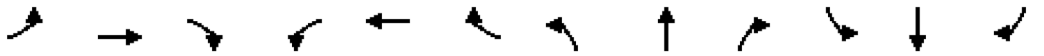


Turning Movement Peak Hour Data Plot (4:45 PM)

Appendix C

Base Year Operations Synchro Reports



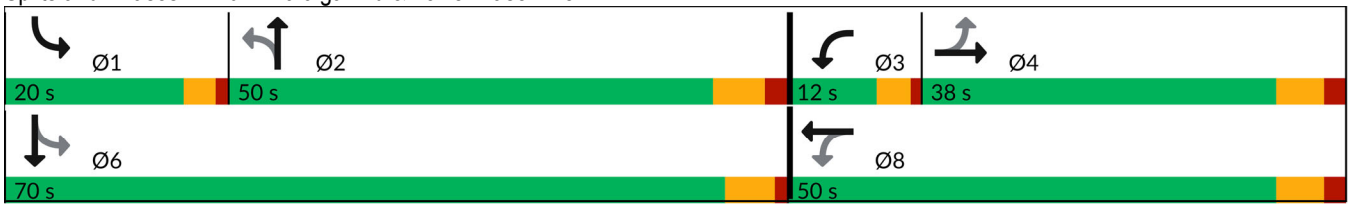


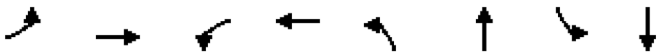
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	242	54	186	83	107	23	859	161	253	1002	48
Future Volume (vph)	84	242	54	186	83	107	23	859	161	253	1002	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		0.0	90.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	100.0			100.0			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		0.970			0.912			0.978			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1828	0	1736	1666	0	1597	3318	0	1752	3443	0
Flt Permitted	0.609			0.170			0.199			0.082		
Satd. Flow (perm)	1113	1828	0	311	1666	0	335	3318	0	151	3443	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			67			18			7	
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			498.3			434.3	
Travel Time (s)		38.5			41.4			22.4			19.5	
Peak Hour Factor	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Adj. Flow (vph)	100	314	79	255	100	141	32	1048	181	288	1179	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	100	393	0	255	241	0	32	1229	0	288	1247	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)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			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	4	4		3	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		25.0	25.0		7.0	25.0	
Minimum Split (s)	22.5	22.5		11.5	22.5		31.6	31.6		11.5	30.6	
Total Split (s)	38.0	38.0		12.0	50.0		50.0	50.0		20.0	70.0	
Total Split (%)	31.7%	31.7%		10.0%	41.7%		41.7%	41.7%		16.7%	58.3%	
Maximum Green (s)	31.8	31.8		8.0	43.8		43.4	43.4		16.0	64.4	
Yellow Time (s)	4.2	4.2		3.0	4.2		4.6	4.6		3.0	4.6	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.2	6.2		4.0	6.2		6.6	6.6		4.0	5.6	
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes		Yes		
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0		0.2	5.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Act Effct Green (s)	29.1	29.1		43.3	41.1		43.5	43.5		66.1	64.5	
Actuated g/C Ratio	0.25	0.25		0.37	0.35		0.37	0.37		0.56	0.55	
v/c Ratio	0.36	0.85		1.20	0.38		0.26	0.99		0.95	0.66	
Control Delay (s/veh)	40.5	59.5		157.6	22.0		34.0	60.6		73.0	21.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	40.5	59.5		157.6	22.0		34.0	60.6		73.0	21.1	
LOS	D	E		F	C		C	E		E	C	
Approach Delay (s/veh)		55.6			91.7			59.9			30.8	
Approach LOS		E			F			E			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 117.4			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.20			
Intersection Signal Delay (s/veh): 51.7		Intersection LOS: D	
Intersection Capacity Utilization 95.0%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line



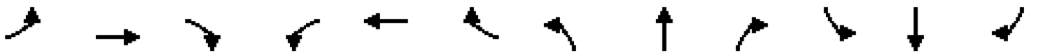


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	100	393	255	241	32	1229	288	1247
v/c Ratio	0.36	0.85	1.20	0.38	0.26	0.99	0.95	0.66
Control Delay (s/veh)	40.5	59.5	157.6	22.0	34.0	60.6	73.0	21.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	40.5	59.5	157.6	22.0	34.0	60.6	73.0	21.1
Queue Length 50th (m)	20.1	89.0	~56.9	30.7	5.6	~162.6	55.0	112.6
Queue Length 95th (m)	34.2	103.3	#75.5	46.8	11.5	#178.1	#107.7	125.1
Internal Link Dist (m)		725.3		666.6		474.3		410.3
Turn Bay Length (m)	45.0		110.0		90.0		90.0	
Base Capacity (vph)	301	503	212	664	124	1239	303	1894
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	0.33	0.78	1.20	0.36	0.26	0.99	0.95	0.66

Intersection Summary

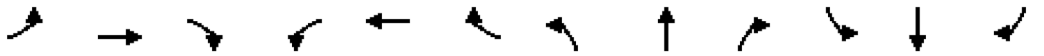
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	242	54	186	83	107	23	859	161	253	1002	48
Future Volume (vph)	84	242	54	186	83	107	23	859	161	253	1002	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2		4.0	6.2		6.6	6.6		4.0	5.6	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.91		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	1828		1736	1667		1597	3318		1752	3443	
Flt Permitted	0.61	1.00		0.17	1.00		0.20	1.00		0.08	1.00	
Satd. Flow (perm)	1113	1828		311	1667		335	3318		152	3443	
Peak-hour factor, PHF	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Adj. Flow (vph)	100	314	79	255	100	141	32	1048	181	288	1179	68
RTOR Reduction (vph)	0	8	0	0	44	0	0	11	0	0	3	0
Lane Group Flow (vph)	100	385	0	255	197	0	32	1218	0	288	1244	0
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	29.1	29.1		41.1	41.1		43.5	43.5		64.5	64.5	
Effective Green, g (s)	29.1	29.1		41.1	41.1		43.5	43.5		64.5	64.5	
Actuated g/C Ratio	0.25	0.25		0.35	0.35		0.37	0.37		0.55	0.55	
Clearance Time (s)	6.2	6.2		4.0	6.2		6.6	6.6		4.0	5.6	
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0		0.2	5.0	
Lane Grp Cap (vph)	275	453		205	583		124	1229		301	1891	
v/s Ratio Prot		0.21		c0.08	0.12			0.37		c0.13	0.36	
v/s Ratio Perm	0.09			c0.35			0.10			c0.39		
v/c Ratio	0.36	0.85		1.24	0.34		0.26	0.99		0.96	0.66	
Uniform Delay, d1	36.5	42.1		35.0	28.1		25.7	36.8		36.0	18.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.7	15.5		143.9	0.7		5.0	23.6		41.9	1.8	
Delay (s)	38.2	57.6		178.9	28.9		30.7	60.3		78.0	20.5	
Level of Service	D	E		F	C		C	E		E	C	
Approach Delay (s/veh)		53.6			106.0			59.6			31.3	
Approach LOS		D			F			E			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	53.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	117.4	Sum of lost time (s)	20.8
Intersection Capacity Utilization	95.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

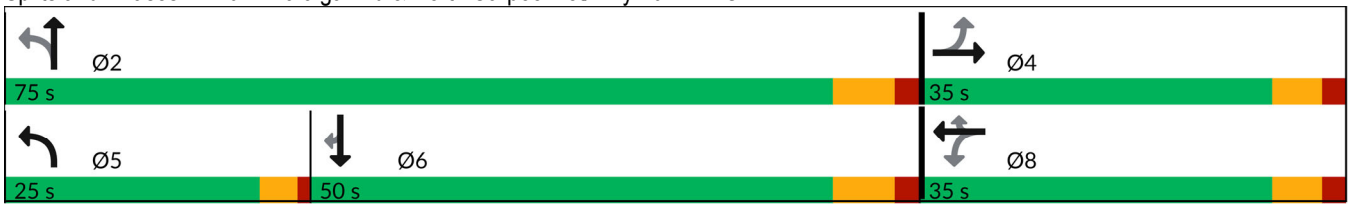


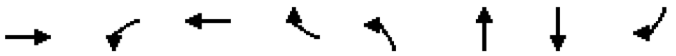
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	6	141	2	5	6	1035	0	0	1240	2
Future Volume (vph)	3	0	6	141	2	5	6	1035	0	0	1240	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.904			0.998	0.850						0.850
Flt Protected		0.986		0.950	0.955		0.950					
Satd. Flow (prot)	0	1510	0	1545	1464	1534	1543	3406	0	0	3471	1615
Flt Permitted		0.905		0.739	0.717		0.131					
Satd. Flow (perm)	0	1386	0	1202	1099	1534	213	3406	0	0	3471	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		79				79						69
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			118.9	
Travel Time (s)		9.6			41.3			26.2			8.6	
Peak Hour Factor	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Adj. Flow (vph)	8	0	20	183	4	12	20	1125	0	0	1425	8
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	0	28	0	93	95	11	20	1125	0	0	1425	8
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	4.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	27.0			27.0	27.0
Total Split (s)	35.0	35.0		35.0	35.0	35.0	25.0	75.0			50.0	50.0
Total Split (%)	31.8%	31.8%		31.8%	31.8%	31.8%	22.7%	68.2%			45.5%	45.5%
Maximum Green (s)	29.0	29.0		29.0	29.0	29.0	21.0	68.0			43.0	43.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0			2.0	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	4.0	7.0			7.0	7.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	None	Max			Max	Max
Act Effct Green (s)		13.9		13.9	13.9	13.9	71.2	68.2			64.4	64.4
Actuated g/C Ratio		0.15		0.15	0.15	0.15	0.75	0.72			0.68	0.68
v/c Ratio		0.10		0.53	0.59	0.04	0.09	0.46			0.61	0.01
Control Delay (s/veh)		0.8		48.4	53.1	0.2	4.8	7.0			11.5	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		0.8		48.4	53.1	0.2	4.8	7.0			11.5	0.0
LOS		A		D	D	A	A	A			B	A
Approach Delay (s/veh)		0.8			48.0			6.9			11.5	
Approach LOS		A			D			A			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 95.1			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay (s/veh): 12.1		Intersection LOS: B	
Intersection Capacity Utilization 56.1%		ICU Level of Service B	
Analysis Period (min) 15			

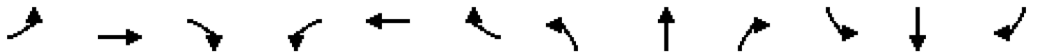
Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off





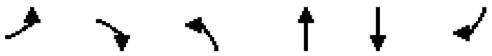
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	28	93	95	11	20	1125	1425	8
v/c Ratio	0.10	0.53	0.59	0.04	0.09	0.46	0.61	0.01
Control Delay (s/veh)	0.8	48.4	53.1	0.2	4.8	7.0	11.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	0.8	48.4	53.1	0.2	4.8	7.0	11.5	0.0
Queue Length 50th (m)	0.0	17.6	19.0	0.0	0.8	41.1	59.2	0.0
Queue Length 95th (m)	0.0	28.7	19.0	0.0	1.1	69.0	125.5	0.0
Internal Link Dist (m)	110.0		550.1			339.6	94.9	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	478	367	335	523	453	2441	2352	1116
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	0.25	0.28	0.02	0.04	0.46	0.61	0.01

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	6	141	2	5	6	1035	0	0	1240	2
Future Volume (vph)	3	0	6	141	2	5	6	1035	0	0	1240	2
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	4.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.95			0.95	1.00
Frt		0.90		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1509		1545	1465	1534	1543	3406			3471	1615
Flt Permitted		0.91		0.74	0.72	1.00	0.13	1.00			1.00	1.00
Satd. Flow (perm)		1386		1202	1100	1534	212	3406			3471	1615
Peak-hour factor, PHF	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Adj. Flow (vph)	8	0	20	183	4	12	20	1125	0	0	1425	8
RTOR Reduction (vph)	0	24	0	0	0	9	0	0	0	0	0	3
Lane Group Flow (vph)	0	4	0	93	95	2	20	1125	0	0	1425	5
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		13.9		13.9	13.9	13.9	70.6	70.6			64.4	64.4
Effective Green, g (s)		13.9		13.9	13.9	13.9	70.6	70.6			64.4	64.4
Actuated g/C Ratio		0.14		0.14	0.14	0.14	0.72	0.72			0.66	0.66
Clearance Time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Lane Grp Cap (vph)		197		171	156	218	183	2466			2292	1066
v/s Ratio Prot							0.00	c0.33			c0.41	
v/s Ratio Perm		0.00		0.08	c0.09	0.00	0.08					0.00
v/c Ratio		0.02		0.54	0.61	0.01	0.11	0.46			0.62	0.00
Uniform Delay, d1		35.9		38.9	39.2	35.9	6.1	5.5			9.5	5.6
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2		0.0		3.9	6.9	0.0	0.2	0.6			1.3	0.0
Delay (s)		36.0		42.7	46.2	35.9	6.3	6.2			10.8	5.6
Level of Service		D		D	D	D	A	A			B	A
Approach Delay (s/veh)		36.0			44.0			6.2			10.8	
Approach LOS		D			D			A			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	11.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	97.5	Sum of lost time (s)	17.0
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

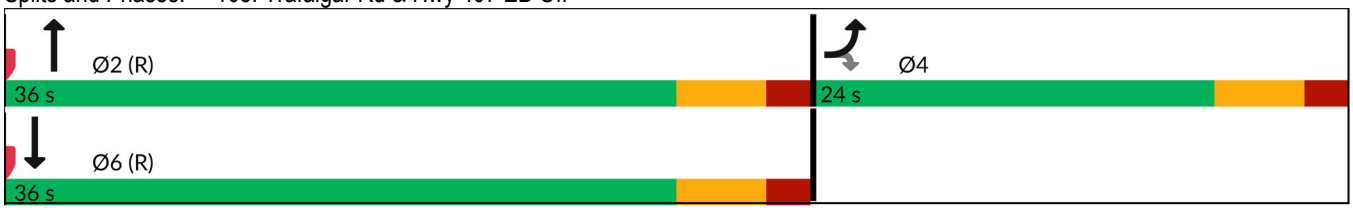


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	60	97	0	1092	1308	0
Future Volume (vph)	60	97	0	1092	1308	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1671	1392	0	3374	3438	0
Flt Permitted	0.950					
Satd. Flow (perm)	1671	1392	0	3374	3438	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		17				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			120.3	363.6	
Travel Time (s)	39.9			8.7	26.2	
Peak Hour Factor	0.79	0.78	0.25	0.85	0.86	0.25
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Adj. Flow (vph)	76	124	0	1285	1521	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	76	124	0	1285	1521	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	24.0	24.0		24.0	24.0	
Total Split (s)	24.0	24.0		36.0	36.0	
Total Split (%)	40.0%	40.0%		60.0%	60.0%	
Maximum Green (s)	18.0	18.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	18.0	18.0		30.0	30.0	
Actuated g/C Ratio	0.30	0.30		0.50	0.50	
v/c Ratio	0.15	0.29		0.76	0.88	
Control Delay (s/veh)	16.5	16.2		15.8	21.8	
Queue Delay	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay (s/veh)	16.5	16.2		15.8	21.8	
LOS	B	B		B	C	
Approach Delay (s/veh)	16.3			15.8	21.8	
Approach LOS	B			B	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Pretimed			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay (s/veh): 18.9		Intersection LOS: B	
Intersection Capacity Utilization 52.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off

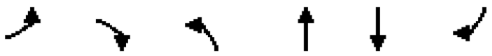




Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	76	124	1285	1521
v/c Ratio	0.15	0.29	0.76	0.88
Control Delay (s/veh)	16.5	16.2	15.8	21.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.5	16.2	15.8	21.8
Queue Length 50th (m)	6.4	9.3	58.2	76.7
Queue Length 95th (m)	13.0	17.6	74.2	#100.4
Internal Link Dist (m)	530.6		96.3	339.6
Turn Bay Length (m)				
Base Capacity (vph)	501	429	1687	1719
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	0.29	0.76	0.88

Intersection Summary

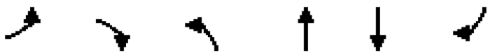
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



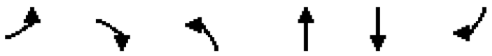
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	60	97	0	1092	1308	0
Future Volume (vph)	60	97	0	1092	1308	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1671	1392		3374	3438	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1671	1392		3374	3438	
Peak-hour factor, PHF	0.79	0.78	0.25	0.85	0.86	0.25
Adj. Flow (vph)	76	124	0	1285	1521	0
RTOR Reduction (vph)	0	12	0	0	0	0
Lane Group Flow (vph)	76	112	0	1285	1521	0
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	18.0	18.0		30.0	30.0	
Effective Green, g (s)	18.0	18.0		30.0	30.0	
Actuated g/C Ratio	0.30	0.30		0.50	0.50	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	501	417		1687	1719	
v/s Ratio Prot	0.05			0.38	c0.44	
v/s Ratio Perm		c0.08				
v/c Ratio	0.15	0.27		0.76	0.88	
Uniform Delay, d1	15.4	16.0		12.1	13.5	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	1.6		3.3	7.1	
Delay (s)	16.0	17.6		15.4	20.5	
Level of Service	B	B		B	C	
Approach Delay (s/veh)	17.0			15.4	20.5	
Approach LOS	B			B	C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	52.2%	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)	52	60	70	1355	1347	58
Future Volume (vph)	52	60	70	1355	1347	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	50.0			30.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5		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)	1337	1404	1570	4940	4940	1615
Flt Permitted	0.950		0.132			
Satd. Flow (perm)	1337	1404	218	4940	4940	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		28				68
Link Speed (k/h)	50			80	80	
Link Distance (m)	107.1			233.3	131.6	
Travel Time (s)	7.7			10.5	5.9	
Peak Hour Factor	0.87	0.83	0.88	0.91	0.89	0.85
Heavy Vehicles (%)	35%	15%	15%	5%	5%	0%
Adj. Flow (vph)	60	72	80	1489	1513	68
Shared Lane Traffic (%)						
Lane Group Flow (vph)	60	72	80	1489	1513	68
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Minimum Split (s)	24.0	24.0	24.9	24.9	24.9	24.9
Total Split (s)	24.0	24.0	46.0	46.0	46.0	46.0
Total Split (%)	34.3%	34.3%	65.7%	65.7%	65.7%	65.7%
Maximum Green (s)	18.0	18.0	39.1	39.1	39.1	39.1
Yellow Time (s)	4.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.9	6.9	6.9	6.9
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Don't Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	18.0	18.0	39.1	39.1	39.1	39.1
Actuated g/C Ratio	0.26	0.26	0.56	0.56	0.56	0.56

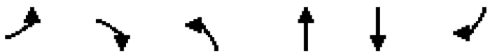


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
v/c Ratio	0.17	0.19	0.66	0.54	0.55	0.07
Control Delay (s/veh)	21.9	15.4	42.9	10.7	10.8	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	21.9	15.4	42.9	10.7	10.8	2.3
LOS	C	B	D	B	B	A
Approach Delay (s/veh)	18.4			12.3	10.4	
Approach LOS	B			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 70			
Control Type: Pretimed			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay (s/veh): 11.6		Intersection LOS: B	
Intersection Capacity Utilization 50.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 104: Trafalgar Rd & South Carpool Lot

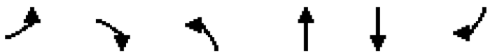




Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	60	72	80	1489	1513	68
v/c Ratio	0.17	0.19	0.66	0.54	0.55	0.07
Control Delay (s/veh)	21.9	15.4	42.9	10.7	10.8	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	21.9	15.4	42.9	10.7	10.8	2.3
Queue Length 50th (m)	6.4	4.7	7.0	43.3	44.2	0.0
Queue Length 95th (m)	14.9	12.8	#30.3	55.0	55.2	4.2
Internal Link Dist (m)	83.1			209.3	107.6	
Turn Bay Length (m)			50.0			30.0
Base Capacity (vph)	343	381	121	2759	2759	932
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	0.19	0.66	0.54	0.55	0.07

Intersection Summary

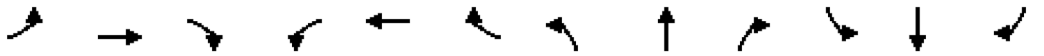
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	52	60	70	1355	1347	58
Future Volume (vph)	52	60	70	1355	1347	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.9	6.9	6.9	6.9
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)	1337	1404	1570	4940	4940	1615
Flt Permitted	0.95	1.00	0.13	1.00	1.00	1.00
Satd. Flow (perm)	1337	1404	218	4940	4940	1615
Peak-hour factor, PHF	0.87	0.83	0.88	0.91	0.89	0.85
Adj. Flow (vph)	60	72	80	1489	1513	68
RTOR Reduction (vph)	0	21	0	0	0	30
Lane Group Flow (vph)	60	51	80	1489	1513	38
Heavy Vehicles (%)	35%	15%	15%	5%	5%	0%
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	18.0	18.0	39.1	39.1	39.1	39.1
Effective Green, g (s)	18.0	18.0	39.1	39.1	39.1	39.1
Actuated g/C Ratio	0.26	0.26	0.56	0.56	0.56	0.56
Clearance Time (s)	6.0	6.0	6.9	6.9	6.9	6.9
Lane Grp Cap (vph)	343	361	121	2759	2759	902
v/s Ratio Prot	c0.04			0.30	0.31	
v/s Ratio Perm		0.04	c0.37			0.02
v/c Ratio	0.17	0.14	0.66	0.54	0.55	0.04
Uniform Delay, d1	20.2	20.0	10.8	9.8	9.8	7.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	0.8	24.9	0.8	0.8	0.1
Delay (s)	21.3	20.9	35.8	10.5	10.6	7.1
Level of Service	C	C	D	B	B	A
Approach Delay (s/veh)	21.1			11.8	10.5	
Approach LOS	C			B	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	11.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

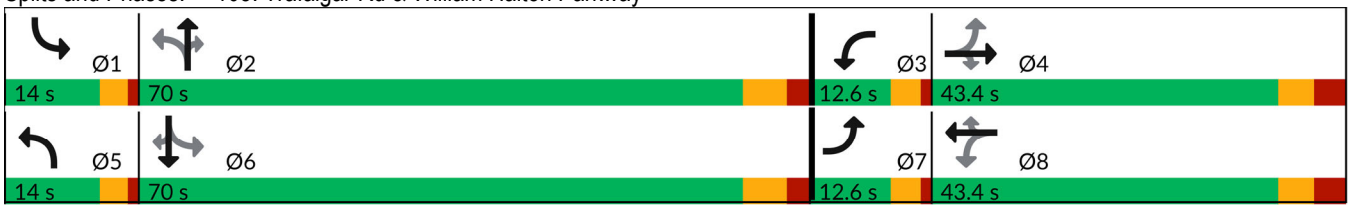


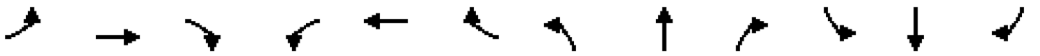
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	157	530	162	27	168	207	69	1061	27	294	1013	100
Future Volume (vph)	157	530	162	27	168	207	69	1061	27	294	1013	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	0.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			7.5		
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)	1787	3574	1599	1687	3574	1429	1703	4988	1615	1770	4893	1538
Flt Permitted	0.544			0.294			0.197			0.168		
Satd. Flow (perm)	1023	3574	1599	522	3574	1429	353	4988	1615	313	4893	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			195			197			94			116
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		443.3			449.5			285.3			233.3	
Travel Time (s)		31.9			32.4			20.5			16.8	
Peak Hour Factor	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
Adj. Flow (vph)	185	582	195	36	215	276	80	1179	32	359	1126	116
Shared Lane Traffic (%)												
Lane Group Flow (vph)	185	582	195	36	215	276	80	1179	32	359	1126	116
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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)	11.5	38.0	38.0	11.5	38.0	38.0	11.5	42.9	42.9	11.5	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	-2.9	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	4.0	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	Max	Max	None	Max	Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't 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)	41.5	33.5	33.5	38.4	27.8	27.8	74.4	63.3	66.2	78.0	65.1	65.1
Actuated g/C Ratio	0.32	0.25	0.25	0.29	0.21	0.21	0.56	0.48	0.50	0.59	0.49	0.49
v/c Ratio	0.50	0.64	0.35	0.16	0.29	0.60	0.28	0.49	0.04	1.21	0.47	0.14
Control Delay (s/veh)	38.6	48.1	7.1	31.0	44.0	19.4	14.6	24.9	0.1	143.2	23.6	4.1
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 (s/veh)	38.6	48.1	7.1	31.0	44.0	19.4	14.6	24.9	0.1	143.2	23.6	4.1
LOS	D	D	A	C	D	B	B	C	A	F	C	A
Approach Delay (s/veh)		38.0			30.2			23.6			49.0	
Approach LOS		D			C			C			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 131.7			
Natural Cycle: 115			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.21			
Intersection Signal Delay (s/veh): 36.9		Intersection LOS: D	
Intersection Capacity Utilization 80.4%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	185	582	195	36	215	276	80	1179	32	359	1126	116
v/c Ratio	0.50	0.64	0.35	0.16	0.29	0.60	0.28	0.49	0.04	1.21	0.47	0.14
Control Delay (s/veh)	38.6	48.1	7.1	31.0	44.0	19.4	14.6	24.9	0.1	143.2	23.6	4.1
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 (s/veh)	38.6	48.1	7.1	31.0	44.0	19.4	14.6	24.9	0.1	143.2	23.6	4.1
Queue Length 50th (m)	37.6	78.3	0.0	6.7	26.1	18.1	8.8	80.7	0.0	~69.4	74.2	0.0
Queue Length 95th (m)	53.7	100.2	14.2	12.3	32.4	28.3	17.3	103.5	0.0	#122.3	98.4	10.0
Internal Link Dist (m)		419.3			425.5			261.3			209.3	
Turn Bay Length (m)	100.0		100.0	100.0		150.0	150.0		75.0			
Base Capacity (vph)	371	990	584	232	990	538	307	2396	858	296	2417	818
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	0.50	0.59	0.33	0.16	0.22	0.51	0.26	0.49	0.04	1.21	0.47	0.14

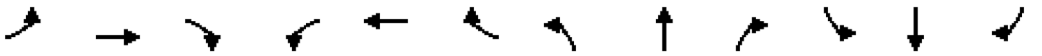
Intersection Summary

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	157	530	162	27	168	207	69	1061	27	294	1013	100
Future Volume (vph)	157	530	162	27	168	207	69	1061	27	294	1013	100
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	4.0	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)	1787	3574	1599	1687	3574	1429	1703	4988	1615	1770	4893	1538
Flt Permitted	0.54	1.00	1.00	0.29	1.00	1.00	0.20	1.00	1.00	0.17	1.00	1.00
Satd. Flow (perm)	1022	3574	1599	522	3574	1429	352	4988	1615	313	4893	1538
Peak-hour factor, PHF	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Adj. Flow (vph)	185	582	195	36	215	276	80	1179	32	359	1126	116
RTOR Reduction (vph)	0	0	146	0	0	153	0	0	16	0	0	59
Lane Group Flow (vph)	185	582	49	36	215	123	80	1179	16	359	1126	57
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
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	33.5	33.5	34.1	29.5	29.5	71.5	63.3	63.3	75.1	65.1	65.1
Effective Green, g (s)	42.1	33.5	33.5	34.1	29.5	29.5	71.5	63.3	66.2	75.1	65.1	65.1
Actuated g/C Ratio	0.32	0.25	0.25	0.26	0.22	0.22	0.54	0.47	0.50	0.56	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)	372	898	401	173	790	316	271	2368	802	285	2389	751
v/s Ratio Prot	c0.03	c0.16		0.01	0.06		0.02	0.24		c0.09	0.23	
v/s Ratio Perm	0.12		0.03	0.05		0.09	0.14		0.01	c0.61		0.04
v/c Ratio	0.50	0.65	0.12	0.21	0.27	0.39	0.30	0.50	0.02	1.26	0.47	0.08
Uniform Delay, d1	35.5	44.6	38.5	38.1	43.0	44.2	15.6	24.1	17.1	21.1	22.7	18.1
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	1.0	2.2	0.3	0.6	0.4	1.7	0.6	0.8	0.0	142.0	0.7	0.2
Delay (s)	36.6	46.8	38.8	38.7	43.4	45.9	16.3	24.8	17.1	163.1	23.3	18.3
Level of Service	D	D	D	D	D	D	B	C	B	F	C	B
Approach Delay (s/veh)		43.2			44.4			24.1			54.3	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	41.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	133.3	Sum of lost time (s)	21.9
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

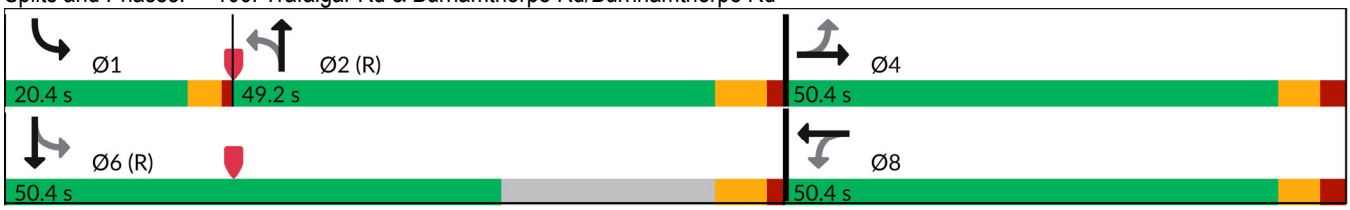


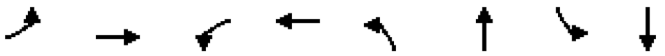
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	137	123	98	51	46	21	47	999	79	39	1126	37
Future Volume (vph)	137	123	98	51	46	21	47	999	79	39	1126	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		0.0	60.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	70.0			50.0			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		0.934			0.934			0.988			0.995	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1751	0	1770	1775	0	1703	3440	0	1752	3417	0
Flt Permitted	0.679			0.483			0.190			0.085		
Satd. Flow (perm)	1253	1751	0	900	1775	0	341	3440	0	157	3417	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		38			37			8			5	
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		828.7			989.6			1077.8			170.3	
Travel Time (s)		49.7			59.4			48.5			7.7	
Peak Hour Factor	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
Adj. Flow (vph)	163	156	124	84	68	53	68	1086	92	60	1211	44
Shared Lane Traffic (%)												
Lane Group Flow (vph)	163	280	0	84	121	0	68	1178	0	60	1255	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)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
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	50.4	
Total Split (%)	42.0%	42.0%		42.0%	42.0%		41.0%	41.0%		17.0%	42.0%	
Maximum Green (s)	44.4	44.4		44.4	44.4		43.2	43.2		16.4	44.4	
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		
Act Effct Green (s)	44.4	44.4		44.4	44.4		43.2	43.2		65.6	63.6	
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.36	0.36		0.55	0.53	
v/c Ratio	0.35	0.42		0.25	0.18		0.56	0.95		0.20	0.69	
Control Delay (s/veh)	30.1	26.4		28.9	18.3		51.2	53.2		14.4	23.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (s/veh)	30.1	26.4		28.9	18.3		51.2	53.2		14.4	23.4	
LOS	C	C		C	B		D	D		B	C	
Approach Delay (s/veh)		27.8			22.6			53.1			23.0	
Approach LOS		C			C			D			C	

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: Pretimed			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay (s/veh): 35.3		Intersection LOS: D	
Intersection Capacity Utilization 74.9%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burhamthorpe Rd/Burnhamthorpe Rd

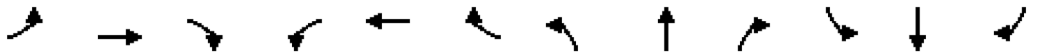




Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	163	280	84	121	68	1178	60	1255
v/c Ratio	0.35	0.42	0.25	0.18	0.56	0.95	0.20	0.69
Control Delay (s/veh)	30.1	26.4	28.9	18.3	51.2	53.2	14.4	23.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	30.1	26.4	28.9	18.3	51.2	53.2	14.4	23.4
Queue Length 50th (m)	29.0	44.0	14.3	13.6	13.4	147.3	6.7	116.4
Queue Length 95th (m)	44.5	57.4	17.8	18.7	21.7	#194.1	9.6	142.2
Internal Link Dist (m)		804.7		965.6		1053.8		146.3
Turn Bay Length (m)	30.0		15.0		60.0		60.0	
Base Capacity (vph)	463	671	333	680	122	1243	303	1813
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	0.35	0.42	0.25	0.18	0.56	0.95	0.20	0.69

Intersection Summary

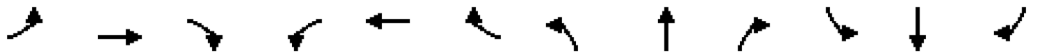
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	137	123	98	51	46	21	47	999	79	39	1126	37
Future Volume (vph)	137	123	98	51	46	21	47	999	79	39	1126	37
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	0.93		1.00	0.93		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)	1752	1751		1770	1775		1703	3441		1752	3417	
Flt Permitted	0.68	1.00		0.48	1.00		0.19	1.00		0.08	1.00	
Satd. Flow (perm)	1253	1751		899	1775		340	3441		156	3417	
Peak-hour factor, PHF	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Adj. Flow (vph)	163	156	124	84	68	52	68	1086	92	60	1211	44
RTOR Reduction (vph)	0	24	0	0	23	0	0	5	0	0	2	0
Lane Group Flow (vph)	163	256	0	84	98	0	68	1173	0	60	1253	0
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
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)	44.4	44.4		44.4	44.4		43.2	43.2		63.6	63.6	
Effective Green, g (s)	44.4	44.4		44.4	44.4		43.2	43.2		63.6	63.6	
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.36	0.36		0.53	0.53	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)	463	647		332	656		122	1238		300	1811	
v/s Ratio Prot		c0.15			0.06			c0.34		0.03	c0.37	
v/s Ratio Perm	0.13			0.09			0.20			0.08		
v/c Ratio	0.35	0.40		0.25	0.15		0.56	0.95		0.20	0.69	
Uniform Delay, d1	27.4	27.9		26.3	25.2		30.7	37.3		20.3	20.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.1	1.8		1.8	0.5		17.1	15.7		1.5	2.2	
Delay (s)	29.5	29.7		28.1	25.7		47.9	53.0		21.8	23.1	
Level of Service	C	C		C	C		D	D		C	C	
Approach Delay (s/veh)		29.6			26.7			52.7			23.1	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	35.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	74.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

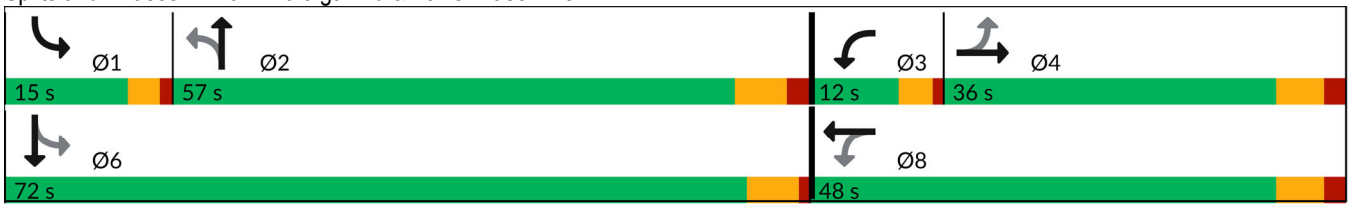


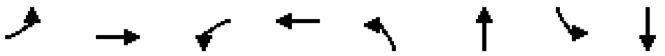
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	182	31	174	231	248	152	1222	203	140	932	47
Future Volume (vph)	51	182	31	174	231	248	152	1222	203	140	932	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		0.0	90.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	100.0			100.0			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		0.969			0.924			0.976			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1841	0	1770	1738	0	1805	3431	0	1752	3509	0
Flt Permitted	0.137			0.347			0.236			0.072		
Satd. Flow (perm)	255	1841	0	646	1738	0	448	3431	0	133	3509	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			48			23			10	
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			498.3			434.3	
Travel Time (s)		38.5			41.4			22.4			19.5	
Peak Hour Factor	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Adj. Flow (vph)	66	217	57	183	292	302	171	1273	242	157	1024	75
Shared Lane Traffic (%)												
Lane Group Flow (vph)	66	274	0	183	594	0	171	1515	0	157	1099	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)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			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	4	4		3	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		25.0	25.0		7.0	25.0	
Minimum Split (s)	22.5	22.5		11.5	22.5		31.6	31.6		11.5	30.6	
Total Split (s)	36.0	36.0		12.0	48.0		57.0	57.0		15.0	72.0	
Total Split (%)	30.0%	30.0%		10.0%	40.0%		47.5%	47.5%		12.5%	60.0%	
Maximum Green (s)	29.8	29.8		8.0	41.8		50.4	50.4		11.0	66.4	
Yellow Time (s)	4.2	4.2		3.0	4.2		4.6	4.6		3.0	4.6	
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.2	6.2		4.0	6.2		6.6	6.6		4.0	5.6	
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes		Yes		
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0		0.2	5.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Act Effct Green (s)	29.8	29.8		43.8	41.6		50.4	50.4		68.0	66.4	
Actuated g/C Ratio	0.25	0.25		0.37	0.35		0.42	0.42		0.57	0.55	
v/c Ratio	1.05	0.59		0.59	0.94		0.91	1.04		0.70	0.56	
Control Delay (s/veh)	173.3	44.2		36.4	58.6		80.5	68.7		40.0	18.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	173.3	44.2		36.4	58.6		80.5	68.7		40.0	18.6	
LOS	F	D		D	E		F	E		D	B	
Approach Delay (s/veh)		69.2			53.3			69.9			21.3	
Approach LOS		E			D			E			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 119.8			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay (s/veh): 51.6		Intersection LOS: D	
Intersection Capacity Utilization 104.3%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line



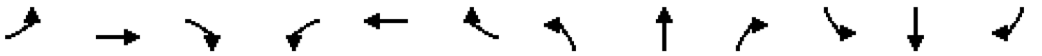


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	66	274	183	594	171	1515	157	1099
v/c Ratio	1.05	0.59	0.59	0.94	0.91	1.04	0.70	0.56
Control Delay (s/veh)	173.3	44.2	36.4	58.6	80.5	68.7	40.0	18.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	173.3	44.2	36.4	58.6	80.5	68.7	40.0	18.6
Queue Length 50th (m)	~17.7	57.9	31.8	132.2	39.1	~212.2	21.0	88.2
Queue Length 95th (m)	#38.9	79.9	50.6	#153.3	#84.0	#257.5	#49.4	108.3
Internal Link Dist (m)		725.3		666.6		474.3		410.3
Turn Bay Length (m)	45.0		110.0		90.0		90.0	
Base Capacity (vph)	63	465	310	637	188	1456	223	1949
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	1.05	0.59	0.59	0.93	0.91	1.04	0.70	0.56

Intersection Summary

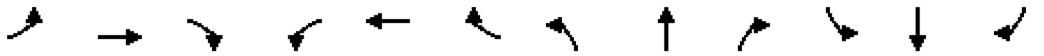
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	182	31	174	231	248	152	1222	203	140	932	47
Future Volume (vph)	51	182	31	174	231	248	152	1222	203	140	932	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2		4.0	6.2		6.6	6.6		4.0	5.6	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.92		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1841		1770	1738		1805	3432		1752	3508	
Flt Permitted	0.14	1.00		0.35	1.00		0.24	1.00		0.07	1.00	
Satd. Flow (perm)	255	1841		646	1738		448	3432		133	3508	
Peak-hour factor, PHF	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Adj. Flow (vph)	66	217	57	183	292	302	171	1273	242	157	1024	75
RTOR Reduction (vph)	0	8	0	0	31	0	0	13	0	0	4	0
Lane Group Flow (vph)	66	266	0	183	563	0	171	1502	0	157	1095	0
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	29.8	29.8		41.6	41.6		50.4	50.4		66.4	66.4	
Effective Green, g (s)	29.8	29.8		41.6	41.6		50.4	50.4		66.4	66.4	
Actuated g/C Ratio	0.25	0.25		0.35	0.35		0.42	0.42		0.55	0.55	
Clearance Time (s)	6.2	6.2		4.0	6.2		6.6	6.6		4.0	5.6	
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0		0.2	5.0	
Lane Grp Cap (vph)	63	457		297	603		188	1443		222	1944	
v/s Ratio Prot		0.14		0.04	c0.32			c0.44		c0.06	0.31	
v/s Ratio Perm	c0.26			0.17			0.38			0.33		
v/c Ratio	1.05	0.58		0.62	0.93		0.91	1.04		0.71	0.56	
Uniform Delay, d1	45.0	39.5		31.0	37.8		32.6	34.7		29.2	17.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	127.3	2.9		2.7	22.3		45.5	35.0		17.3	1.2	
Delay (s)	172.3	42.5		33.6	60.0		78.0	69.7		46.6	18.5	
Level of Service	F	D		C	E		E	E		D	B	
Approach Delay (s/veh)		67.7			53.8			70.5			22.0	
Approach LOS		E			D			E			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	52.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	119.8	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			

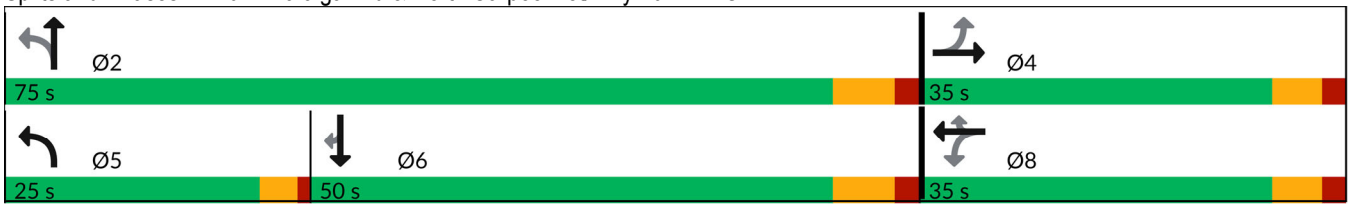


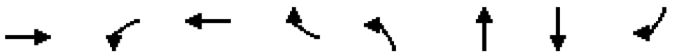
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	16	297	3	24	10	1550	0	0	1133	4
Future Volume (vph)	3	0	16	297	3	24	10	1550	0	0	1133	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.898			0.997	0.850						0.850
Flt Protected		0.988		0.950	0.955		0.950					
Satd. Flow (prot)	0	1535	0	1681	1589	1408	1641	3539	0	0	3539	1615
Flt Permitted		0.917		0.736	0.716		0.161					
Satd. Flow (perm)	0	1424	0	1302	1192	1408	278	3539	0	0	3539	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		79			1	79						69
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			118.9	
Travel Time (s)		9.6			41.3			26.2			8.6	
Peak Hour Factor	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Adj. Flow (vph)	8	0	25	334	8	29	20	1649	0	0	1245	8
Shared Lane Traffic (%)				48%		10%						
Lane Group Flow (vph)	0	33	0	174	171	26	20	1649	0	0	1245	8
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	4.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	27.0			27.0	27.0
Total Split (s)	35.0	35.0		35.0	35.0	35.0	25.0	75.0			50.0	50.0
Total Split (%)	31.8%	31.8%		31.8%	31.8%	31.8%	22.7%	68.2%			45.5%	45.5%
Maximum Green (s)	29.0	29.0		29.0	29.0	29.0	21.0	68.0			43.0	43.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0			2.0	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	4.0	7.0			7.0	7.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	None	Max			Max	Max
Act Effct Green (s)		19.8		19.8	19.8	19.8	71.3	68.3			64.5	64.5
Actuated g/C Ratio		0.20		0.20	0.20	0.20	0.71	0.68			0.64	0.64
v/c Ratio		0.10		0.69	0.73	0.08	0.07	0.69			0.55	0.01
Control Delay (s/veh)		0.6		51.5	56.1	0.4	6.5	12.9			13.4	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		0.6		51.5	56.1	0.4	6.5	12.9			13.4	0.0
LOS		A		D	E	A	A	B			B	A
Approach Delay (s/veh)		0.6			50.0			12.9			13.3	
Approach LOS		A			D			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 101.1			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay (s/veh): 17.0		Intersection LOS: B	
Intersection Capacity Utilization 70.3%		ICU Level of Service C	
Analysis Period (min) 15			

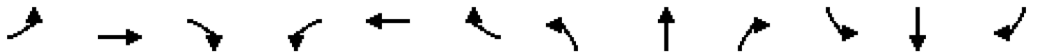
Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off





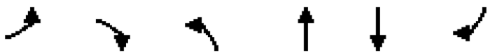
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	33	174	171	26	20	1649	1245	8
v/c Ratio	0.10	0.69	0.73	0.08	0.07	0.69	0.55	0.01
Control Delay (s/veh)	0.6	51.5	56.1	0.4	6.5	12.9	13.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	0.6	51.5	56.1	0.4	6.5	12.9	13.4	0.0
Queue Length 50th (m)	0.0	35.2	36.3	0.0	1.1	97.3	60.5	0.0
Queue Length 95th (m)	0.0	58.4	22.4	0.0	2.3	159.3	128.3	0.0
Internal Link Dist (m)	110.0		550.1			339.6	94.9	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	466	375	343	461	480	2389	2258	1055
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	0.46	0.50	0.06	0.04	0.69	0.55	0.01

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	16	297	3	24	10	1550	0	0	1133	4
Future Volume (vph)	3	0	16	297	3	24	10	1550	0	0	1133	4
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	4.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.95			0.95	1.00
Frt		0.90		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.96	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1534		1681	1591	1408	1641	3539			3539	1615
Flt Permitted		0.92		0.74	0.72	1.00	0.16	1.00			1.00	1.00
Satd. Flow (perm)		1423		1302	1192	1408	278	3539			3539	1615
Peak-hour factor, PHF	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Adj. Flow (vph)	8	0	25	334	8	29	20	1649	0	0	1245	8
RTOR Reduction (vph)	0	27	0	0	1	21	0	0	0	0	0	3
Lane Group Flow (vph)	0	6	0	174	170	5	20	1649	0	0	1245	5
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		19.8		19.8	19.8	19.8	70.7	70.7			64.5	64.5
Effective Green, g (s)		19.8		19.8	19.8	19.8	70.7	70.7			64.5	64.5
Actuated g/C Ratio		0.19		0.19	0.19	0.19	0.68	0.68			0.62	0.62
Clearance Time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Lane Grp Cap (vph)		272		249	228	269	218	2417			2205	1006
v/s Ratio Prot							0.00	c0.47			0.35	
v/s Ratio Perm		0.00		0.13	c0.14	0.00	0.06					0.00
v/c Ratio		0.02		0.70	0.75	0.02	0.09	0.68			0.56	0.00
Uniform Delay, d1		34.0		39.1	39.5	34.0	7.2	9.7			11.3	7.4
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2		0.0		8.6	12.9	0.0	0.1	1.6			1.1	0.0
Delay (s)		34.0		47.6	52.3	34.0	7.3	11.3			12.4	7.4
Level of Service		C		D	D	C	A	B			B	A
Approach Delay (s/veh)		34.0			48.9			11.3			12.4	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	103.5	Sum of lost time (s)	17.0
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

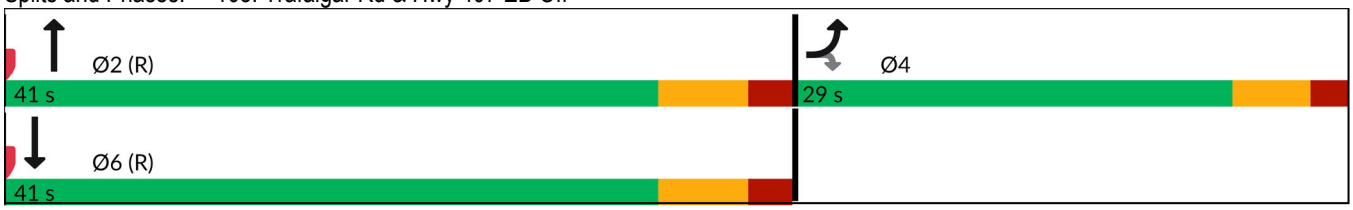


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	34	71	0	1734	1299	0
Future Volume (vph)	34	71	0	1734	1299	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1703	1429	0	3539	3539	0
Flt Permitted	0.950					
Satd. Flow (perm)	1703	1429	0	3539	3539	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		21				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			120.3	363.6	
Travel Time (s)	39.9			8.7	26.2	
Peak Hour Factor	0.75	0.94	0.25	0.94	0.92	0.25
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Adj. Flow (vph)	45	76	0	1845	1412	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	45	76	0	1845	1412	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	29.0	29.0		24.9	24.9	
Total Split (s)	29.0	29.0		41.0	41.0	
Total Split (%)	41.4%	41.4%		58.6%	58.6%	
Maximum Green (s)	23.0	23.0		34.1	34.1	
Yellow Time (s)	4.0	4.0		4.6	4.6	
All-Red Time (s)	2.0	2.0		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.9	6.9	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	23.0	23.0		34.1	34.1	
Actuated g/C Ratio	0.33	0.33		0.49	0.49	
v/c Ratio	0.08	0.16		1.07	0.82	
Control Delay (s/veh)	16.8	13.9		63.7	20.4	
Queue Delay	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay (s/veh)	16.8	13.9		63.7	20.4	
LOS	B	B		E	C	
Approach Delay (s/veh)	15.0			63.7	20.4	
Approach LOS	B			E	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 80			
Control Type: Pretimed			
Maximum v/c Ratio: 1.07			
Intersection Signal Delay (s/veh): 43.9		Intersection LOS: D	
Intersection Capacity Utilization 62.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off



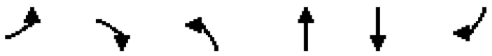


Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	45	76	1845	1412
v/c Ratio	0.08	0.16	1.07	0.82
Control Delay (s/veh)	16.8	13.9	63.7	20.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.8	13.9	63.7	20.4
Queue Length 50th (m)	4.2	5.2	~151.8	82.1
Queue Length 95th (m)	9.0	14.2	#193.8	110.6
Internal Link Dist (m)	530.6		96.3	339.6
Turn Bay Length (m)				
Base Capacity (vph)	559	483	1723	1723
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	0.16	1.07	0.82

Intersection Summary

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

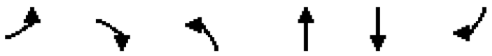
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



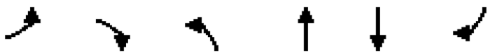
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	34	71	0	1734	1299	0
Future Volume (vph)	34	71	0	1734	1299	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.9	6.9	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1703	1429		3539	3539	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1703	1429		3539	3539	
Peak-hour factor, PHF	0.75	0.94	0.25	0.94	0.92	0.25
Adj. Flow (vph)	45	76	0	1845	1412	0
RTOR Reduction (vph)	0	14	0	0	0	0
Lane Group Flow (vph)	45	62	0	1845	1412	0
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	23.0	23.0		34.1	34.1	
Effective Green, g (s)	23.0	23.0		34.1	34.1	
Actuated g/C Ratio	0.33	0.33		0.49	0.49	
Clearance Time (s)	6.0	6.0		6.9	6.9	
Lane Grp Cap (vph)	559	469		1723	1723	
v/s Ratio Prot	0.03			c0.52	0.40	
v/s Ratio Perm		c0.04				
v/c Ratio	0.08	0.13		1.07	0.82	
Uniform Delay, d1	16.2	16.5		18.0	15.3	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.6		43.4	4.5	
Delay (s)	16.5	17.1		61.4	19.8	
Level of Service	B	B		E	B	
Approach Delay (s/veh)	16.9			61.4	19.8	
Approach LOS	B			E	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	42.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



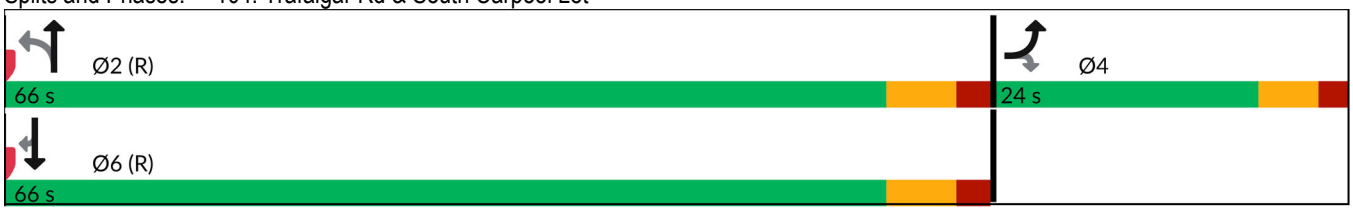
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	64	72	62	1968	1336	34
Future Volume (vph)	64	72	62	1968	1336	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	50.0			30.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5		100.0			
Lane Util. Factor	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)	1504	1455	1570	5085	5085	1615
Flt Permitted	0.950		0.147			
Satd. Flow (perm)	1504	1455	243	5085	5085	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		53				44
Link Speed (k/h)	50			80	80	
Link Distance (m)	107.1			233.3	131.6	
Travel Time (s)	7.7			10.5	5.9	
Peak Hour Factor	0.62	0.78	0.78	0.93	0.90	0.77
Heavy Vehicles (%)	20%	11%	15%	2%	2%	0%
Adj. Flow (vph)	103	92	79	2116	1484	44
Shared Lane Traffic (%)						
Lane Group Flow (vph)	103	92	79	2116	1484	44
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Minimum Split (s)	24.0	24.0	24.9	24.9	24.9	24.9
Total Split (s)	24.0	24.0	66.0	66.0	66.0	66.0
Total Split (%)	26.7%	26.7%	73.3%	73.3%	73.3%	73.3%
Maximum Green (s)	18.0	18.0	59.1	59.1	59.1	59.1
Yellow Time (s)	4.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.9	6.9	6.9	6.9
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Don't Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	18.0	18.0	59.1	59.1	59.1	59.1
Actuated g/C Ratio	0.20	0.20	0.66	0.66	0.66	0.66

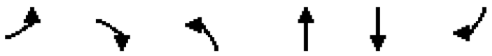


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
v/c Ratio	0.34	0.28	0.50	0.63	0.44	0.04
Control Delay (s/veh)	34.7	17.7	21.2	10.2	8.0	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	34.7	17.7	21.2	10.2	8.0	1.9
LOS	C	B	C	B	A	A
Approach Delay (s/veh)	26.7			10.6	7.8	
Approach LOS	C			B	A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Pretimed			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay (s/veh): 10.3		Intersection LOS: B	
Intersection Capacity Utilization 52.9%		ICU Level of Service A	
Analysis Period (min) 15			

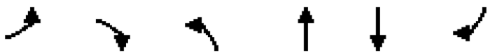
Splits and Phases: 104: Trafalgar Rd & South Carpool Lot





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	103	92	79	2116	1484	44
v/c Ratio	0.34	0.28	0.50	0.63	0.44	0.04
Control Delay (s/veh)	34.7	17.7	21.2	10.2	8.0	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	34.7	17.7	21.2	10.2	8.0	1.9
Queue Length 50th (m)	16.2	5.9	6.5	73.6	42.5	0.0
Queue Length 95th (m)	20.9	15.3	16.3	87.7	51.7	2.5
Internal Link Dist (m)	83.1			209.3	107.6	
Turn Bay Length (m)			50.0			30.0
Base Capacity (vph)	300	333	159	3339	3339	1075
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	0.34	0.28	0.50	0.63	0.44	0.04

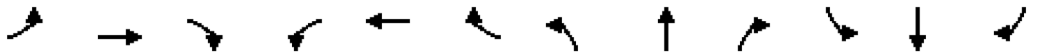
Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	64	72	62	1968	1336	34
Future Volume (vph)	64	72	62	1968	1336	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.9	6.9	6.9	6.9
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)	1504	1455	1570	5085	5085	1615
Flt Permitted	0.95	1.00	0.15	1.00	1.00	1.00
Satd. Flow (perm)	1504	1455	243	5085	5085	1615
Peak-hour factor, PHF	0.62	0.78	0.78	0.93	0.90	0.77
Adj. Flow (vph)	103	92	79	2116	1484	44
RTOR Reduction (vph)	0	42	0	0	0	15
Lane Group Flow (vph)	103	50	79	2116	1484	29
Heavy Vehicles (%)	20%	11%	15%	2%	2%	0%
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	18.0	18.0	59.1	59.1	59.1	59.1
Effective Green, g (s)	18.0	18.0	59.1	59.1	59.1	59.1
Actuated g/C Ratio	0.20	0.20	0.66	0.66	0.66	0.66
Clearance Time (s)	6.0	6.0	6.9	6.9	6.9	6.9
Lane Grp Cap (vph)	300	291	159	3339	3339	1060
v/s Ratio Prot	c0.07			c0.42	0.29	
v/s Ratio Perm		0.03	0.33			0.02
v/c Ratio	0.34	0.17	0.50	0.63	0.44	0.03
Uniform Delay, d1	30.9	29.8	7.9	9.1	7.5	5.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.1	1.3	10.7	0.9	0.4	0.0
Delay (s)	34.0	31.1	18.5	10.0	7.9	5.4
Level of Service	C	C	B	B	A	A
Approach Delay (s/veh)	32.6			10.3	7.8	
Approach LOS	C			B	A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	10.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	52.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

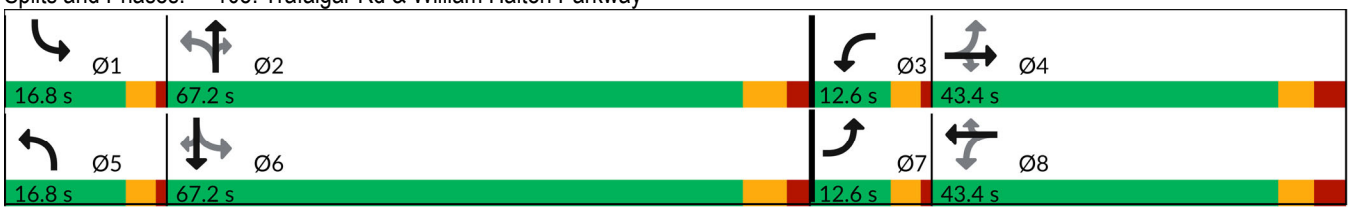


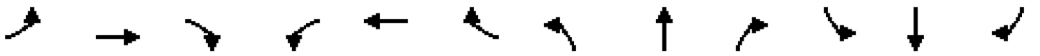
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	240	80	40	424	513	126	1387	15	183	1052	173
Future Volume (vph)	130	240	80	40	424	513	126	1387	15	183	1052	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	0.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			7.5		
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)	1770	3539	1599	1805	3610	1583	1787	5085	1615	1719	5085	1599
Flt Permitted	0.321			0.599			0.155			0.076		
Satd. Flow (perm)	598	3539	1599	1138	3610	1583	292	5085	1615	138	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			93			212			94			188
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		443.3			449.5			285.3			233.3	
Travel Time (s)		31.9			32.4			20.5			16.8	
Peak Hour Factor	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
Adj. Flow (vph)	144	247	88	56	493	604	156	1541	24	199	1223	188
Shared Lane Traffic (%)												
Lane Group Flow (vph)	144	247	88	56	493	604	156	1541	24	199	1223	188
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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)	11.5	38.0	38.0	11.5	38.0	38.0	11.5	42.9	42.9	11.5	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	Max	Max	None	Max	Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't 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)	49.1	39.3	39.3	47.3	36.4	36.4	74.1	60.3	60.3	77.7	62.1	62.1
Actuated g/C Ratio	0.35	0.28	0.28	0.34	0.26	0.26	0.53	0.43	0.43	0.56	0.44	0.44
v/c Ratio	0.51	0.25	0.17	0.13	0.53	1.06	0.58	0.70	0.03	0.91	0.54	0.23
Control Delay (s/veh)	37.9	40.7	7.6	29.6	46.8	87.5	23.2	34.7	0.1	73.0	29.8	3.9
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 (s/veh)	37.9	40.7	7.6	29.6	46.8	87.5	23.2	34.7	0.1	73.0	29.8	3.9
LOS	D	D	A	C	D	F	C	C	A	E	C	A
Approach Delay (s/veh)		33.8			67.3			33.1			32.1	
Approach LOS		C			E			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 139.9			
Natural Cycle: 105			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.06			
Intersection Signal Delay (s/veh): 40.8		Intersection LOS: D	
Intersection Capacity Utilization 80.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway



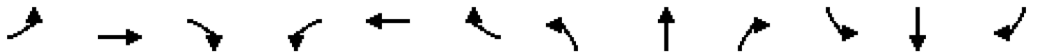


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	144	247	88	56	493	604	156	1541	24	199	1223	188
v/c Ratio	0.51	0.25	0.17	0.13	0.53	1.06	0.58	0.70	0.03	0.91	0.54	0.23
Control Delay (s/veh)	37.9	40.7	7.6	29.6	46.8	87.5	23.2	34.7	0.1	73.0	29.8	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.9	40.7	7.6	29.6	46.8	87.5	23.2	34.7	0.1	73.0	29.8	3.9
Queue Length 50th (m)	28.6	30.2	0.0	10.5	65.2	~144.9	20.5	132.6	0.0	38.1	94.5	0.0
Queue Length 95th (m)	45.8	43.0	12.6	16.1	79.4	#196.4	28.7	150.7	0.0	#87.2	105.1	14.5
Internal Link Dist (m)		419.3			425.5			261.3			209.3	
Turn Bay Length (m)	100.0		100.0	100.0		150.0	150.0		75.0			
Base Capacity (vph)	282	993	515	431	939	568	295	2192	749	221	2257	813
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	0.17	0.13	0.53	1.06	0.53	0.70	0.03	0.90	0.54	0.23

Intersection Summary

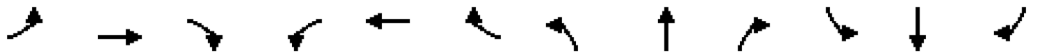
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	240	80	40	424	513	126	1387	15	183	1052	173
Future Volume (vph)	130	240	80	40	424	513	126	1387	15	183	1052	173
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)	1770	3539	1599	1805	3610	1583	1787	5085	1615	1719	5085	1599
Flt Permitted	0.32	1.00	1.00	0.60	1.00	1.00	0.15	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	599	3539	1599	1137	3610	1583	291	5085	1615	138	5085	1599
Peak-hour factor, PHF	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Adj. Flow (vph)	144	247	88	56	493	604	156	1541	24	199	1223	188
RTOR Reduction (vph)	0	0	63	0	0	156	0	0	14	0	0	105
Lane Group Flow (vph)	144	247	25	56	493	448	156	1541	10	199	1223	83
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
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)	47.9	39.3	39.3	43.7	37.2	37.2	71.2	60.3	60.3	74.8	62.1	62.1
Effective Green, g (s)	47.9	39.3	39.3	43.7	37.2	37.2	71.2	60.3	60.3	74.8	62.1	62.1
Actuated g/C Ratio	0.34	0.28	0.28	0.31	0.26	0.26	0.51	0.43	0.43	0.53	0.44	0.44
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)	275	988	446	384	954	418	263	2179	692	216	2244	705
v/s Ratio Prot	c0.03	0.07		0.01	0.14		0.05	0.30		c0.08	0.24	
v/s Ratio Perm	0.15		0.02	0.04		c0.28	0.25		0.01	c0.41		0.05
v/c Ratio	0.52	0.25	0.06	0.15	0.52	1.07	0.59	0.71	0.01	0.92	0.55	0.12
Uniform Delay, d1	34.0	39.3	37.1	34.5	44.1	51.7	20.5	33.0	23.1	36.8	28.9	23.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	0.3	0.1	0.2	0.9	64.5	3.6	2.0	0.0	40.0	1.0	0.3
Delay (s)	35.8	39.6	37.2	34.7	45.0	116.3	24.1	34.9	23.2	76.8	29.9	23.5
Level of Service	D	D	D	C	D	F	C	C	C	E	C	C
Approach Delay (s/veh)		38.0			81.9			33.8			34.9	
Approach LOS		D			F			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	45.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	140.7	Sum of lost time (s)	21.9
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

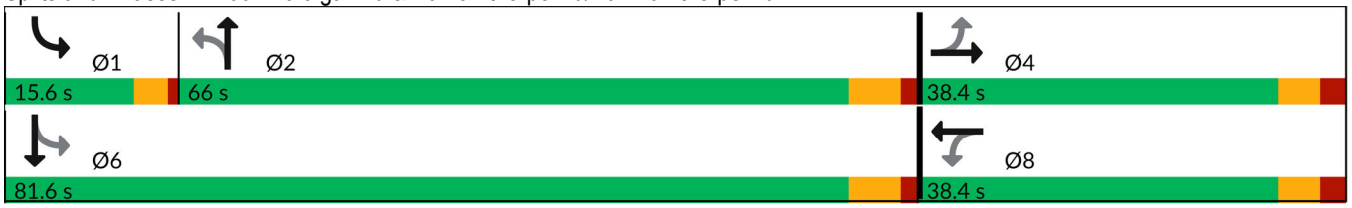


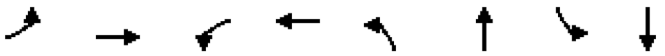
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	73	228	12	91	200	248	67	1207	98	163	883	126
Future Volume (vph)	73	228	12	91	200	248	67	1207	98	163	883	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		0.0	60.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	70.0			50.0			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		0.993			0.921			0.986			0.981	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1887	0	1805	1750	0	1805	3465	0	1480	3476	0
Flt Permitted	0.123			0.307			0.243			0.062		
Satd. Flow (perm)	229	1887	0	583	1750	0	462	3465	0	97	3476	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			46			13			26	
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		828.7			989.6			1077.8			170.3	
Travel Time (s)		49.7			59.4			48.5			7.7	
Peak Hour Factor	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	1%
Adj. Flow (vph)	87	326	15	115	278	310	86	1420	144	255	1003	147
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	341	0	115	588	0	86	1564	0	255	1150	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)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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	
Protected Phases		4			8			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	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		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		None	Max	
Act Effct Green (s)	32.4	32.4		32.4	32.4		60.0	60.0		77.6	75.6	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.50	0.50		0.65	0.63	
v/c Ratio	1.43	0.67		0.73	1.16		0.37	0.90		1.30	0.52	
Control Delay (s/veh)	298.4	46.3		67.9	129.7		24.4	35.4		197.2	13.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	298.4	46.3		67.9	129.7		24.4	35.4		197.2	13.0	
LOS	F	D		E	F		C	D		F	B	
Approach Delay (s/veh)		97.5			119.6			34.9			46.4	
Approach LOS		F			F			C			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.43			
Intersection Signal Delay (s/veh): 59.4		Intersection LOS: E	
Intersection Capacity Utilization 99.1%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burhamthorpe Rd/Burnhamthorpe Rd





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	87	341	115	588	86	1564	255	1150
v/c Ratio	1.43	0.67	0.73	1.16	0.37	0.90	1.30	0.52
Control Delay (s/veh)	298.4	46.3	67.9	129.7	24.4	35.4	197.2	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	298.4	46.3	67.9	129.7	24.4	35.4	197.2	13.0
Queue Length 50th (m)	~28.9	75.1	26.0	~164.5	12.7	178.4	~67.2	75.2
Queue Length 95th (m)	#58.3	78.8	#45.6	#160.3	22.4	193.3	#67.2	89.0
Internal Link Dist (m)		804.7		965.6		1053.8		146.3
Turn Bay Length (m)	30.0		15.0		60.0		60.0	
Base Capacity (vph)	61	510	157	506	231	1739	196	2199
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	1.43	0.67	0.73	1.16	0.37	0.90	1.30	0.52

Intersection Summary

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	73	228	12	91	200	248	67	1207	98	163	883	126
Future Volume (vph)	73	228	12	91	200	248	67	1207	98	163	883	126
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	0.99		1.00	0.92		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1887		1805	1750		1805	3466		1480	3476	
Flt Permitted	0.12	1.00		0.31	1.00		0.24	1.00		0.06	1.00	
Satd. Flow (perm)	230	1887		584	1750		462	3466		97	3476	
Peak-hour factor, PHF	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Adj. Flow (vph)	87	326	15	115	278	310	86	1420	144	255	1003	147
RTOR Reduction (vph)	0	1	0	0	34	0	0	7	0	0	10	0
Lane Group Flow (vph)	87	340	0	115	554	0	86	1558	0	255	1140	0
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	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)	32.4	32.4		32.4	32.4		60.0	60.0		75.6	75.6	
Effective Green, g (s)	32.4	32.4		32.4	32.4		60.0	60.0		75.6	75.6	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.50	0.50		0.63	0.63	
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		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	62	509		157	472		231	1733		194	2189	
v/s Ratio Prot		0.18			0.32			0.45		c0.13	0.33	
v/s Ratio Perm	c0.38			0.20			0.19			c0.70		
v/c Ratio	1.40	0.67		0.73	1.17		0.37	0.90		1.31	0.52	
Uniform Delay, d1	43.8	39.0		39.9	43.8		18.4	27.2		38.7	12.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	253.7	3.3		16.1	98.9		4.5	7.9		173.2	0.9	
Delay (s)	297.5	42.3		56.0	142.7		23.0	35.1		211.9	13.1	
Level of Service	F	D		E	F		C	D		F	B	
Approach Delay (s/veh)		94.2			128.6			34.5			49.2	
Approach LOS		F			F			C			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	61.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.37		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	99.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Appendix D

Trip Generation Calculations

Block	ITE Land Use	Units	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
1	222 - Multifamily Housing, High-Rise (Dwelling Units)	810	47	115	162	129	82	211
	710 - General Office Building (GFA/1,000ft²)	327.0	356	49	405	66	320	386
	820 - Shopping Center, >150K (GFA/1,000ft²)	109.0	60	36	96	174	181	355
	Block 1 Trip Generation		463	200	663	369	583	952
	Modal Split	*20%*	*- 93*	*- 40*	*- 133*	*- 74*	*- 117*	*- 191*
	Internal AM Entering	*6%*	*- 28*		*- 28*			
	Internal AM Exiting	*13%*		*- 26*	*- 26*			
	Inerntal PM Entering	*17%*				*- 63*		*- 63*
	Internal PM Exiting	*11%*					*- 64*	*- 64*
	Block 1 Net Trip Generation		**342**	**134**	**476**	**232**	**402**	**634**
2	222 - Multifamily Housing, High-Rise (Dwelling Units)	700	41	99	140	111	71	182
	710 - General Office Building (GFA/1,000ft²)	37.9	41	6	47	8	37	45
	822 - Strip Plaza, <40K (GFA/1,000ft²)	12.6	30	20	50	40	40	80
	Block 2 Trip Generation		112	125	237	159	148	307
	Modal Split	*20%*	*- 22*	*- 25*	*- 47*	*- 32*	*- 30*	*- 62*
	Internal AM Entering	*6%*	*- 7*		*- 7*			
	Internal AM Exiting	*5%*		*- 6*	*- 6*			
	Inerntal PM Entering	*9%*				*- 14*		*- 14*
	Internal PM Exiting	*9%*					*- 13*	*- 13*
	Block 2 Net Trip Generation		**83**	**94**	**177**	**113**	**105**	**218**
3	222 - Multifamily Housing, High-Rise (Dwelling Units)	1,650	96	234	330	262	167	429
	710 - General Office Building (GFA/1,000ft²)	0.0	-	-	-	-	-	-
	822 - Strip Plaza, <40K (GFA/1,000ft²)	0.0	-	-	-	-	-	-
	Block 3 Trip Generation		96	234	330	262	167	429
	Modal Split	*20%*	*- 19*	*- 47*	*- 66*	*- 52*	*- 33*	*- 85*
	Internal AM Entering	*0%*	-		-			
	Internal AM Exiting	*0%*		-	-			
	Inerntal PM Entering	*0%*				-		-
	Internal PM Exiting	*0%*					-	-
	Block 3 Net Trip Generation		**77**	**187**	**264**	**210**	**134**	**344**
4	222 - Multifamily Housing, High-Rise (Dwelling Units)	2,100	122	298	420	333	213	546
	710 - General Office Building (GFA/1,000ft²)	0.0	-	-	-	-	-	-
	822 - Strip Plaza, <40K (GFA/1,000ft²)	0.0	-	-	-	-	-	-
	Block 4 Trip Generation		122	298	420	333	213	546
	Modal Split	*20%*	*- 24*	*- 60*	*- 84*	*- 67*	*- 43*	*- 110*
	Internal AM Entering	*0%*	-		-			
	Internal AM Exiting	*0%*		-	-			
	Inerntal PM Entering	*0%*				-		-
	Internal PM Exiting	*0%*					-	-
	Block 4 Net Trip Generation		**98**	**238**	**336**	**266**	**170**	**436**
5	222 - Multifamily Housing, High-Rise (Dwelling Units)	1,120	65	159	224	178	113	291
	710 - General Office Building (GFA/1,000ft²)	0.0	-	-	-	-	-	-
	822 - Strip Plaza, <40K (GFA/1,000ft²)	0.0	-	-	-	-	-	-
	Block 5 Trip Generation		65	159	224	178	113	291
	Modal Split	*20%*	*- 13*	*- 32*	*- 45*	*- 36*	*- 23*	*- 59*
	Internal AM Entering	*0%*	-		-			
	Internal AM Exiting	*0%*		-	-			
	Inerntal PM Entering	*0%*				-		-
	Internal PM Exiting	*0%*					-	-
	Block 5 Net Trip Generation		**52**	**127**	**179**	**142**	**90**	**232**
6	710 - General Office Building (GFA/1,000ft²)	59.7	65	9	74	12	58	70
	822 - Strip Plaza, <40K (GFA/1,000ft²)	19.9	47	31	78	62	63	125
	Block 6 Trip Generation		112	40	152	74	121	195
	Modal Split	*20%*	*- 22*	*- 8*	*- 30*	*- 15*	*- 24*	*- 39*
	Internal AM Entering	*5%*	*- 6*		*- 6*			
	Internal AM Exiting	*15%*		*- 6*	*- 6*			
	Inerntal PM Entering	*23%*				*- 17*		*- 17*
	Internal PM Exiting	*14%*					*- 17*	*- 17*
	Block6 Net Trip Generation		**84**	**26**	**110**	**42**	**80**	**122**
7	710 - General Office Building (GFA/1,000ft²)	58.1	63	9	72	12	57	69
	822 - Strip Plaza, <40K (GFA/1,000ft²)	19.4	46	30	76	61	61	122
	Block 7 Trip Generation		109	39	148	73	118	191
	Modal Split	*20%*	*- 22*	*- 8*	*- 30*	*- 15*	*- 24*	*- 39*
	Internal AM Entering	*6%*	*- 7*		*- 7*			
	Internal AM Exiting	*15%*		*- 6*	*- 6*			
	Inerntal PM Entering	*23%*				*- 17*		*- 17*
	Internal PM Exiting	*14%*					*- 17*	*- 17*
	Block 7 Net Trip Generation		**80**	**25**	**105**	**41**	**77**	**118**
8	710 - General Office Building (GFA/1,000ft²)	42.0	46	6	52	8	42	50
	822 - Strip Plaza, <40K (GFA/1,000ft²)	14.0	33	22	55	44	44	88
	Block 8 Trip Generation		79	28	107	52	86	138
	Modal Split	*20%*	*- 16*	*- 6*	*- 22*	*- 10*	*- 17*	*- 27*
	Internal AM Entering	*5%*	*- 4*		*- 4*			
	Internal AM Exiting	*14%*		*- 4*	*- 4*			
	Inerntal PM Entering	*22%*				*- 11*		*- 11*
	Internal PM Exiting	*13%*					*- 11*	*- 11*
	Block 8 Net Trip Generation		**59**	**18**	**77**	**31**	**58**	**89**
11	222 - Multifamily Housing, High-Rise (Dwelling Units)	450	26	64	90	71	46	117
	710 - General Office Building (GFA/1,000ft²)	24.5	26	4	30	5	24	29
	822 - Strip Plaza, <40K (GFA/1,000ft²)	8.2	19	13	32	25	26	51
	Block 11 Trip Generation		71	81	152	101	96	197
	Modal Split	*20%*	*- 14*	*- 16*	*- 30*	*- 20*	*- 19*	*- 39*
	Internal AM Entering	*7%*	*- 5*		*- 5*			
	Internal AM Exiting	*5%*		*- 4*	*- 4*			
	Inerntal PM Entering	*9%*				*- 9*		*- 9*
	Internal PM Exiting	*10%*					*- 10*	*- 10*
	Block 11 Net Trip Generation		**52**	**61**	**113**	**72**	**67**	**139**
12	222 - Multifamily Housing, High-Rise (Dwelling Units)	780	45	111	156	124	79	203
	710 - General Office Building (GFA/1,000ft²)	42.0	46	6	52	8	42	50
	822 - Strip Plaza, <40K (GFA/1,000ft²)	14.0	33	22	55	44	44	88
	Block 12 Trip Generation		124	139	263	176	165	341
	Modal Split	*20%*	*- 25*	*- 28*	*- 53*	*- 35*	*- 33*	*- 68*
	Internal AM Entering	*5%*	*- 6*		*- 6*			
	Internal AM Exiting	*4%*		*- 6*	*- 6*			
	Inerntal PM Entering	*8%*				*- 14*		*- 14*
	Internal PM Exiting	*9%*					*- 15*	*- 15*
	Block 12 Net Trip Generation		**93**	**105**	**198**	**127**	**117**	**244**
13	222 - Multifamily Housing, High-Rise (Dwelling Units)	1,140	66	162	228	181	115	296
	710 - General Office Building (GFA/1,000ft²)	12.8	14	2	16	3	12	15
	822 - Strip Plaza, <40K (GFA/1,000ft²)	4.3	10	7	17	13	14	27
	Block 13 Trip Generation		90	171	261	197	141	338
	Modal Split	*20%*	*- 25*	*- 28*	*- 53*	*- 35*	*- 33*	*- 68*
	Internal AM Entering	*5%*	*- 5*		*- 5*			
	Internal AM Exiting	*3%*		*- 5*	*- 5*			
	Inerntal PM Entering	*3%*				*- 6*		*- 6*
	Internal PM Exiting	*4%*					*- 6*	*- 6*
	Block 13 Net Trip Generation		**60**	**138**	**198**	**156**	**102**	**258**
14	222 - Multifamily Housing, High-Rise (Dwelling Units)	710	41	101	142	113	72	185
	520 - Elementary School (Employees)	88	102	90	192	75	82	157
	Block 14 Trip Generation		143	191	334	188	154	342
	Modal Split	*20%*	-	-	-	-	-	-
	Block 14 Net Trip Generation		**41**	**191**	**232**	**188**	**154**	**342**
17	150 - Warehousing (GFA/1,000ft²)	936.5	86	26	112	39	101	140
	Block 17 Trip Generation		86	26	112	39	101	140
	Modal Split	*20%*	*- 17*	-	*- 17*	*- 8*	*- 20*	*- 28*
	Block 17 Net Trip Generation		**69**	**26**	**95**	**31**	**81**	**112**
18	150 - Warehousing (GFA/1,000ft²)	509.1	47	14	61	21	55	76
	Block 18 Trip Generation		47	14	61	21	55	76
	Modal Split	*20%*	*- 9*	*- 3*	*- 12*	*- 4*	*- 11*	*- 15*
	Block 18 Net Trip Generation		**38**	**11**	**49**	**17**	**44**	**61**
19	150 - Warehousing (GFA/1,000ft²)	325.1	30	9	39	14	35	49
	Block 19 Trip Generation		30	9	39	14	35	49
	Modal Split	*20%*	*- 6*	*- 2*	*- 8*	*- 3*	*- 7*	*- 10*
	Block 19 Net Trip Generation		**24**	**7**	**31**	**11**	**28**	**39**
20	150 - Warehousing (GFA/1,000ft²)	218.5	20	6	26	9	24	33
	Block 20 Trip Generation		20	6	26	9	24	33
	Modal Split	*20%*	*- 6*	*- 2*	*- 8*	*- 3*	*- 7*	*- 10*
	Block 20 Net Trip Generation		**14**	**4**	**18**	**6**	**17**	**23**
	Residential (Dwelling Units)	**7,610**	**549**	**1,343**	**1,892**	**1,502**	**958**	**2,460**
	Office (GFA/1,000ft²)	**591**	**657**	**91**	**748**	**122**	**592**	**714**
	Retail (GFA/1,000ft²)	**197**	**278**	**181**	**459**	**463**	**473**	**936**
	Institutional (Employees)	**88**	**102**	**90**	**192**	**75**	**82**	**157**
	Industrial (GFA/1,000ft²)	**1,771**	**183**	**55**	**238**	**83**	**215**	**298**
Total Trip Generation			**1,667**	**1,670**	**3,337**	**2,170**	**2,238**	**4,408**
Net Trip Generation			**1,266**	**1,392**	**2,658**	**1,685**	**1,726**	**3,411**

Block	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
1	342	134	476	232	402	634
2	83	94	177	113	105	218
3	77	187	264	210	134	344
2031 Sub-Total	*502*	*415*	*917*	*555*	*641*	*1,196*
4	98	238	336	266	170	436
5	52	127	179	142	90	232
6	84	26	110	42	80	122
7	80	25	105	41	77	118
8	59	18	77	31	58	89
9	-	-	-	-	-	-
10	-	-	-	-	-	-
11	52	61	113	72	67	139
12	93	105	198	127	117	244
13	60	138	198	156	102	258
14	41	191	232	188	154	342
2036 Sub-Total	*619*	*929*	*1,548*	*1,065*	*915*	*1,980*
15	-	-	-	-	-	-
16	-	-	-	-	-	-
17	69	26	95	31	81	112
18	38	11	49	17	44	61
19	24	7	31	11	28	39
20	14	4	18	6	17	23
2041 Sub-Total	*145*	*48*	*193*	*65*	*170*	*235*
Total	**1,266**	**1,392**	**2,658**	**1,685**	**1,726**	**3,411**
	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE

Transit	12%
Active	5%
TDM	3%
Modal Split	**20%**

2031	502	415	917	555	641	1,196
2036	1,121	1,344	2,465	1,620	1,556	3,176
2041	1,266	1,392	2,658	1,685	1,726	3,411

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	210156/210157	**Organization:**	PTSL
Project Location:	Trafalgar I/O Lands	**Performed By:**	AE
Scenario Description:	Block 1	**Date:**	Dec-25
Analysis Year:	2031	**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	327	/1000 ft2	405	356	49
Retail	820	109	/1000 ft2	96	60	36
Restaurant				0		
Cinema/Entertainment				0		
Residential	222	810	Dwelling Units	162	47	115
Hotel				0		
All Other Land Uses[2]				0		
Total				663	463	200

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.00	12%	8%	1.00	12%	8%
Retail	1.00	12%	8%	1.00	12%	8%
Restaurant						
Cinema/Entertainment						
Residential	1.16	12%	8%	1.16	12%	8%
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		14	0	0	0	0
Retail	10		0	0	1	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	3	1	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	689	471	218
Internal Capture Percentage	8%	6%	13%
External Vehicle-Trips[3]	487	349	138
External Transit-Trips[4]	74	52	22
External Non-Motorized Trips[4]	50	35	15

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	4%	29%
Retail	25%	31%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	2%	3%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	210156/210157
Analysis Period:	**AM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	356	356	1.00	49	49
Retail	1.00	60	60	1.00	36	36
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.16	47	55	1.16	115	133
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		14	31	0	0	0
Retail	10		5	0	5	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	3	1	27	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		19	0	0	0	0
Retail	14		0	0	1	0
Restaurant	50	5		0	3	0
Cinema/Entertainment	0	0	0		0	0
Residential	11	10	0	0		0
Hotel	11	2	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	13	343	356	275	41	27
Retail	15	45	60	36	5	4
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	54	55	38	6	4
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	14	35	49	28	4	3
Retail	11	25	36	20	3	2
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	4	129	133	90	15	10
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	210156/210157	**Organization:**	PTSL
Project Location:	Trafalgar I/O Lands	**Performed By:**	AE
Scenario Description:	Block 1	**Date:**	Dec-25
Analysis Year:	2031	**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	327	/1000 ft2	386	66	320
Retail	820	109	/1000 ft2	355	174	181
Restaurant				0		
Cinema/Entertainment				0		
Residential	222	810	Dwelling Units	211	129	82
Hotel				0		
All Other Land Uses[2]				0		
Total				952	369	583

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.00	12%	8%	1.00	12%	8%
Retail	1.00	12%	8%	1.00	12%	8%
Restaurant						
Cinema/Entertainment						
Residential	1.16	12%	8%	1.16	12%	8%
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		56	0	0	0	0
Retail	3		0	0	3	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	1	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	986	390	596
Internal Capture Percentage	13%	17%	11%
External Vehicle-Trips[3]	659	244	415
External Transit-Trips[4]	103	39	64
External Non-Motorized Trips[4]	68	26	42

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	8%	18%
Retail	33%	3%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	2%	3%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	210156/210157
Analysis Period:	**PM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	66	66	1.00	320	320
Retail	1.00	174	174	1.00	181	181
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.16	129	150	1.16	82	95
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		90	202	0	3	0
Retail	52		24	0	25	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	1	19	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		56	0	0	0	0
Retail	3		0	0	3	0
Restaurant	9	14		0	8	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	30	0	0		0
Hotel	2	7	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	5	61	66	49	7	5
Retail	57	117	174	94	14	9
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	3	147	150	101	18	12
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	56	264	320	211	32	21
Retail	6	175	181	140	21	14
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	3	92	95	64	11	7
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	210156/210157	**Organization:**	PTSL
Project Location:	Trafalgar I/O Lands	**Performed By:**	AE
Scenario Description:	Block 2	**Date:**	Dec-25
Analysis Year:	2031	**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	38	/1000 ft2	47	41	6
Retail	822	13	/1000 ft2	50	30	20
Restaurant				0		
Cinema/Entertainment				0		
Residential	222	700	Dwelling Units	140	41	99
Hotel				0		
All Other Land Uses[2]				0		
Total				237	112	125

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.00	12%	8%	1.00	12%	8%
Retail	1.00	12%	8%	1.00	12%	8%
Restaurant						
Cinema/Entertainment						
Residential	1.16	12%	8%	1.16	12%	8%
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		2	0	0	0	0
Retail	2		0	0	1	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	1	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	260	119	141
Internal Capture Percentage	5%	6%	5%
External Vehicle-Trips[3]	180	84	96
External Transit-Trips[4]	30	14	16
External Non-Motorized Trips[4]	19	9	10

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	7%	33%
Retail	10%	15%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	2%	2%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	210156/210157
Analysis Period:	**AM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	41	41	1.00	6	6
Retail	1.00	30	30	1.00	20	20
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.16	41	48	1.16	99	115
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		2	4	0	0	0
Retail	6		3	0	3	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	1	23	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		10	0	0	0	0
Retail	2		0	0	1	0
Restaurant	6	2		0	2	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	5	0	0		0
Hotel	1	1	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	3	38	41	30	5	3
Retail	3	27	30	22	3	2
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	47	48	32	6	4
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	2	4	6	4	0	0
Retail	3	17	20	14	2	1
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	2	113	115	78	14	9
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	210156/210157	**Organization:**	PTSL
Project Location:	Trafalgar I/O Lands	**Performed By:**	AE
Scenario Description:	Block 2	**Date:**	Dec-25
Analysis Year:	2031	**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	38	/1000 ft2	45	8	37
Retail	822	13	/1000 ft2	80	40	40
Restaurant				0		
Cinema/Entertainment				0		
Residential	222	700	Dwelling Units	182	111	71
Hotel				0		
All Other Land Uses[2]				0		
Total				307	159	148

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.13	12%	8%	1.13	12%	8%
Retail	1.13	12%	8%	1.13	12%	8%
Restaurant						
Cinema/Entertainment						
Residential	1.16	12%	8%	1.16	12%	8%
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		12	0	0	0	0
Retail	0		0	0	3	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	1	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	352	183	169
Internal Capture Percentage	9%	9%	9%
External Vehicle-Trips[3]	222	115	107
External Transit-Trips[4]	39	20	19
External Non-Motorized Trips[4]	25	14	11

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	0%	29%
Retail	29%	7%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	2%	1%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	210156/210157
Analysis Period:	**PM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.13	8	9	1.13	37	42
Retail	1.13	40	45	1.13	40	45
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.16	111	129	1.16	71	82
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		12	26	0	0	0
Retail	13		6	0	6	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	1	16	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		14	0	0	0	0
Retail	0		0	0	3	0
Restaurant	1	4		0	6	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	8	0	0		0
Hotel	0	2	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	9	9	6	1	1
Retail	13	32	45	22	4	3
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	3	126	129	87	15	10
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	12	30	42	21	4	2
Retail	3	42	45	30	5	3
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	81	82	56	10	6
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	210156/210157	**Organization:**	PTSL
Project Location:	Trafalgar I/O Lands	**Performed By:**	AE
Scenario Description:	Block 6	**Date:**	Dec-25
Analysis Year:	2036	**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	60	/1000 ft2	74	65	9
Retail	822	20	/1000 ft2	78	47	31
Restaurant				0		
Cinema/Entertainment				0		
Residential				0		
Hotel				0		
All Other Land Uses[2]				0		
Total				152	112	40

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.00	12%	8%	1.00	12%	8%
Retail	1.00	12%	8%	1.00	12%	8%
Restaurant						
Cinema/Entertainment						
Residential	1.16	12%	8%	1.16	12%	8%
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		3	0	0	0	0
Retail	3		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	152	112	40
Internal Capture Percentage	8%	5%	15%
External Vehicle-Trips[3]	113	85	28
External Transit-Trips[4]	16	12	4
External Non-Motorized Trips[4]	11	9	2

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	5%	33%
Retail	6%	10%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	N/A	N/A
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	210156/210157
Analysis Period:	**AM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	65	65	1.00	9	9
Retail	1.00	47	47	1.00	31	31
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.16	0	0	1.16	0	0
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		3	6	0	0	0
Retail	9		4	0	4	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		15	0	0	0	0
Retail	3		0	0	0	0
Restaurant	9	4		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	8	0	0		0
Hotel	2	2	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	3	62	65	50	7	5
Retail	3	44	47	35	5	4
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	3	6	9	5	1	0
Retail	3	28	31	23	3	2
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	210156/210157	**Organization:**	PTSL
Project Location:	Trafalgar I/O Lands	**Performed By:**	AE
Scenario Description:	Block 6	**Date:**	Dec-25
Analysis Year:	2036	**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	60	/1000 ft2	70	12	58
Retail	822	20	/1000 ft2	125	62	63
Restaurant				0		
Cinema/Entertainment				0		
Residential				0		
Hotel				0		
All Other Land Uses[2]				0		
Total				195	74	121

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.13	12%	8%	1.13	12%	8%
Retail	1.13	12%	8%	1.13	12%	8%
Restaurant						
Cinema/Entertainment						
Residential	1.16	12%	8%	1.16	12%	8%
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		18	0	0	0	0
Retail	1		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	221	84	137
Internal Capture Percentage	17%	23%	14%
External Vehicle-Trips[3]	130	46	84
External Transit-Trips[4]	22	8	14
External Non-Motorized Trips[4]	15	5	10

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	7%	27%
Retail	26%	1%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	N/A	N/A
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	210156/210157
Analysis Period:	**PM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.13	12	14	1.13	58	66
Retail	1.13	62	70	1.13	63	71
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.16	0	0	1.16	0	0
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		18	42	0	1	0
Retail	21		9	0	10	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		22	0	0	0	0
Retail	1		0	0	0	0
Restaurant	2	6		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	12	0	0		0
Hotel	0	3	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	1	13	14	9	2	1
Retail	18	52	70	37	6	4
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	18	48	66	34	6	4
Retail	1	70	71	50	8	6
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	210156/210157	**Organization:**	PTSL
Project Location:	Trafalgar I/O Lands	**Performed By:**	AE
Scenario Description:	Block 7	**Date:**	Dec-25
Analysis Year:	2036	**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	58	/1000 ft2	72	63	9
Retail	822	19	/1000 ft2	76	46	30
Restaurant				0		
Cinema/Entertainment				0		
Residential				0		
Hotel				0		
All Other Land Uses[2]				0		
Total				148	109	39

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.00	12%	8%	1.00	12%	8%
Retail	1.00	12%	8%	1.00	12%	8%
Restaurant						
Cinema/Entertainment						
Residential	1.16	12%	8%	1.16	12%	8%
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		3	0	0	0	0
Retail	3		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	148	109	39
Internal Capture Percentage	8%	6%	15%
External Vehicle-Trips[3]	110	83	27
External Transit-Trips[4]	16	12	4
External Non-Motorized Trips[4]	10	8	2

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	5%	33%
Retail	7%	10%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	N/A	N/A
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	210156/210157
Analysis Period:	**AM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	63	63	1.00	9	9
Retail	1.00	46	46	1.00	30	30
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.16	0	0	1.16	0	0
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		3	6	0	0	0
Retail	9		4	0	4	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		15	0	0	0	0
Retail	3		0	0	0	0
Restaurant	9	4		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	8	0	0		0
Hotel	2	2	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	3	60	63	48	7	5
Retail	3	43	46	35	5	3
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	3	6	9	5	1	0
Retail	3	27	30	22	3	2
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	210156/210157	**Organization:**	PTSL
Project Location:	Trafalgar I/O Lands	**Performed By:**	AE
Scenario Description:	Block 7	**Date:**	Dec-25
Analysis Year:	2036	**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	58	/1000 ft2	69	12	57
Retail	822	19	/1000 ft2	122	61	61
Restaurant				0		
Cinema/Entertainment				0		
Residential				0		
Hotel				0		
All Other Land Uses[2]				0		
Total				191	73	118

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.13	12%	8%	1.13	12%	8%
Retail	1.13	12%	8%	1.13	12%	8%
Restaurant						
Cinema/Entertainment						
Residential	1.16	12%	8%	1.16	12%	8%
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		18	0	0	0	0
Retail	1		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	216	83	133
Internal Capture Percentage	18%	23%	14%
External Vehicle-Trips[3]	126	45	81
External Transit-Trips[4]	22	8	14
External Non-Motorized Trips[4]	14	5	9

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	7%	28%
Retail	26%	1%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	N/A	N/A
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	210156/210157
Analysis Period:	**PM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.13	12	14	1.13	57	64
Retail	1.13	61	69	1.13	61	69
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.16	0	0	1.16	0	0
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		18	40	0	1	0
Retail	20		9	0	10	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		22	0	0	0	0
Retail	1		0	0	0	0
Restaurant	2	6		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	12	0	0		0
Hotel	0	3	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	1	13	14	9	2	1
Retail	18	51	69	36	6	4
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	18	46	64	32	6	4
Retail	1	68	69	49	8	5
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	210156/210157	**Organization:**	PTSL
Project Location:	Trafalgar I/O Lands	**Performed By:**	AE
Scenario Description:	Block 8	**Date:**	Dec-25
Analysis Year:	2036	**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	42	/1000 ft2	52	46	6
Retail	822	14	/1000 ft2	55	33	22
Restaurant				0		
Cinema/Entertainment				0		
Residential				0		
Hotel				0		
All Other Land Uses[2]				0		
Total				107	79	28

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.00	12%	8%	1.00	12%	8%
Retail	1.00	12%	8%	1.00	12%	8%
Restaurant						
Cinema/Entertainment						
Residential	1.16	12%	8%	1.16	12%	8%
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		2	0	0	0	0
Retail	2		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	107	79	28
Internal Capture Percentage	7%	5%	14%
External Vehicle-Trips[3]	80	60	20
External Transit-Trips[4]	11	9	2
External Non-Motorized Trips[4]	8	6	2

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	4%	33%
Retail	6%	9%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	N/A	N/A
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	210156/210157
Analysis Period:	**AM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	46	46	1.00	6	6
Retail	1.00	33	33	1.00	22	22
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.16	0	0	1.16	0	0
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		2	4	0	0	0
Retail	6		3	0	3	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		11	0	0	0	0
Retail	2		0	0	0	0
Restaurant	6	3		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	6	0	0		0
Hotel	1	1	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	2	44	46	35	5	4
Retail	2	31	33	25	4	2
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	2	4	6	4	0	0
Retail	2	20	22	16	2	2
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	210156/210157	**Organization:**	PTSL
Project Location:	Trafalgar I/O Lands	**Performed By:**	AE
Scenario Description:	Block 8	**Date:**	Dec-25
Analysis Year:	2036	**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	42	/1000 ft2	50	8	42
Retail	822	14	/1000 ft2	88	44	44
Restaurant				0		
Cinema/Entertainment				0		
Residential				0		
Hotel				0		
All Other Land Uses[2]				0		
Total				138	52	86

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.13	12%	8%	1.13	12%	8%
Retail	1.13	12%	8%	1.13	12%	8%
Restaurant						
Cinema/Entertainment						
Residential	1.16	12%	8%	1.16	12%	8%
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		13	0	0	0	0
Retail	0		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	156	59	97
Internal Capture Percentage	17%	22%	13%
External Vehicle-Trips[3]	92	33	59
External Transit-Trips[4]	15	5	10
External Non-Motorized Trips[4]	11	4	7

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	0%	28%
Retail	26%	0%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	N/A	N/A
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	210156/210157
Analysis Period:	**PM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.13	8	9	1.13	42	47
Retail	1.13	44	50	1.13	44	50
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.16	0	0	1.16	0	0
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		13	30	0	0	0
Retail	15		7	0	7	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		16	0	0	0	0
Retail	0		0	0	0	0
Restaurant	1	4		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	9	0	0		0
Hotel	0	2	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	9	9	6	1	1
Retail	13	37	50	27	4	3
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	13	34	47	24	4	3
Retail	0	50	50	35	6	4
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	210156/210157	**Organization:**	PTSL
Project Location:	Trafalgar I/O Lands	**Performed By:**	AE
Scenario Description:	Block 11	**Date:**	Dec-25
Analysis Year:	2036	**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	25	/1000 ft2	30	26	4
Retail	822	8	/1000 ft2	32	19	13
Restaurant				0		
Cinema/Entertainment				0		
Residential	222	450	Dwelling Units	90	26	64
Hotel				0		
All Other Land Uses[2]				0		
Total				152	71	81

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.00	12%	8%	1.00	12%	8%
Retail	1.00	12%	8%	1.00	12%	8%
Restaurant						
Cinema/Entertainment						
Residential	1.16	12%	8%	1.16	12%	8%
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1	0	0	0	0
Retail	1		0	0	1	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	1	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	166	75	91
Internal Capture Percentage	6%	7%	5%
External Vehicle-Trips[3]	115	54	61
External Transit-Trips[4]	18	8	10
External Non-Motorized Trips[4]	12	5	7

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	8%	25%
Retail	11%	15%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	3%	3%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	210156/210157
Analysis Period:	**AM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	26	26	1.00	4	4
Retail	1.00	19	19	1.00	13	13
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.16	26	30	1.16	64	74
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1	3	0	0	0
Retail	4		2	0	2	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	1	15	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		6	0	0	0	0
Retail	1		0	0	1	0
Restaurant	4	2		0	2	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	3	0	0		0
Hotel	1	1	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	2	24	26	19	3	2
Retail	2	17	19	14	2	1
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	29	30	21	3	2
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	1	3	4	3	0	0
Retail	2	11	13	9	1	1
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	2	72	74	49	9	6
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	210156/210157	**Organization:**	PTSL
Project Location:	Trafalgar I/O Lands	**Performed By:**	AE
Scenario Description:	Block 11	**Date:**	Dec-25
Analysis Year:	2036	**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	25	/1000 ft2	29	5	24
Retail	822	8	/1000 ft2	51	25	26
Restaurant				0		
Cinema/Entertainment				0		
Residential	222	450	Dwelling Units	117	71	46
Hotel				0		
All Other Land Uses[2]				0		
Total				197	101	96

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.00	12%	8%	1.00	12%	8%
Retail	1.00	12%	8%	1.00	12%	8%
Restaurant						
Cinema/Entertainment						
Residential	1.16	12%	8%	1.16	12%	8%
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		7	0	0	0	0
Retail	0		0	0	2	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	1	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	215	112	103
Internal Capture Percentage	9%	9%	10%
External Vehicle-Trips[3]	142	73	69
External Transit-Trips[4]	24	13	11
External Non-Motorized Trips[4]	14	7	7

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	0%	29%
Retail	32%	8%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	2%	2%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	210156/210157
Analysis Period:	**PM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	5	5	1.00	24	24
Retail	1.00	25	25	1.00	26	26
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.16	71	82	1.16	46	53
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		7	15	0	0	0
Retail	8		3	0	4	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	1	11	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		8	0	0	0	0
Retail	0		0	0	2	0
Restaurant	1	2		0	4	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	4	0	0		0
Hotel	0	1	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	5	5	4	1	0
Retail	8	17	25	14	2	1
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	2	80	82	55	10	6
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	7	17	24	14	2	1
Retail	2	24	26	19	3	2
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	52	53	36	6	4
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	210156/210157	**Organization:**	PTSL
Project Location:	Trafalgar I/O Lands	**Performed By:**	AE
Scenario Description:	Block 12	**Date:**	Dec-25
Analysis Year:	2036	**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	42	/1000 ft2	52	46	6
Retail	822	14	/1000 ft2	55	33	22
Restaurant				0		
Cinema/Entertainment				0		
Residential	222	780	Dwelling Units	156	45	111
Hotel				0		
All Other Land Uses[2]				0		
Total				263	124	139

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.00	12%	8%	1.00	12%	8%
Retail	1.00	12%	8%	1.00	12%	8%
Restaurant						
Cinema/Entertainment						
Residential	1.16	12%	8%	1.16	12%	8%
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		2	0	0	0	0
Retail	2		0	0	1	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	1	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	288	131	157
Internal Capture Percentage	5%	5%	4%
External Vehicle-Trips[3]	201	94	107
External Transit-Trips[4]	32	15	17
External Non-Motorized Trips[4]	21	9	12

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	7%	33%
Retail	9%	14%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	2%	2%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	210156/210157
Analysis Period:	**AM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	46	46	1.00	6	6
Retail	1.00	33	33	1.00	22	22
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.16	45	52	1.16	111	129
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		2	4	0	0	0
Retail	6		3	0	3	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	3	1	26	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		11	0	0	0	0
Retail	2		0	0	1	0
Restaurant	6	3		0	3	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	6	0	0		0
Hotel	1	1	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	3	43	46	35	5	3
Retail	3	30	33	24	4	2
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	51	52	35	6	4
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	2	4	6	4	0	0
Retail	3	19	22	15	2	2
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	2	127	129	88	15	10
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	210156/210157	**Organization:**	PTSL
Project Location:	Trafalgar I/O Lands	**Performed By:**	AE
Scenario Description:	Block 12	**Date:**	Dec-25
Analysis Year:	2036	**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	42	/1000 ft2	50	8	42
Retail	822	14	/1000 ft2	88	44	44
Restaurant				0		
Cinema/Entertainment				0		
Residential	222	780	Dwelling Units	203	124	79
Hotel				0		
All Other Land Uses[2]				0		
Total				341	176	165

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.00	12%	8%	1.00	12%	8%
Retail	1.00	12%	8%	1.00	12%	8%
Restaurant						
Cinema/Entertainment						
Residential	1.16	12%	8%	1.16	12%	8%
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		12	0	0	0	0
Retail	0		0	0	3	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	1	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	374	196	178
Internal Capture Percentage	9%	8%	9%
External Vehicle-Trips[3]	248	128	120
External Transit-Trips[4]	42	22	20
External Non-Motorized Trips[4]	26	14	12

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	0%	29%
Retail	30%	7%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	2%	1%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	210156/210157
Analysis Period:	**PM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	8	8	1.00	42	42
Retail	1.00	44	44	1.00	44	44
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.16	124	144	1.16	79	92
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		12	26	0	0	0
Retail	13		6	0	6	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	1	18	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		14	0	0	0	0
Retail	0		0	0	3	0
Restaurant	1	4		0	7	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	7	0	0		0
Hotel	0	2	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	8	8	6	1	1
Retail	13	31	44	25	4	2
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	3	141	144	97	17	11
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	12	30	42	24	4	2
Retail	3	41	44	33	5	3
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	91	92	63	11	7
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	210156/210157	**Organization:**	PTSL
Project Location:	Trafalgar I/O Lands	**Performed By:**	AE
Scenario Description:	Block 13	**Date:**	Dec-25
Analysis Year:	2036	**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	13	/1000 ft2	16	14	2
Retail	822	4	/1000 ft2	17	10	7
Restaurant				0		
Cinema/Entertainment				0		
Residential	222	1,140	Dwelling Units	228	66	162
Hotel				0		
All Other Land Uses[2]				0		
Total				261	90	171

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.00	12%	8%	1.00	12%	8%
Retail	1.00	12%	8%	1.00	12%	8%
Restaurant						
Cinema/Entertainment						
Residential	1.16	12%	8%	1.16	12%	8%
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1	0	0	0	0
Retail	1		0	0	1	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	2	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	298	101	197
Internal Capture Percentage	3%	5%	3%
External Vehicle-Trips[3]	201	68	133
External Transit-Trips[4]	35	12	23
External Non-Motorized Trips[4]	23	8	15

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	7%	50%
Retail	30%	29%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	1%	1%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	210156/210157
Analysis Period:	**AM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	14	14	1.00	2	2
Retail	1.00	10	10	1.00	7	7
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.16	66	77	1.16	162	188
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1	1	0	0	0
Retail	2		1	0	1	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	4	2	38	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		3	0	0	0	0
Retail	1		0	0	2	0
Restaurant	2	1		0	4	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	2	0	0		0
Hotel	0	0	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	1	13	14	10	2	1
Retail	3	7	10	5	1	1
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	76	77	53	9	6
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	1	1	2	1	0	0
Retail	2	5	7	4	1	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	2	186	188	128	22	15
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	210156/210157	**Organization:**	PTSL
Project Location:	Trafalgar I/O Lands	**Performed By:**	AE
Scenario Description:	Block 13	**Date:**	Dec-25
Analysis Year:	2036	**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	13	/1000 ft2	15	3	12
Retail	822	4	/1000 ft2	27	13	14
Restaurant				0		
Cinema/Entertainment				0		
Residential	222	1,140	Dwelling Units	296	181	115
Hotel				0		
All Other Land Uses[2]				0		
Total				338	197	141

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.00	12%	8%	1.00	12%	8%
Retail	1.00	12%	8%	1.00	12%	8%
Restaurant						
Cinema/Entertainment						
Residential	1.16	12%	8%	1.16	12%	8%
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		3	0	0	0	0
Retail	0		0	0	2	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	1	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	385	226	159
Internal Capture Percentage	3%	3%	4%
External Vehicle-Trips[3]	261	153	108
External Transit-Trips[4]	44	26	18
External Non-Motorized Trips[4]	31	18	13

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	0%	25%
Retail	31%	14%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	1%	1%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	210156/210157
Analysis Period:	**PM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	3	3	1.00	12	12
Retail	1.00	13	13	1.00	14	14
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.16	181	210	1.16	115	133
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		3	8	0	0	0
Retail	4		2	0	2	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	3	1	27	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		4	0	0	0	0
Retail	0		0	0	4	0
Restaurant	0	1		0	11	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	2	0	0		0
Hotel	0	1	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	3	3	3	0	0
Retail	4	9	13	7	1	1
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	2	208	210	143	25	17
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	3	9	12	7	1	1
Retail	2	12	14	10	1	1
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	132	133	91	16	11
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

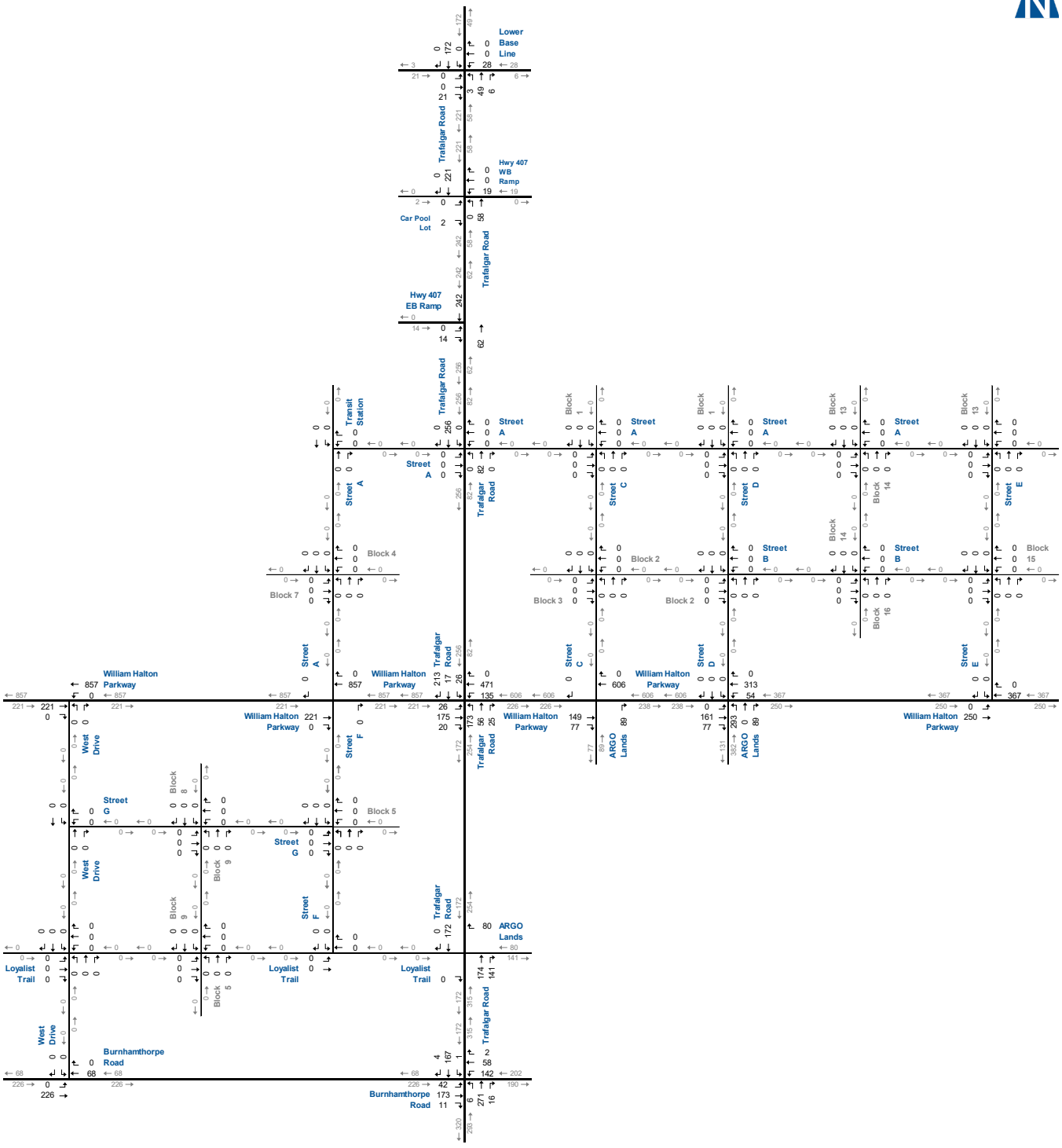
[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

Appendix E

Background Developments Traffic Volumes

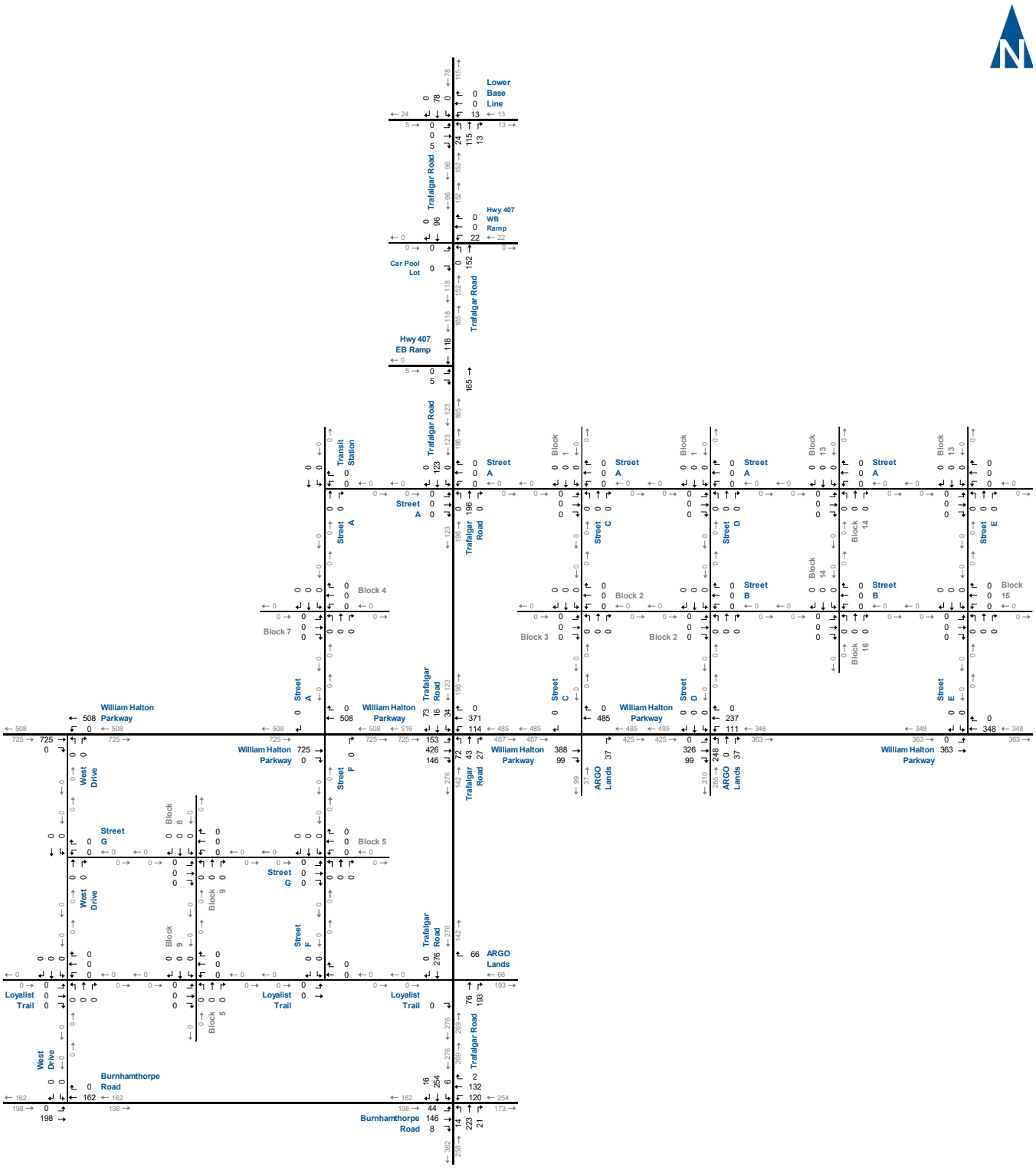




Background Developments
Traffic Volumes
AM Peak Hour

IO Trafalgar & 407 Oakville, ON TIS
210156/210157

Figure 1



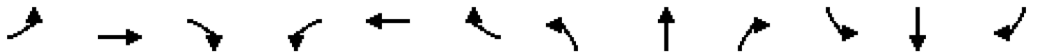
Background Developments
Traffic Volumes
PM Peak Hour

IO Trafalgar & 407 Oakville, ON TIS
210156/210157

Figure 2

Appendix F1

2031 Background Operation Synchro Reports

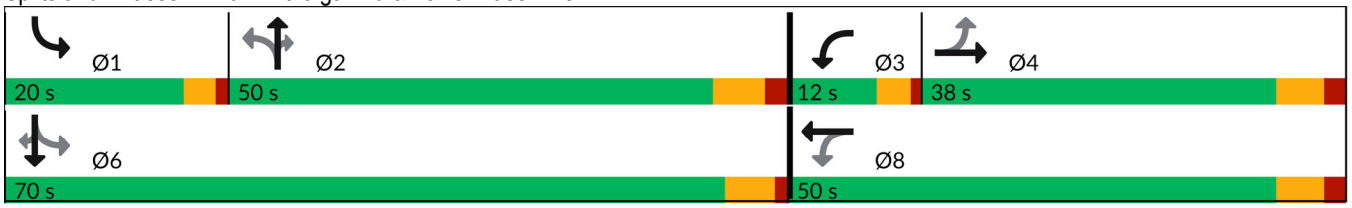


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	273	82	237	93	120	29	1016	187	285	1300	54
Future Volume (vph)	95	273	82	237	93	120	29	1016	187	285	1300	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		90.0	90.0		90.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.962			0.912				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1814	0	1736	1666	0	1597	4848	1568	1752	4988	1553
Flt Permitted	0.593			0.112			0.157			0.111		
Satd. Flow (perm)	1083	1814	0	205	1666	0	264	4848	1568	205	4988	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			67				210			76
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			728.7			434.3	
Travel Time (s)		38.5			41.4			32.8			19.5	
Peak Hour Factor	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Adj. Flow (vph)	113	355	121	325	112	158	40	1239	210	324	1529	76
Shared Lane Traffic (%)												
Lane Group Flow (vph)	113	476	0	325	270	0	40	1239	210	324	1529	76
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		25.0	25.0	25.0	7.0	25.0	25.0
Minimum Split (s)	22.5	22.5		11.5	22.5		31.6	31.6	31.6	11.5	30.6	30.6
Total Split (s)	38.0	38.0		12.0	50.0		50.0	50.0	50.0	20.0	70.0	70.0
Total Split (%)	31.7%	31.7%		10.0%	41.7%		41.7%	41.7%	41.7%	16.7%	58.3%	58.3%
Maximum Green (s)	31.8	31.8		8.0	43.8		43.4	43.4	43.4	16.0	64.4	64.4
Yellow Time (s)	4.2	4.2		3.0	4.2		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	Max
Act Effct Green (s)	31.8	31.8		46.0	43.8		43.4	43.4	43.4	66.0	64.4	64.4
Actuated g/C Ratio	0.27	0.27		0.38	0.37		0.36	0.36	0.36	0.55	0.54	0.54
v/c Ratio	0.40	0.97		1.81	0.42		0.42	0.71	0.30	1.02	0.57	0.09
Control Delay (s/veh)	41.2	76.6		406.5	23.3		45.3	35.5	4.7	83.7	19.6	3.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	41.2	76.6		406.5	23.3		45.3	35.5	4.7	83.7	19.6	3.2
LOS	D	E		F	C		D	D	A	F	B	A
Approach Delay (s/veh)		69.8			232.6			31.4			29.7	
Approach LOS		E			F			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.81			
Intersection Signal Delay (s/veh): 61.7		Intersection LOS: E	
Intersection Capacity Utilization 97.1%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line



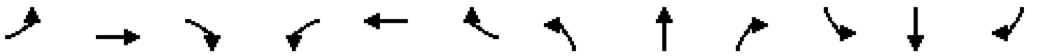


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	113	476	325	270	40	1239	210	324	1529	76
v/c Ratio	0.40	0.97	1.81	0.42	0.42	0.71	0.30	1.02	0.57	0.09
Control Delay (s/veh)	41.2	76.6	406.5	23.3	45.3	35.5	4.7	83.7	19.6	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	41.2	76.6	406.5	23.3	45.3	35.5	4.7	83.7	19.6	3.2
Queue Length 50th (m)	23.0	114.2	~105.0	36.8	7.4	95.6	0.0	~60.3	89.0	0.0
Queue Length 95th (m)	38.4	#138.1	#121.3	54.0	14.9	99.5	15.5	#116.7	95.0	3.9
Internal Link Dist (m)		725.3		666.6		704.7			410.3	
Turn Bay Length (m)	45.0		110.0		90.0		90.0	90.0		90.0
Base Capacity (vph)	286	491	180	650	95	1753	701	319	2676	868
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	0.40	0.97	1.81	0.42	0.42	0.71	0.30	1.02	0.57	0.09

Intersection Summary

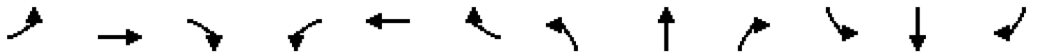
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	273	82	237	93	120	29	1016	187	285	1300	54
Future Volume (vph)	95	273	82	237	93	120	29	1016	187	285	1300	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	1814		1736	1667		1597	4848	1568	1752	4988	1553
Flt Permitted	0.59	1.00		0.11	1.00		0.16	1.00	1.00	0.11	1.00	1.00
Satd. Flow (perm)	1084	1814		204	1667		264	4848	1568	205	4988	1553
Peak-hour factor, PHF	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Adj. Flow (vph)	113	355	121	325	112	158	40	1239	210	324	1529	76
RTOR Reduction (vph)	0	10	0	0	43	0	0	0	134	0	0	35
Lane Group Flow (vph)	113	466	0	325	227	0	40	1239	76	324	1529	41
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	31.8	31.8		43.8	43.8		43.4	43.4	43.4	64.4	64.4	64.4
Effective Green, g (s)	31.8	31.8		43.8	43.8		43.4	43.4	43.4	64.4	64.4	64.4
Actuated g/C Ratio	0.27	0.27		0.37	0.37		0.36	0.36	0.36	0.54	0.54	0.54
Clearance Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Lane Grp Cap (vph)	287	480		176	608		95	1753	567	316	2676	833
v/s Ratio Prot		0.26		c0.12	0.14			0.26		c0.14	0.31	
v/s Ratio Perm	0.10			c0.55			0.15		0.05	c0.41		0.03
v/c Ratio	0.39	0.97		1.85	0.37		0.42	0.71	0.13	1.03	0.57	0.05
Uniform Delay, d1	36.2	43.6		32.7	28.0		28.8	32.8	25.7	32.1	18.6	13.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.9	33.7		402.1	0.8		13.1	2.4	0.5	57.3	0.9	0.1
Delay (s)	38.1	77.3		434.8	28.8		42.0	35.3	26.2	89.3	19.5	13.3
Level of Service	D	E		F	C		D	D	C	F	B	B
Approach Delay (s/veh)		69.8			250.6			34.2			31.0	
Approach LOS		E			F			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	65.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.44		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	97.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

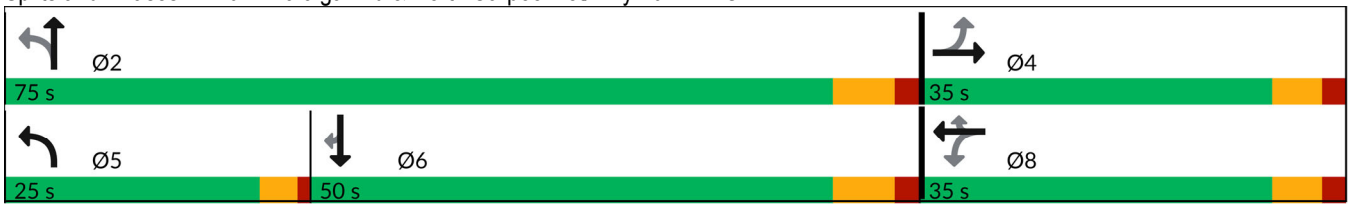


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	9	178	2	6	7	1224	0	0	1617	2
Future Volume (vph)	3	0	9	178	2	6	7	1224	0	0	1617	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.893			0.999	0.850						0.850
Flt Protected		0.990		0.950	0.954		0.950					
Satd. Flow (prot)	0	1481	0	1545	1468	1534	1543	4893	0	0	4988	1615
Flt Permitted		0.929		0.732	0.707		0.080					
Satd. Flow (perm)	0	1390	0	1190	1088	1534	130	4893	0	0	4988	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		79				79						69
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			728.7	
Travel Time (s)		9.6			41.3			26.2			52.5	
Peak Hour Factor	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Adj. Flow (vph)	8	0	30	231	4	14	23	1330	0	0	1859	8
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	0	38	0	118	118	13	23	1330	0	0	1859	8
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	4.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	27.0			27.0	27.0
Total Split (s)	35.0	35.0		35.0	35.0	35.0	25.0	75.0			50.0	50.0
Total Split (%)	31.8%	31.8%		31.8%	31.8%	31.8%	22.7%	68.2%			45.5%	45.5%
Maximum Green (s)	29.0	29.0		29.0	29.0	29.0	21.0	68.0			43.0	43.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0			2.0	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	4.0	7.0			7.0	7.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	None	Max			Max	Max
Act Effct Green (s)		16.2		16.2	16.2	16.2	71.2	68.2			64.4	64.4
Actuated g/C Ratio		0.17		0.17	0.17	0.17	0.73	0.70			0.66	0.66
v/c Ratio		0.13		0.60	0.66	0.04	0.13	0.39			0.56	0.01
Control Delay (s/veh)		1.7		50.2	55.1	0.2	6.4	6.9			11.4	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		1.7		50.2	55.1	0.2	6.4	6.9			11.4	0.0
LOS		A		D	E	A	A	A			B	A
Approach Delay (s/veh)		1.7			49.9			6.9			11.4	
Approach LOS		A			D			A			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 97.4			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay (s/veh): 12.3		Intersection LOS: B	
Intersection Capacity Utilization 53.8%		ICU Level of Service A	
Analysis Period (min) 15			

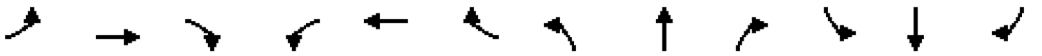
Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off





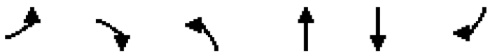
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	38	118	118	13	23	1330	1859	8
v/c Ratio	0.13	0.60	0.66	0.04	0.13	0.39	0.56	0.01
Control Delay (s/veh)	1.7	50.2	55.1	0.2	6.4	6.9	11.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	1.7	50.2	55.1	0.2	6.4	6.9	11.4	0.0
Queue Length 50th (m)	0.0	22.9	24.2	0.0	1.1	34.3	55.7	0.0
Queue Length 95th (m)	0.0	35.0	22.6	0.0	1.4	56.1	111.6	0.0
Internal Link Dist (m)	110.0		550.1			339.6	704.7	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	470	355	324	513	400	3425	3299	1091
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	0.33	0.36	0.03	0.06	0.39	0.56	0.01

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	9	178	2	6	7	1224	0	0	1617	2
Future Volume (vph)	3	0	9	178	2	6	7	1224	0	0	1617	2
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	4.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.91			0.91	1.00
Frt		0.89		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1481		1545	1468	1534	1543	4893			4988	1615
Flt Permitted		0.93		0.73	0.71	1.00	0.08	1.00			1.00	1.00
Satd. Flow (perm)		1390		1191	1088	1534	130	4893			4988	1615
Peak-hour factor, PHF	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Adj. Flow (vph)	8	0	30	231	4	14	23	1330	0	0	1859	8
RTOR Reduction (vph)	0	32	0	0	0	11	0	0	0	0	0	3
Lane Group Flow (vph)	0	6	0	118	118	2	23	1330	0	0	1859	5
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		16.2		16.2	16.2	16.2	70.7	70.7			64.4	64.4
Effective Green, g (s)		16.2		16.2	16.2	16.2	70.7	70.7			64.4	64.4
Actuated g/C Ratio		0.16		0.16	0.16	0.16	0.71	0.71			0.64	0.64
Clearance Time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Lane Grp Cap (vph)		225		193	176	248	124	3462			3215	1041
v/s Ratio Prot							0.00	c0.27			c0.37	
v/s Ratio Perm		0.00		0.10	c0.11	0.00	0.13					0.00
v/c Ratio		0.03		0.61	0.67	0.01	0.19	0.38			0.58	0.00
Uniform Delay, d1		35.2		38.9	39.3	35.1	6.3	5.9			10.1	6.3
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2		0.1		5.9	10.0	0.0	0.5	0.3			0.8	0.0
Delay (s)		35.3		44.8	49.3	35.1	6.8	6.2			10.8	6.3
Level of Service		D		D	D	D	A	A			B	A
Approach Delay (s/veh)		35.3			46.5			6.2			10.8	
Approach LOS		D			D			A			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	99.9	Sum of lost time (s)	17.0
Intersection Capacity Utilization	53.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

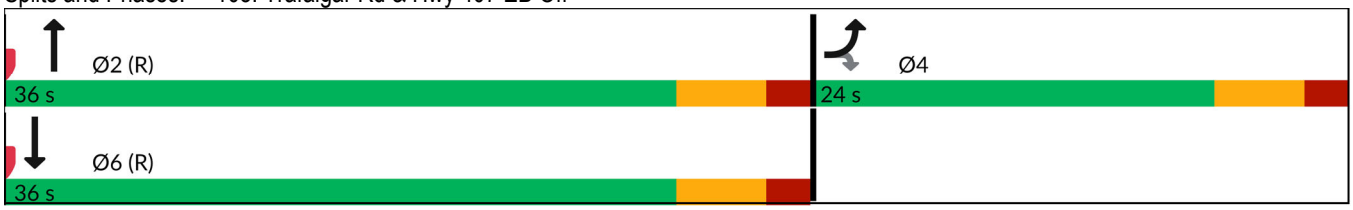


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	68	123	0	1292	1715	0
Future Volume (vph)	68	123	0	1292	1715	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1671	1392	0	4848	4940	0
Flt Permitted	0.950					
Satd. Flow (perm)	1671	1392	0	4848	4940	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		4				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			120.3	363.6	
Travel Time (s)	39.9			8.7	26.2	
Peak Hour Factor	0.79	0.78	0.25	0.85	0.86	0.25
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Adj. Flow (vph)	86	158	0	1520	1994	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	86	158	0	1520	1994	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	24.0	24.0		24.0	24.0	
Total Split (s)	24.0	24.0		36.0	36.0	
Total Split (%)	40.0%	40.0%		60.0%	60.0%	
Maximum Green (s)	18.0	18.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	18.0	18.0		30.0	30.0	
Actuated g/C Ratio	0.30	0.30		0.50	0.50	
v/c Ratio	0.17	0.38		0.63	0.81	
Control Delay (s/veh)	16.7	19.4		12.4	15.9	
Queue Delay	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay (s/veh)	16.7	19.4		12.4	15.9	
LOS	B	B		B	B	
Approach Delay (s/veh)	18.4			12.4	15.9	
Approach LOS	B			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Pretimed			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay (s/veh): 14.6		Intersection LOS: B	
Intersection Capacity Utilization 50.8%		ICU Level of Service A	
Analysis Period (min) 15			

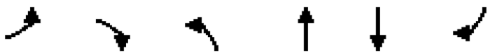
Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off





Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	86	158	1520	1994
v/c Ratio	0.17	0.38	0.63	0.81
Control Delay (s/veh)	16.7	19.4	12.4	15.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.7	19.4	12.4	15.9
Queue Length 50th (m)	7.3	13.9	43.3	65.4
Queue Length 95th (m)	14.3	23.7	51.8	77.7
Internal Link Dist (m)	530.6		96.3	339.6
Turn Bay Length (m)				
Base Capacity (vph)	501	420	2424	2470
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	0.17	0.38	0.63	0.81

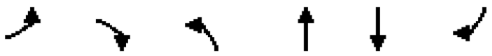
Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	68	123	0	1292	1715	0
Future Volume (vph)	68	123	0	1292	1715	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1671	1392		4848	4940	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1671	1392		4848	4940	
Peak-hour factor, PHF	0.79	0.78	0.25	0.85	0.86	0.25
Adj. Flow (vph)	86	158	0	1520	1994	0
RTOR Reduction (vph)	0	3	0	0	0	0
Lane Group Flow (vph)	86	155	0	1520	1994	0
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	18.0	18.0		30.0	30.0	
Effective Green, g (s)	18.0	18.0		30.0	30.0	
Actuated g/C Ratio	0.30	0.30		0.50	0.50	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	501	417		2424	2470	
v/s Ratio Prot	0.05			0.31	c0.40	
v/s Ratio Perm		c0.11				
v/c Ratio	0.17	0.37		0.63	0.81	
Uniform Delay, d1	15.5	16.5		10.9	12.6	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	2.5		1.2	3.0	
Delay (s)	16.2	19.1		12.2	15.5	
Level of Service	B	B		B	B	
Approach Delay (s/veh)	18.1			12.2	15.5	
Approach LOS	B			B	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



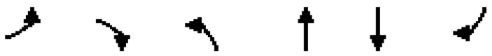
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	59	68	79	1608	1773	65
Future Volume (vph)	59	68	79	1608	1773	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	50.0			30.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5		100.0			
Lane Util. Factor	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)	1337	1404	1570	4940	4940	1615
Flt Permitted	0.950		0.102			
Satd. Flow (perm)	1337	1404	169	4940	4940	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		8				58
Link Speed (k/h)	50			80	80	
Link Distance (m)	107.1			233.3	131.6	
Travel Time (s)	7.7			10.5	5.9	
Peak Hour Factor	0.87	0.83	0.88	0.91	0.89	0.85
Heavy Vehicles (%)	35%	15%	15%	5%	5%	0%
Adj. Flow (vph)	68	82	90	1767	1992	76
Shared Lane Traffic (%)						
Lane Group Flow (vph)	68	82	90	1767	1992	76
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Minimum Split (s)	24.0	24.0	24.9	24.9	24.9	24.9
Total Split (s)	24.0	24.0	46.0	46.0	46.0	46.0
Total Split (%)	34.3%	34.3%	65.7%	65.7%	65.7%	65.7%
Maximum Green (s)	18.0	18.0	39.1	39.1	39.1	39.1
Yellow Time (s)	4.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.9	6.9	6.9	6.9
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Don't Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	18.0	18.0	39.1	39.1	39.1	39.1
Actuated g/C Ratio	0.26	0.26	0.56	0.56	0.56	0.56

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
v/c Ratio	0.20	0.22	0.96	0.64	0.72	0.08
Control Delay (s/veh)	22.3	20.8	107.7	12.0	13.3	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.3	20.8	107.7	12.0	13.3	3.3
LOS	C	C	F	B	B	A
Approach Delay (s/veh)	21.5			16.6	13.0	
Approach LOS	C			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 100			
Control Type: Pretimed			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay (s/veh): 14.9		Intersection LOS: B	
Intersection Capacity Utilization 59.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Trafalgar Rd & South Carpool Lot

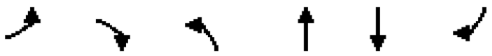




Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	68	82	90	1767	1992	76
v/c Ratio	0.20	0.22	0.96	0.64	0.72	0.08
Control Delay (s/veh)	22.3	20.8	107.7	12.0	13.3	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.3	20.8	107.7	12.0	13.3	3.3
Queue Length 50th (m)	7.3	8.0	10.7	55.8	67.6	1.0
Queue Length 95th (m)	16.5	17.1	#25.9	70.2	83.2	5.5
Internal Link Dist (m)	83.1			209.3	107.6	
Turn Bay Length (m)			50.0			30.0
Base Capacity (vph)	343	366	94	2759	2759	927
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	0.20	0.22	0.96	0.64	0.72	0.08

Intersection Summary

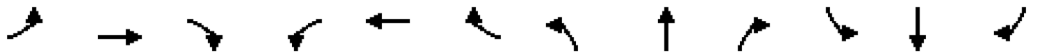
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	59	68	79	1608	1773	65
Future Volume (vph)	59	68	79	1608	1773	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.9	6.9	6.9	6.9
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)	1337	1404	1570	4940	4940	1615
Flt Permitted	0.95	1.00	0.10	1.00	1.00	1.00
Satd. Flow (perm)	1337	1404	169	4940	4940	1615
Peak-hour factor, PHF	0.87	0.83	0.88	0.91	0.89	0.85
Adj. Flow (vph)	68	82	90	1767	1992	76
RTOR Reduction (vph)	0	6	0	0	0	26
Lane Group Flow (vph)	68	76	90	1767	1992	50
Heavy Vehicles (%)	35%	15%	15%	5%	5%	0%
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	18.0	18.0	39.1	39.1	39.1	39.1
Effective Green, g (s)	18.0	18.0	39.1	39.1	39.1	39.1
Actuated g/C Ratio	0.26	0.26	0.56	0.56	0.56	0.56
Clearance Time (s)	6.0	6.0	6.9	6.9	6.9	6.9
Lane Grp Cap (vph)	343	361	94	2759	2759	902
v/s Ratio Prot	0.05			0.36	0.40	
v/s Ratio Perm		c0.05	c0.53			0.03
v/c Ratio	0.20	0.21	0.96	0.64	0.72	0.06
Uniform Delay, d1	20.4	20.4	14.7	10.6	11.4	7.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	1.3	81.8	1.2	1.7	0.1
Delay (s)	21.6	21.7	96.4	11.8	13.1	7.2
Level of Service	C	C	F	B	B	A
Approach Delay (s/veh)	21.7			15.9	12.9	
Approach LOS	C			B	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

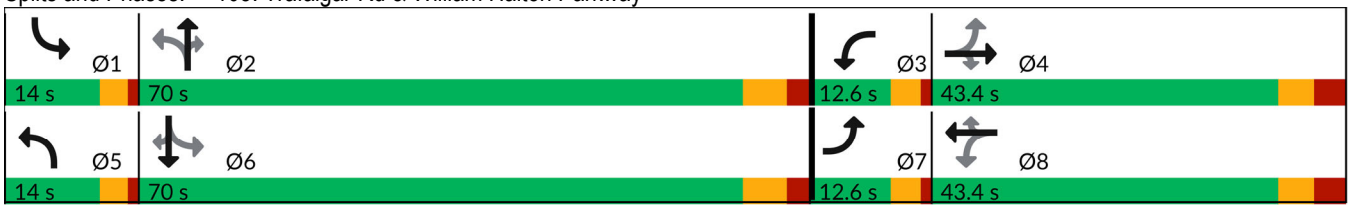


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	772	202	165	660	233	251	1251	55	357	1158	326
Future Volume (vph)	203	772	202	165	660	233	251	1251	55	357	1158	326
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	0.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			7.5		
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)	1787	3574	1599	1687	3574	1429	1703	4988	1615	1770	4893	1538
Flt Permitted	0.110			0.110			0.138			0.115		
Satd. Flow (perm)	207	3574	1599	195	3574	1429	247	4988	1615	214	4893	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			156			150			94			191
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		1215.0			1493.7			285.3			233.3	
Travel Time (s)		87.5			107.5			20.5			16.8	
Peak Hour Factor	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
Adj. Flow (vph)	239	848	243	220	846	311	292	1390	65	435	1287	379
Shared Lane Traffic (%)												
Lane Group Flow (vph)	239	848	243	220	846	311	292	1390	65	435	1287	379
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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)	11.5	38.0	38.0	11.5	38.0	38.0	11.5	42.9	42.9	11.5	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	-2.9	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	4.0	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	Max	Max	None	Max	Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't 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)	48.0	36.4	36.4	48.0	36.4	36.4	76.0	63.1	66.0	76.0	63.1	63.1
Actuated g/C Ratio	0.34	0.26	0.26	0.34	0.26	0.26	0.54	0.45	0.47	0.54	0.45	0.45
v/c Ratio	1.42	0.91	0.46	1.39	0.91	0.65	1.23	0.62	0.08	1.92	0.58	0.47
Control Delay (s/veh)	249.9	65.1	18.5	239.6	64.9	30.1	154.9	30.8	1.6	449.1	30.0	14.7
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 (s/veh)	249.9	65.1	18.5	239.6	64.9	30.1	154.9	30.8	1.6	449.1	30.0	14.7
LOS	F	E	B	F	E	C	F	C	A	F	C	B
Approach Delay (s/veh)		89.8			84.9			50.4			114.0	
Approach LOS		F			F			D			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Natural Cycle: 125			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.92			
Intersection Signal Delay (s/veh): 86.0		Intersection LOS: F	
Intersection Capacity Utilization 92.7%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway



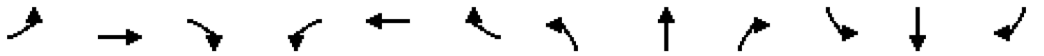


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	239	848	243	220	846	311	292	1390	65	435	1287	379
v/c Ratio	1.42	0.91	0.46	1.39	0.91	0.65	1.23	0.62	0.08	1.92	0.58	0.47
Control Delay (s/veh)	249.9	65.1	18.5	239.6	64.9	30.1	154.9	30.8	1.6	449.1	30.0	14.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	249.9	65.1	18.5	239.6	64.9	30.1	154.9	30.8	1.6	449.1	30.0	14.7
Queue Length 50th (m)	~76.2	127.0	20.0	~68.6	126.6	42.2	~68.8	111.2	0.0	~164.8	100.8	36.0
Queue Length 95th (m)	#121.6	#164.6	38.9	#91.9	127.1	52.8	#119.1	127.5	2.6	#204.0	116.3	58.3
Internal Link Dist (m)		1191.0			1469.7			261.3			209.3	
Turn Bay Length (m)	100.0		100.0	100.0		150.0	150.0		75.0			
Base Capacity (vph)	168	929	531	158	929	482	238	2248	811	227	2205	798
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	1.42	0.91	0.46	1.39	0.91	0.65	1.23	0.62	0.08	1.92	0.58	0.47

Intersection Summary

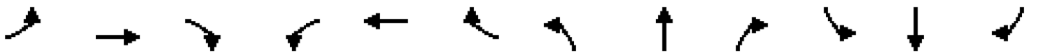
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	772	202	165	660	233	251	1251	55	357	1158	326
Future Volume (vph)	203	772	202	165	660	233	251	1251	55	357	1158	326
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	4.0	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)	1787	3574	1599	1687	3574	1429	1703	4988	1615	1770	4893	1538
Flt Permitted	0.11	1.00	1.00	0.11	1.00	1.00	0.14	1.00	1.00	0.11	1.00	1.00
Satd. Flow (perm)	207	3574	1599	195	3574	1429	246	4988	1615	213	4893	1538
Peak-hour factor, PHF	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Adj. Flow (vph)	239	848	243	220	846	311	292	1390	65	435	1287	379
RTOR Reduction (vph)	0	0	115	0	0	111	0	0	34	0	0	105
Lane Group Flow (vph)	239	848	128	220	846	200	292	1390	31	435	1287	274
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
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)	45.0	36.4	36.4	45.0	36.4	36.4	73.1	63.1	63.1	73.1	63.1	63.1
Effective Green, g (s)	45.0	36.4	36.4	45.0	36.4	36.4	73.1	63.1	66.0	73.1	63.1	63.1
Actuated g/C Ratio	0.32	0.26	0.26	0.32	0.26	0.26	0.52	0.45	0.47	0.52	0.45	0.45
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)	163	929	415	154	929	371	232	2248	761	222	2205	693
v/s Ratio Prot	c0.09	0.24		0.09	0.24		0.09	0.28		c0.14	0.26	
v/s Ratio Perm	c0.38		0.08	0.37		0.14	0.56		0.02	c0.88		0.18
v/c Ratio	1.47	0.91	0.31	1.43	0.91	0.54	1.26	0.62	0.04	1.96	0.58	0.40
Uniform Delay, d1	41.0	50.3	41.7	41.1	50.2	44.6	24.1	29.3	19.9	25.3	28.7	25.7
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	240.2	13.7	0.9	226.1	13.5	2.7	146.4	1.3	0.1	447.7	1.1	1.7
Delay (s)	281.2	63.9	42.5	267.2	63.7	47.3	170.5	30.6	20.0	473.0	29.8	27.4
Level of Service	F	E	D	F	E	D	F	C	C	F	C	C
Approach Delay (s/veh)		99.1			92.5			53.6			121.1	
Approach LOS		F			F			D			F	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	92.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.77		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.9
Intersection Capacity Utilization	92.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

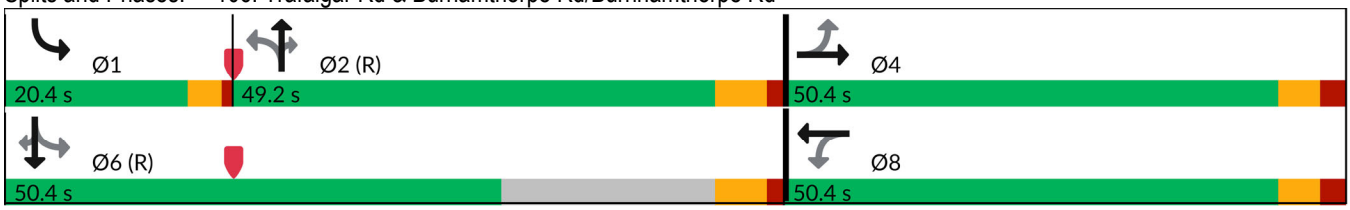


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	196	312	121	199	110	26	59	1396	105	45	1435	46
Future Volume (vph)	196	312	121	199	110	26	59	1396	105	45	1435	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		60.0	60.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	70.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.958			0.957				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1805	0	1770	1818	0	1703	4988	1615	1752	4940	1495
Flt Permitted	0.549			0.179			0.155			0.085		
Satd. Flow (perm)	1013	1805	0	333	1818	0	278	4988	1615	157	4940	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			19				90			55
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		828.7			989.6			1077.8			170.3	
Travel Time (s)		49.7			59.4			48.5			7.7	
Peak Hour Factor	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
Adj. Flow (vph)	233	395	153	326	162	65	86	1517	122	69	1543	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	233	548	0	326	227	0	86	1517	122	69	1543	55
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Minimum Split (s)	24.0	24.0		24.0	24.0		26.0	26.0	26.0	11.5	26.0	26.0
Total Split (s)	50.4	50.4		50.4	50.4		49.2	49.2	49.2	20.4	50.4	50.4
Total Split (%)	42.0%	42.0%		42.0%	42.0%		41.0%	41.0%	41.0%	17.0%	42.0%	42.0%
Maximum Green (s)	44.4	44.4		44.4	44.4		43.2	43.2	43.2	16.4	44.4	44.4
Yellow Time (s)	3.7	3.7		3.7	3.7		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.3	2.3		2.3	2.3		1.4	1.4	1.4	1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Act Effct Green (s)	44.4	44.4		44.4	44.4		43.2	43.2	45.2	65.6	63.6	65.6
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.36	0.36	0.38	0.55	0.53	0.55
v/c Ratio	0.62	0.81		2.65	0.33		0.86	0.85	0.18	0.23	0.59	0.07
Control Delay (s/veh)	39.7	43.5		785.0	26.4		97.2	40.7	8.9	14.8	20.4	3.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (s/veh)	39.7	43.5		785.0	26.4		97.2	40.7	8.9	14.8	20.4	3.5
LOS	D	D		F	C		F	D	A	B	C	A
Approach Delay (s/veh)		42.4			473.6			41.3			19.6	
Approach LOS		D			F			D			B	

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: Pretimed			
Maximum v/c Ratio: 2.65			
Intersection Signal Delay (s/veh): 84.4		Intersection LOS: F	
Intersection Capacity Utilization 98.8%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burhamthorpe Rd/Burnhamthorpe Rd



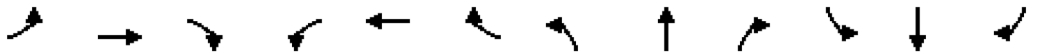


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	233	548	326	227	86	1517	122	69	1543	55
v/c Ratio	0.62	0.81	2.65	0.33	0.86	0.85	0.18	0.23	0.59	0.07
Control Delay (s/veh)	39.7	43.5	785.0	26.4	97.2	40.7	8.9	14.8	20.4	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	39.7	43.5	785.0	26.4	97.2	40.7	8.9	14.8	20.4	3.5
Queue Length 50th (m)	46.8	117.4	~136.4	36.5	19.6	125.6	5.0	7.7	92.1	0.0
Queue Length 95th (m)	69.8	134.5	#121.9	40.5	#34.6	146.2	16.5	10.7	106.9	5.2
Internal Link Dist (m)		804.7		965.6		1053.8			146.3	
Turn Bay Length (m)	30.0		15.0		60.0		60.0	60.0		60.0
Base Capacity (vph)	374	679	123	684	100	1795	664	303	2618	842
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	0.62	0.81	2.65	0.33	0.86	0.85	0.18	0.23	0.59	0.07

Intersection Summary

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

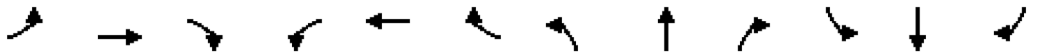
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	196	312	121	199	110	26	59	1396	105	45	1435	46
Future Volume (vph)	196	312	121	199	110	26	59	1396	105	45	1435	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	4.0	4.0	6.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	1805		1770	1818		1703	4988	1615	1752	4940	1495
Flt Permitted	0.55	1.00		0.18	1.00		0.15	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	1012	1805		334	1818		278	4988	1615	156	4940	1495
Peak-hour factor, PHF	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Adj. Flow (vph)	233	395	153	326	162	65	86	1517	122	69	1543	55
RTOR Reduction (vph)	0	11	0	0	12	0	0	0	56	0	0	25
Lane Group Flow (vph)	233	537	0	326	215	0	86	1517	66	69	1543	30
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	44.4	44.4		44.4	44.4		43.2	43.2	43.2	63.6	63.6	63.6
Effective Green, g (s)	44.4	44.4		44.4	44.4		43.2	43.2	45.2	63.6	63.6	65.6
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.36	0.36	0.38	0.53	0.53	0.55
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	4.0	6.0	6.0
Lane Grp Cap (vph)	374	667		123	672		100	1795	608	300	2618	817
v/s Ratio Prot		0.30			0.12			0.30		0.03	c0.31	
v/s Ratio Perm	0.23			c0.98			c0.31		0.04	0.09		0.02
v/c Ratio	0.62	0.80		2.65	0.32		0.86	0.85	0.11	0.23	0.59	0.04
Uniform Delay, d1	30.9	33.9		37.8	27.0		35.6	35.3	24.3	18.8	19.3	12.6
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	7.6	10.0		765.5	1.3		57.7	5.1	0.4	1.8	1.0	0.1
Delay (s)	38.6	43.9		803.3	28.3		93.3	40.4	24.7	20.6	20.3	12.7
Level of Service	D	D		F	C		F	D	C	C	C	B
Approach Delay (s/veh)		42.3			485.1			41.9			20.0	
Approach LOS		D			F			D			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	86.1	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)	16.0
Intersection Capacity Utilization	98.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

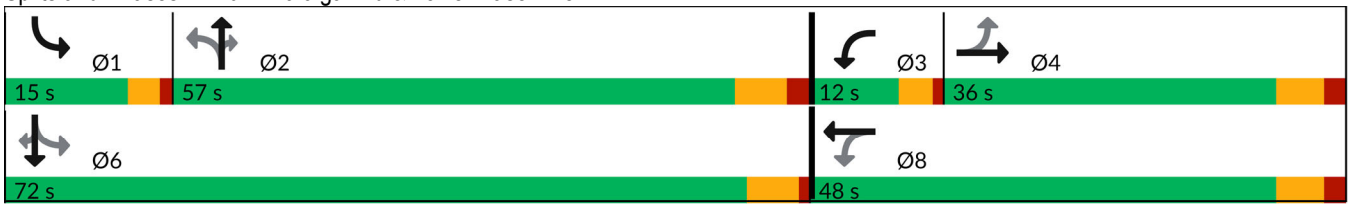


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	205	40	209	260	279	195	1491	242	159	1128	53
Future Volume (vph)	57	205	40	209	260	279	195	1491	242	159	1128	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		90.0	90.0		90.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.965			0.924				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1834	0	1770	1738	0	1805	5036	1599	1752	5085	1615
Flt Permitted	0.134			0.280			0.213			0.072		
Satd. Flow (perm)	250	1834	0	522	1738	0	405	5036	1599	133	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			48				288			84
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			728.6			888.2	
Travel Time (s)		38.5			41.4			32.8			40.0	
Peak Hour Factor	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Adj. Flow (vph)	74	244	74	220	329	340	219	1553	288	179	1240	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	318	0	220	669	0	219	1553	288	179	1240	84
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		25.0	25.0	25.0	7.0	25.0	25.0
Minimum Split (s)	22.5	22.5		11.5	22.5		31.6	31.6	31.6	11.5	30.6	30.6
Total Split (s)	36.0	36.0		12.0	48.0		57.0	57.0	57.0	15.0	72.0	72.0
Total Split (%)	30.0%	30.0%		10.0%	40.0%		47.5%	47.5%	47.5%	12.5%	60.0%	60.0%
Maximum Green (s)	29.8	29.8		8.0	41.8		50.4	50.4	50.4	11.0	66.4	66.4
Yellow Time (s)	4.2	4.2		3.0	4.2		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	Max
Act Effct Green (s)	29.8	29.8		44.0	41.8		50.4	50.4	50.4	68.0	66.4	66.4
Actuated g/C Ratio	0.25	0.25		0.37	0.35		0.42	0.42	0.42	0.57	0.55	0.55
v/c Ratio	1.19	0.69		0.80	1.05		1.29	0.73	0.34	0.80	0.44	0.09
Control Delay (s/veh)	217.0	47.9		52.6	85.9		198.4	31.8	3.7	51.5	16.4	2.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	217.0	47.9		52.6	85.9		198.4	31.8	3.7	51.5	16.4	2.8
LOS	F	D		D	F		F	C	A	D	B	A
Approach Delay (s/veh)		79.9			77.6			45.5			19.9	
Approach LOS		E			E			D			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 80			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.29			
Intersection Signal Delay (s/veh): 46.2		Intersection LOS: D	
Intersection Capacity Utilization 102.2%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line



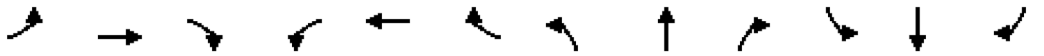


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	74	318	220	669	219	1553	288	179	1240	84
v/c Ratio	1.19	0.69	0.80	1.05	1.29	0.73	0.34	0.80	0.44	0.09
Control Delay (s/veh)	217.0	47.9	52.6	85.9	198.4	31.8	3.7	51.5	16.4	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	217.0	47.9	52.6	85.9	198.4	31.8	3.7	51.5	16.4	2.8
Queue Length 50th (m)	~22.2	69.1	39.1	~172.8	~69.1	116.2	0.0	26.8	63.5	0.0
Queue Length 95th (m)	#44.4	93.2	#73.8	#195.9	#117.6	134.9	12.2	#63.5	74.9	2.3
Internal Link Dist (m)		725.3		666.6		704.6			864.2	
Turn Bay Length (m)	45.0		110.0		90.0		90.0	90.0		90.0
Base Capacity (vph)	62	464	274	636	170	2115	838	223	2813	931
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.19	0.69	0.80	1.05	1.29	0.73	0.34	0.80	0.44	0.09

Intersection Summary

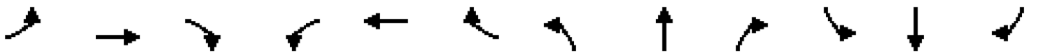
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	205	40	209	260	279	195	1491	242	159	1128	53
Future Volume (vph)	57	205	40	209	260	279	195	1491	242	159	1128	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.97		1.00	0.92		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1834		1770	1738		1805	5036	1599	1752	5085	1615
Flt Permitted	0.13	1.00		0.28	1.00		0.21	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	250	1834		521	1738		406	5036	1599	133	5085	1615
Peak-hour factor, PHF	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Adj. Flow (vph)	74	244	74	220	329	340	219	1553	288	179	1240	84
RTOR Reduction (vph)	0	9	0	0	31	0	0	0	167	0	0	38
Lane Group Flow (vph)	74	309	0	220	638	0	219	1553	121	179	1240	46
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	29.8	29.8		41.8	41.8		50.4	50.4	50.4	66.4	66.4	66.4
Effective Green, g (s)	29.8	29.8		41.8	41.8		50.4	50.4	50.4	66.4	66.4	66.4
Actuated g/C Ratio	0.25	0.25		0.35	0.35		0.42	0.42	0.42	0.55	0.55	0.55
Clearance Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Lane Grp Cap (vph)	62	455		264	605		170	2115	671	222	2813	893
v/s Ratio Prot		0.17		0.06	c0.37			0.31		c0.07	0.24	
v/s Ratio Perm	c0.30			0.23			c0.54		0.08	0.37		0.03
v/c Ratio	1.19	0.68		0.83	1.05		1.29	0.73	0.18	0.81	0.44	0.05
Uniform Delay, d1	45.1	40.8		34.8	39.1		34.8	29.2	21.8	28.8	15.8	12.3
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	175.8	5.2		18.9	51.7		166.6	2.3	0.6	26.0	0.5	0.1
Delay (s)	220.9	46.0		53.7	90.8		201.4	31.5	22.4	54.8	16.3	12.4
Level of Service	F	D		D	F		F	C	C	D	B	B
Approach Delay (s/veh)		79.0			81.6			48.3			20.7	
Approach LOS		E			F			D			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	48.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	120.0	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			

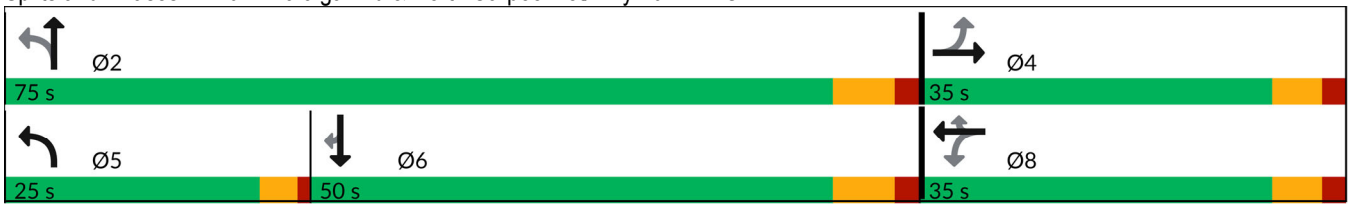


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	18	356	3	27	11	1898	0	0	1372	5
Future Volume (vph)	3	0	18	356	3	27	11	1898	0	0	1372	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.894			0.998	0.850						0.850
Flt Protected		0.989		0.950	0.955		0.950					
Satd. Flow (prot)	0	1525	0	1681	1595	1408	1641	5085	0	0	5085	1615
Flt Permitted		0.922		0.733	0.710		0.124					
Satd. Flow (perm)	0	1421	0	1297	1186	1408	214	5085	0	0	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		79			1	79						69
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			728.6	
Travel Time (s)		9.6			41.3			26.2			52.5	
Peak Hour Factor	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Adj. Flow (vph)	8	0	29	400	8	33	22	2019	0	0	1508	10
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	0	37	0	204	207	30	22	2019	0	0	1508	10
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	4.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	27.0			27.0	27.0
Total Split (s)	35.0	35.0		35.0	35.0	35.0	25.0	75.0			50.0	50.0
Total Split (%)	31.8%	31.8%		31.8%	31.8%	31.8%	22.7%	68.2%			45.5%	45.5%
Maximum Green (s)	29.0	29.0		29.0	29.0	29.0	21.0	68.0			43.0	43.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0			2.0	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	4.0	7.0			7.0	7.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	None	Max			Max	Max
Act Effct Green (s)		22.5		22.5	22.5	22.5	71.2	68.2			64.4	64.4
Actuated g/C Ratio		0.22		0.22	0.22	0.22	0.69	0.66			0.62	0.62
v/c Ratio		0.10		0.73	0.81	0.08	0.10	0.60			0.48	0.01
Control Delay (s/veh)		1.0		53.1	61.3	0.4	7.5	11.8			12.8	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		1.0		53.1	61.3	0.4	7.5	11.8			12.8	0.0
LOS		A		D	E	A	A	B			B	A
Approach Delay (s/veh)		1.0			53.4			11.7			12.7	
Approach LOS		A			D			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 103.7			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay (s/veh): 16.5		Intersection LOS: B	
Intersection Capacity Utilization 64.4%		ICU Level of Service C	
Analysis Period (min) 15			

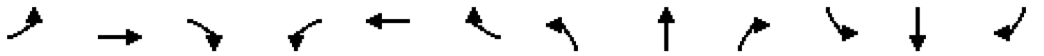
Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off





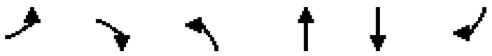
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	37	204	207	30	22	2019	1508	10
v/c Ratio	0.10	0.73	0.81	0.08	0.10	0.60	0.48	0.01
Control Delay (s/veh)	1.0	53.1	61.3	0.4	7.5	11.8	12.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	1.0	53.1	61.3	0.4	7.5	11.8	12.8	0.0
Queue Length 50th (m)	0.0	42.5	45.7	0.0	1.4	83.2	53.2	0.0
Queue Length 95th (m)	0.0	68.7	26.4	0.0	2.5	113.5	95.1	0.0
Internal Link Dist (m)	110.0		550.1			339.6	704.6	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	455	363	333	451	436	3344	3157	1029
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	0.56	0.62	0.07	0.05	0.60	0.48	0.01

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	18	356	3	27	11	1898	0	0	1372	5
Future Volume (vph)	3	0	18	356	3	27	11	1898	0	0	1372	5
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	4.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.91			0.91	1.00
Frt		0.89		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1525		1681	1595	1408	1641	5085			5085	1615
Flt Permitted		0.92		0.73	0.71	1.00	0.12	1.00			1.00	1.00
Satd. Flow (perm)		1422		1297	1186	1408	215	5085			5085	1615
Peak-hour factor, PHF	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Adj. Flow (vph)	8	0	29	400	8	33	22	2019	0	0	1508	10
RTOR Reduction (vph)	0	29	0	0	1	24	0	0	0	0	0	4
Lane Group Flow (vph)	0	8	0	204	206	6	22	2019	0	0	1508	6
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		22.5		22.5	22.5	22.5	70.7	70.7			64.4	64.4
Effective Green, g (s)		22.5		22.5	22.5	22.5	70.7	70.7			64.4	64.4
Actuated g/C Ratio		0.21		0.21	0.21	0.21	0.67	0.67			0.61	0.61
Clearance Time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Lane Grp Cap (vph)		301		274	251	298	174	3385			3083	979
v/s Ratio Prot							0.00	c0.40			0.30	
v/s Ratio Perm		0.01		0.16	c0.17	0.00	0.08					0.00
v/c Ratio		0.03		0.74	0.82	0.02	0.13	0.60			0.49	0.01
Uniform Delay, d1		33.2		39.2	39.9	33.1	7.2	9.8			11.7	8.3
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2		0.0		10.8	19.5	0.0	0.2	0.8			0.6	0.0
Delay (s)		33.2		49.9	59.4	33.2	7.5	10.6			12.3	8.3
Level of Service		C		D	E	C	A	B			B	A
Approach Delay (s/veh)		33.2			53.2			10.6			12.2	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	106.2	Sum of lost time (s)	17.0
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

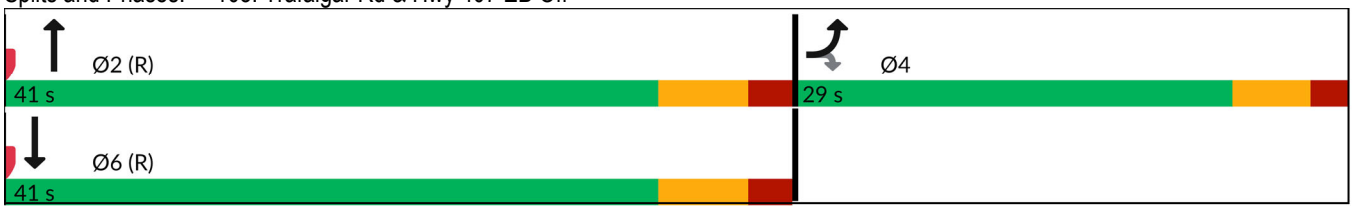


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	38	85	0	2118	1581	0
Future Volume (vph)	38	85	0	2118	1581	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1703	1429	0	5085	5085	0
Flt Permitted	0.950					
Satd. Flow (perm)	1703	1429	0	5085	5085	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		8				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			251.9	363.6	
Travel Time (s)	39.9			18.1	26.2	
Peak Hour Factor	0.75	0.94	0.25	0.94	0.92	0.25
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Adj. Flow (vph)	51	90	0	2253	1718	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	51	90	0	2253	1718	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	29.0	29.0		24.9	24.9	
Total Split (s)	29.0	29.0		41.0	41.0	
Total Split (%)	41.4%	41.4%		58.6%	58.6%	
Maximum Green (s)	23.0	23.0		34.1	34.1	
Yellow Time (s)	4.0	4.0		4.6	4.6	
All-Red Time (s)	2.0	2.0		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.9	6.9	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	23.0	23.0		34.1	34.1	
Actuated g/C Ratio	0.33	0.33		0.49	0.49	
v/c Ratio	0.09	0.19		0.91	0.69	
Control Delay (s/veh)	16.9	16.8		23.7	15.8	
Queue Delay	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay (s/veh)	16.9	16.8		23.7	15.8	
LOS	B	B		C	B	
Approach Delay (s/veh)	16.9			23.7	15.8	
Approach LOS	B			C	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 70			
Control Type: Pretimed			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay (s/veh): 20.1		Intersection LOS: C	
Intersection Capacity Utilization 55.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off

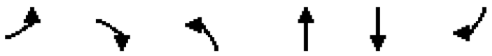




Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	51	90	2253	1718
v/c Ratio	0.09	0.19	0.91	0.69
Control Delay (s/veh)	16.9	16.8	23.7	15.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.9	16.8	23.7	15.8
Queue Length 50th (m)	4.8	7.9	98.5	63.2
Queue Length 95th (m)	9.8	18.0	#128.3	79.4
Internal Link Dist (m)	530.6		227.9	339.6
Turn Bay Length (m)				
Base Capacity (vph)	559	474	2477	2477
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.09	0.19	0.91	0.69

Intersection Summary

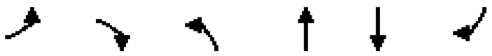
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



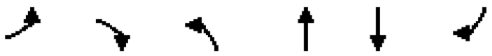
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	38	85	0	2118	1581	0
Future Volume (vph)	38	85	0	2118	1581	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.9	6.9	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1703	1429		5085	5085	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1703	1429		5085	5085	
Peak-hour factor, PHF	0.75	0.94	0.25	0.94	0.92	0.25
Adj. Flow (vph)	51	90	0	2253	1718	0
RTOR Reduction (vph)	0	5	0	0	0	0
Lane Group Flow (vph)	51	85	0	2253	1718	0
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	23.0	23.0		34.1	34.1	
Effective Green, g (s)	23.0	23.0		34.1	34.1	
Actuated g/C Ratio	0.33	0.33		0.49	0.49	
Clearance Time (s)	6.0	6.0		6.9	6.9	
Lane Grp Cap (vph)	559	469		2477	2477	
v/s Ratio Prot	0.03			c0.44	0.34	
v/s Ratio Perm		c0.06				
v/c Ratio	0.09	0.18		0.91	0.69	
Uniform Delay, d1	16.3	16.8		16.5	13.9	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.8		6.3	1.6	
Delay (s)	16.6	17.6		22.9	15.5	
Level of Service	B	B		C	B	
Approach Delay (s/veh)	17.2			22.9	15.5	
Approach LOS	B			C	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	19.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



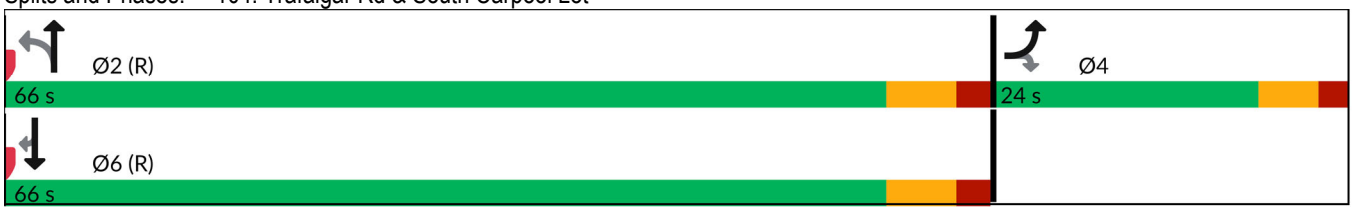
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	72	81	70	2412	1628	38
Future Volume (vph)	72	81	70	2412	1628	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	50.0			30.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5		100.0			
Lane Util. Factor	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)	1504	1455	1570	5085	5085	1615
Flt Permitted	0.950		0.095			
Satd. Flow (perm)	1504	1455	157	5085	5085	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		26				41
Link Speed (k/h)	50			80	80	
Link Distance (m)	107.1			233.3	251.9	
Travel Time (s)	7.7			10.5	11.3	
Peak Hour Factor	0.62	0.78	0.78	0.93	0.90	0.77
Heavy Vehicles (%)	20%	11%	15%	2%	2%	0%
Adj. Flow (vph)	116	104	90	2594	1809	49
Shared Lane Traffic (%)						
Lane Group Flow (vph)	116	104	90	2594	1809	49
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Minimum Split (s)	24.0	24.0	24.9	24.9	24.9	24.9
Total Split (s)	24.0	24.0	66.0	66.0	66.0	66.0
Total Split (%)	26.7%	26.7%	73.3%	73.3%	73.3%	73.3%
Maximum Green (s)	18.0	18.0	59.1	59.1	59.1	59.1
Yellow Time (s)	4.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.9	6.9	6.9	6.9
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Don't Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	18.0	18.0	59.1	59.1	59.1	59.1
Actuated g/C Ratio	0.20	0.20	0.66	0.66	0.66	0.66

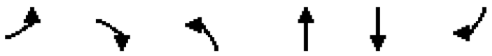


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
v/c Ratio	0.39	0.33	0.87	0.78	0.54	0.05
Control Delay (s/veh)	35.7	26.7	81.0	12.9	9.0	2.3
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay (s/veh)	35.7	26.7	81.0	13.1	9.0	2.3
LOS	D	C	F	B	A	A
Approach Delay (s/veh)	31.4			15.3	8.8	
Approach LOS	C			B	A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 90			
Control Type: Pretimed			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay (s/veh): 13.5		Intersection LOS: B	
Intersection Capacity Utilization 61.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Trafalgar Rd & South Carpool Lot





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	116	104	90	2594	1809	49
v/c Ratio	0.39	0.33	0.87	0.78	0.54	0.05
Control Delay (s/veh)	35.7	26.7	81.0	12.9	9.0	2.3
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay (s/veh)	35.7	26.7	81.0	13.1	9.0	2.3
Queue Length 50th (m)	18.5	12.1	11.7	107.3	56.9	0.4
Queue Length 95th (m)	22.8	22.4	#36.5	127.6	68.3	3.0
Internal Link Dist (m)	83.1			209.3	227.9	
Turn Bay Length (m)			50.0			30.0
Base Capacity (vph)	300	311	103	3339	3339	1074
Starvation Cap Reductn	0	0	0	102	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.33	0.87	0.80	0.54	0.05

Intersection Summary

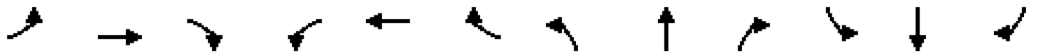
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	72	81	70	2412	1628	38
Future Volume (vph)	72	81	70	2412	1628	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.9	6.9	6.9	6.9
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)	1504	1455	1570	5085	5085	1615
Flt Permitted	0.95	1.00	0.09	1.00	1.00	1.00
Satd. Flow (perm)	1504	1455	156	5085	5085	1615
Peak-hour factor, PHF	0.62	0.78	0.78	0.93	0.90	0.77
Adj. Flow (vph)	116	104	90	2594	1809	49
RTOR Reduction (vph)	0	21	0	0	0	14
Lane Group Flow (vph)	116	83	90	2594	1809	35
Heavy Vehicles (%)	20%	11%	15%	2%	2%	0%
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	18.0	18.0	59.1	59.1	59.1	59.1
Effective Green, g (s)	18.0	18.0	59.1	59.1	59.1	59.1
Actuated g/C Ratio	0.20	0.20	0.66	0.66	0.66	0.66
Clearance Time (s)	6.0	6.0	6.9	6.9	6.9	6.9
Lane Grp Cap (vph)	300	291	102	3339	3339	1060
v/s Ratio Prot	c0.08			0.51	0.36	
v/s Ratio Perm		0.06	c0.58			0.02
v/c Ratio	0.39	0.29	0.88	0.78	0.54	0.03
Uniform Delay, d1	31.2	30.5	12.6	10.8	8.2	5.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.7	2.5	61.3	1.8	0.6	0.1
Delay (s)	34.9	33.0	73.9	12.7	8.9	5.5
Level of Service	C	C	E	B	A	A
Approach Delay (s/veh)	34.0			14.7	8.8	
Approach LOS	C			B	A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

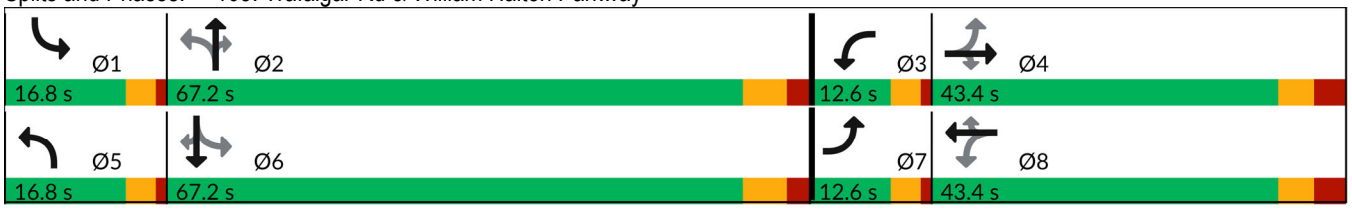


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	299	696	236	159	848	578	214	1605	44	240	1201	268
Future Volume (vph)	299	696	236	159	848	578	214	1605	44	240	1201	268
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	0.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			7.5		
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)	1770	3539	1599	1805	3610	1583	1787	5085	1615	1719	5085	1599
Flt Permitted	0.110			0.165			0.107			0.066		
Satd. Flow (perm)	205	3539	1599	314	3610	1583	201	5085	1615	119	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			188			174			94			186
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		1213.9			1579.7			285.3			233.3	
Travel Time (s)		87.4			113.7			20.5			16.8	
Peak Hour Factor	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
Adj. Flow (vph)	332	718	259	224	986	680	264	1783	70	261	1397	291
Shared Lane Traffic (%)												
Lane Group Flow (vph)	332	718	259	224	986	680	264	1783	70	261	1397	291
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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)	11.5	38.0	38.0	11.5	38.0	38.0	11.5	42.9	42.9	11.5	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	Max	Max	None	Max	Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't 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)	48.0	36.4	36.4	48.0	36.4	36.4	76.0	60.3	60.3	76.0	60.3	60.3
Actuated g/C Ratio	0.34	0.26	0.26	0.34	0.26	0.26	0.54	0.43	0.43	0.54	0.43	0.43
v/c Ratio	2.00	0.78	0.47	1.13	1.05	1.26	1.04	0.81	0.09	1.24	0.64	0.37
Control Delay (s/veh)	493.7	55.0	15.5	135.9	93.2	163.0	96.1	38.7	2.2	177.0	32.9	10.6
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 (s/veh)	493.7	55.0	15.5	135.9	93.2	163.0	96.1	38.7	2.2	177.0	32.9	10.6
LOS	F	E	B	F	F	F	F	D	A	F	C	B
Approach Delay (s/veh)		158.5			123.3			44.7			48.9	
Approach LOS		F			F			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Natural Cycle: 125			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 2.00			
Intersection Signal Delay (s/veh): 86.8		Intersection LOS: F	
Intersection Capacity Utilization 102.6%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway



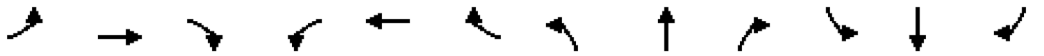


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	332	718	259	224	986	680	264	1783	70	261	1397	291
v/c Ratio	2.00	0.78	0.47	1.13	1.05	1.26	1.04	0.81	0.09	1.24	0.64	0.37
Control Delay (s/veh)	493.7	55.0	15.5	135.9	93.2	163.0	96.1	38.7	2.2	177.0	32.9	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	493.7	55.0	15.5	135.9	93.2	163.0	96.1	38.7	2.2	177.0	32.9	10.6
Queue Length 50th (m)	~133.9	102.8	16.1	~47.9	~164.4	~209.0	~54.7	164.7	0.0	~77.8	115.6	18.4
Queue Length 95th (m)	#197.7	127.3	43.1	#62.2	#192.1	#259.9	#91.5	185.4	0.0	#136.1	124.1	40.9
Internal Link Dist (m)		1189.9			1555.7			261.3			209.3	
Turn Bay Length (m)	100.0		100.0	100.0		150.0	150.0		75.0			
Base Capacity (vph)	166	920	554	199	938	540	254	2190	749	210	2190	794
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	2.00	0.78	0.47	1.13	1.05	1.26	1.04	0.81	0.09	1.24	0.64	0.37

Intersection Summary

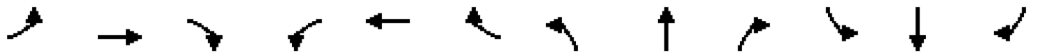
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	299	696	236	159	848	578	214	1605	44	240	1201	268
Future Volume (vph)	299	696	236	159	848	578	214	1605	44	240	1201	268
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)	1770	3539	1599	1805	3610	1583	1787	5085	1615	1719	5085	1599
Flt Permitted	0.11	1.00	1.00	0.17	1.00	1.00	0.11	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	205	3539	1599	314	3610	1583	201	5085	1615	120	5085	1599
Peak-hour factor, PHF	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Adj. Flow (vph)	332	718	259	224	986	680	264	1783	70	261	1397	291
RTOR Reduction (vph)	0	0	139	0	0	129	0	0	40	0	0	106
Lane Group Flow (vph)	332	718	120	224	986	551	264	1783	30	261	1397	185
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
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)	45.0	36.4	36.4	45.0	36.4	36.4	73.1	60.3	60.3	73.1	60.3	60.3
Effective Green, g (s)	45.0	36.4	36.4	45.0	36.4	36.4	73.1	60.3	60.3	73.1	60.3	60.3
Actuated g/C Ratio	0.32	0.26	0.26	0.32	0.26	0.26	0.52	0.43	0.43	0.52	0.43	0.43
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)	162	920	415	192	938	411	249	2190	695	208	2190	688
v/s Ratio Prot	c0.13	0.20		0.07	0.27		0.10	0.35		c0.11	0.27	
v/s Ratio Perm	c0.53		0.07	0.30		0.35	0.46		0.02	c0.54		0.12
v/c Ratio	2.05	0.78	0.29	1.17	1.05	1.34	1.06	0.81	0.04	1.25	0.64	0.27
Uniform Delay, d1	42.0	48.1	41.4	43.1	51.8	51.8	32.0	34.9	23.1	42.6	31.3	25.7
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	493.0	5.0	0.8	117.0	43.8	169.2	73.8	3.5	0.1	147.7	1.4	1.0
Delay (s)	535.0	53.1	42.3	160.2	95.6	221.0	105.8	38.4	23.2	190.4	32.7	26.6
Level of Service	F	D	D	F	F	F	F	D	C	F	C	C
Approach Delay (s/veh)		173.2			148.3			46.3			52.9	
Approach LOS		F			F			D			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	97.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.55		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.9
Intersection Capacity Utilization	102.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

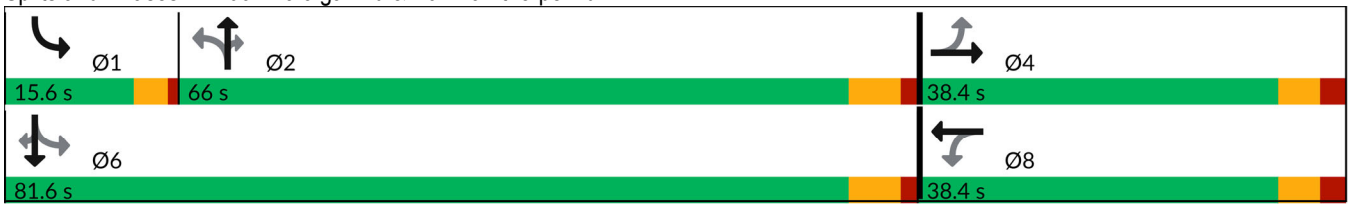


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	126	403	22	222	357	281	89	1582	131	190	1248	158
Future Volume (vph)	126	403	22	222	357	281	89	1582	131	190	1248	158
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		60.0	60.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	70.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.993			0.938				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1887	0	1805	1782	0	1805	5036	1615	1480	5085	1599
Flt Permitted	0.123			0.123			0.177			0.062		
Satd. Flow (perm)	229	1887	0	234	1782	0	336	5036	1615	97	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			29				64			95
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		828.7			989.6			1941.0			170.3	
Travel Time (s)		49.7			59.4			87.3			7.7	
Peak Hour Factor	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	1%
Adj. Flow (vph)	150	576	27	281	496	351	114	1861	193	297	1418	184
Shared Lane Traffic (%)												
Lane Group Flow (vph)	150	603	0	281	847	0	114	1861	193	297	1418	184
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		20.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	24.0	24.0		24.0	24.0		26.0	26.0	26.0	11.5	26.0	26.0
Total Split (s)	38.4	38.4		38.4	38.4		66.0	66.0	66.0	15.6	81.6	81.6
Total Split (%)	32.0%	32.0%		32.0%	32.0%		55.0%	55.0%	55.0%	13.0%	68.0%	68.0%
Maximum Green (s)	32.4	32.4		32.4	32.4		60.0	60.0	60.0	11.6	75.6	75.6
Yellow Time (s)	3.7	3.7		3.7	3.7		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.3	2.3		2.3	2.3		1.4	1.4	1.4	1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max	Max	None	Max	Max
Act Effct Green (s)	32.4	32.4		32.4	32.4		60.0	60.0	62.0	77.6	75.6	77.6
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.50	0.50	0.52	0.65	0.63	0.65
v/c Ratio	2.46	1.18		4.46	1.69		0.68	0.74	0.22	1.52	0.44	0.17
Control Delay (s/veh)	724.7	139.8		Error	346.8		46.2	26.0	11.1	283.8	11.9	4.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	724.7	139.8		Error	346.8		46.2	26.0	11.1	283.8	11.9	4.4
LOS	F	F		F	F		D	C	B	F	B	A
Approach Delay (s/veh)		256.3			660.4			25.8			53.7	
Approach LOS		F			F			C			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 4.46			
Intersection Signal Delay (s/veh): 184.2		Intersection LOS: F	
Intersection Capacity Utilization 105.1%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burnhamthorpe Rd



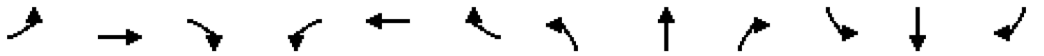


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	150	603	281	847	114	1861	193	297	1418	184
v/c Ratio	2.46	1.18	4.46	1.69	0.68	0.74	0.22	1.52	0.44	0.17
Control Delay (s/veh)	724.7	139.8	Error	346.8	46.2	26.0	11.1	283.8	11.9	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	724.7	139.8	Error	346.8	46.2	26.0	11.1	283.8	11.9	4.4
Queue Length 50th (m)	~61.4	~179.7	~115.8	~304.7	20.7	129.7	16.2	~89.2	61.4	7.6
Queue Length 95th (m)	#96.5	#166.0	#147.2	#279.0	38.5	135.5	19.4	#85.0	69.4	15.2
Internal Link Dist (m)		804.7		965.6		1917.0			146.3	
Turn Bay Length (m)	30.0		15.0		60.0		60.0	60.0		60.0
Base Capacity (vph)	61	510	63	502	168	2518	865	196	3203	1067
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	2.46	1.18	4.46	1.69	0.68	0.74	0.22	1.52	0.44	0.17

Intersection Summary

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

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

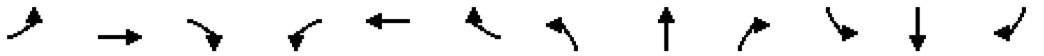


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	126	403	22	222	357	281	89	1582	131	190	1248	158
Future Volume (vph)	126	403	22	222	357	281	89	1582	131	190	1248	158
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	4.0	4.0	6.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.99		1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1887		1805	1782		1805	5036	1615	1480	5085	1599
Flt Permitted	0.12	1.00		0.12	1.00		0.18	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	230	1887		235	1782		336	5036	1615	97	5085	1599
Peak-hour factor, PHF	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Adj. Flow (vph)	150	576	27	281	496	351	114	1861	193	297	1418	184
RTOR Reduction (vph)	0	1	0	0	21	0	0	0	31	0	0	34
Lane Group Flow (vph)	150	602	0	281	826	0	114	1861	162	297	1418	150
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	32.4	32.4		32.4	32.4		60.0	60.0	60.0	75.6	75.6	75.6
Effective Green, g (s)	32.4	32.4		32.4	32.4		60.0	60.0	62.0	75.6	75.6	77.6
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.50	0.50	0.52	0.63	0.63	0.65
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	62	509		63	481		168	2518	834	194	3203	1034
v/s Ratio Prot		0.32			0.46			0.37		c0.15	0.28	
v/s Ratio Perm	0.65			c1.20			0.34		0.10	c0.81		0.09
v/c Ratio	2.42	1.18		4.46	1.72		0.68	0.74	0.19	1.53	0.44	0.15
Uniform Delay, d1	43.8	43.8		43.8	43.8		22.7	23.8	15.6	36.8	11.4	8.3
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	684.9	100.5		1593.1	331.3		19.9	2.0	0.5	263.2	0.4	0.3
Delay (s)	728.7	144.3		1636.9	375.1		42.6	25.8	16.1	300.0	11.8	8.6
Level of Service	F	F		F	F		D	C	B	F	B	A
Approach Delay (s/veh)		260.7			689.5			25.8			56.6	
Approach LOS		F			F			C			E	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	191.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.47		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	105.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Appendix F2

2036 Background Operation Synchro Reports

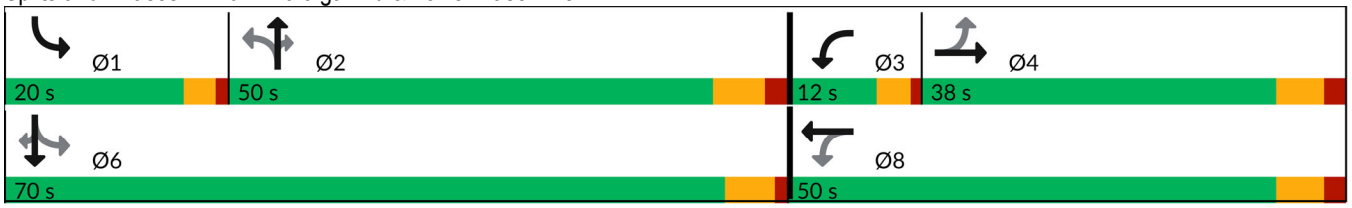


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	301	88	259	103	133	32	1117	206	315	1418	60
Future Volume (vph)	104	301	88	259	103	133	32	1117	206	315	1418	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		90.0	90.0		90.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.963			0.912				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1816	0	1736	1666	0	1597	4848	1568	1752	4988	1553
Flt Permitted	0.578			0.112			0.126			0.084		
Satd. Flow (perm)	1056	1816	0	205	1666	0	212	4848	1568	155	4988	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			67				231			85
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			498.3			434.3	
Travel Time (s)		38.5			41.4			22.4			19.5	
Peak Hour Factor	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Adj. Flow (vph)	124	391	129	355	124	175	44	1362	231	358	1668	85
Shared Lane Traffic (%)												
Lane Group Flow (vph)	124	520	0	355	299	0	44	1362	231	358	1668	85
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		25.0	25.0	25.0	7.0	25.0	25.0
Minimum Split (s)	22.5	22.5		11.5	22.5		31.6	31.6	31.6	11.5	30.6	30.6
Total Split (s)	38.0	38.0		12.0	50.0		50.0	50.0	50.0	20.0	70.0	70.0
Total Split (%)	31.7%	31.7%		10.0%	41.7%		41.7%	41.7%	41.7%	16.7%	58.3%	58.3%
Maximum Green (s)	31.8	31.8		8.0	43.8		43.4	43.4	43.4	16.0	64.4	64.4
Yellow Time (s)	4.2	4.2		3.0	4.2		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	Max
Act Effct Green (s)	31.8	31.8		46.0	43.8		43.4	43.4	43.4	66.0	64.4	64.4
Actuated g/C Ratio	0.27	0.27		0.38	0.37		0.36	0.36	0.36	0.55	0.54	0.54
v/c Ratio	0.44	1.06		1.97	0.46		0.58	0.78	0.32	1.20	0.62	0.10
Control Delay (s/veh)	42.8	99.5		478.6	24.8		64.4	37.8	4.6	149.6	20.6	3.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	42.8	99.5		478.6	24.8		64.4	37.8	4.6	149.6	20.6	3.1
LOS	D	F		F	C		E	D	A	F	C	A
Approach Delay (s/veh)		88.6			271.2			33.8			41.8	
Approach LOS		F			F			C			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.97			
Intersection Signal Delay (s/veh): 74.9		Intersection LOS: E	
Intersection Capacity Utilization 102.4%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line



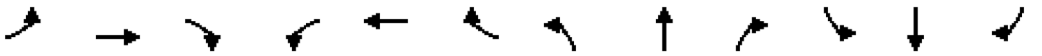


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	124	520	355	299	44	1362	231	358	1668	85
v/c Ratio	0.44	1.06	1.97	0.46	0.58	0.78	0.32	1.20	0.62	0.10
Control Delay (s/veh)	42.8	99.5	478.6	24.8	64.4	37.8	4.6	149.6	20.6	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	42.8	99.5	478.6	24.8	64.4	37.8	4.6	149.6	20.6	3.1
Queue Length 50th (m)	25.7	~139.4	~120.7	43.1	8.7	108.9	0.0	~91.1	101.2	0.0
Queue Length 95th (m)	41.8	#159.3	#135.4	61.6	18.2	111.9	16.2	#147.2	107.0	3.9
Internal Link Dist (m)		725.3		666.6		474.3			410.3	
Turn Bay Length (m)	45.0		110.0		90.0		90.0	90.0		90.0
Base Capacity (vph)	279	490	180	650	76	1753	714	298	2676	872
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	0.44	1.06	1.97	0.46	0.58	0.78	0.32	1.20	0.62	0.10

Intersection Summary

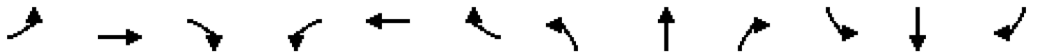
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	301	88	259	103	133	32	1117	206	315	1418	60
Future Volume (vph)	104	301	88	259	103	133	32	1117	206	315	1418	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	1816		1736	1667		1597	4848	1568	1752	4988	1553
Flt Permitted	0.58	1.00		0.11	1.00		0.13	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	1055	1816		204	1667		212	4848	1568	155	4988	1553
Peak-hour factor, PHF	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Adj. Flow (vph)	124	391	129	355	124	175	44	1362	231	358	1668	85
RTOR Reduction (vph)	0	10	0	0	43	0	0	0	147	0	0	39
Lane Group Flow (vph)	124	510	0	355	256	0	44	1362	84	358	1668	46
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	31.8	31.8		43.8	43.8		43.4	43.4	43.4	64.4	64.4	64.4
Effective Green, g (s)	31.8	31.8		43.8	43.8		43.4	43.4	43.4	64.4	64.4	64.4
Actuated g/C Ratio	0.27	0.27		0.37	0.37		0.36	0.36	0.36	0.54	0.54	0.54
Clearance Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Lane Grp Cap (vph)	279	481		176	608		76	1753	567	296	2676	833
v/s Ratio Prot		0.28		c0.13	0.15			0.28		c0.16	0.33	
v/s Ratio Perm	0.12			c0.60			0.21		0.05	c0.49		0.03
v/c Ratio	0.44	1.06		2.02	0.42		0.58	0.78	0.15	1.21	0.62	0.05
Uniform Delay, d1	36.7	44.1		33.1	28.6		30.9	34.0	25.8	36.3	19.4	13.3
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	2.4	58.2		477.1	1.0		28.3	3.5	0.5	121.5	1.1	0.1
Delay (s)	39.1	102.3		510.3	29.6		59.3	37.5	26.4	157.8	20.5	13.4
Level of Service	D	F		F	C		E	D	C	F	C	B
Approach Delay (s/veh)		90.2			290.5			36.5			43.5	
Approach LOS		F			F			D			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	79.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.63		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	102.4%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

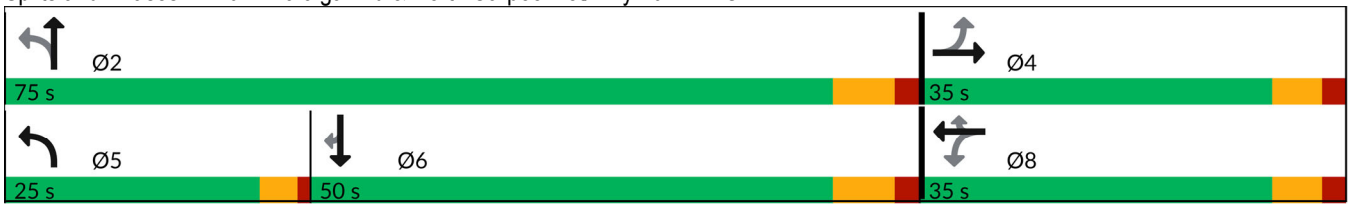


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	9	194	2	6	7	1345	0	0	1763	2
Future Volume (vph)	4	0	9	194	2	6	7	1345	0	0	1763	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.901			0.999	0.850						0.850
Flt Protected		0.987		0.950	0.954		0.950					
Satd. Flow (prot)	0	1503	0	1545	1470	1534	1543	4893	0	0	4988	1615
Flt Permitted		0.905		0.730	0.704		0.062					
Satd. Flow (perm)	0	1378	0	1187	1084	1534	101	4893	0	0	4988	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		79				79						69
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			232.3	
Travel Time (s)		9.6			41.3			26.2			16.7	
Peak Hour Factor	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Adj. Flow (vph)	11	0	30	252	4	14	23	1462	0	0	2026	8
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	0	41	0	129	128	13	23	1462	0	0	2026	8
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	4.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	27.0			27.0	27.0
Total Split (s)	35.0	35.0		35.0	35.0	35.0	25.0	75.0			50.0	50.0
Total Split (%)	31.8%	31.8%		31.8%	31.8%	31.8%	22.7%	68.2%			45.5%	45.5%
Maximum Green (s)	29.0	29.0		29.0	29.0	29.0	21.0	68.0			43.0	43.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0			2.0	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	4.0	7.0			7.0	7.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	None	Max			Max	Max
Act Effct Green (s)		17.2		17.2	17.2	17.2	71.3	68.3			64.5	64.5
Actuated g/C Ratio		0.17		0.17	0.17	0.17	0.72	0.69			0.65	0.65
v/c Ratio		0.13		0.62	0.68	0.04	0.15	0.43			0.62	0.01
Control Delay (s/veh)		2.4		50.8	55.9	0.2	7.3	7.7			12.9	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		2.4		50.8	55.9	0.2	7.3	7.7			12.9	0.0
LOS		A		D	E	A	A	A			B	A
Approach Delay (s/veh)		2.4			50.8			7.7			12.8	
Approach LOS		A			D			A			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 98.5			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay (s/veh): 13.4		Intersection LOS: B	
Intersection Capacity Utilization 57.1%		ICU Level of Service B	
Analysis Period (min) 15			

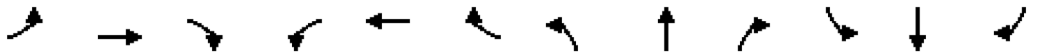
Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off





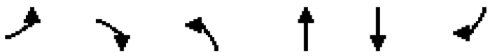
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	41	129	128	13	23	1462	2026	8
v/c Ratio	0.13	0.62	0.68	0.04	0.15	0.43	0.62	0.01
Control Delay (s/veh)	2.4	50.8	55.9	0.2	7.3	7.7	12.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	2.4	50.8	55.9	0.2	7.3	7.7	12.9	0.0
Queue Length 50th (m)	0.0	25.3	26.5	0.0	1.1	40.9	67.0	0.0
Queue Length 95th (m)	0.0	37.6	24.2	0.0	1.4	66.7	132.4	0.0
Internal Link Dist (m)	110.0		550.1			339.6	208.3	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	462	350	320	508	381	3390	3264	1080
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	0.37	0.40	0.03	0.06	0.43	0.62	0.01

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	9	194	2	6	7	1345	0	0	1763	2
Future Volume (vph)	4	0	9	194	2	6	7	1345	0	0	1763	2
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	4.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.91			0.91	1.00
Frt		0.90		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1503		1545	1470	1534	1543	4893			4988	1615
Flt Permitted		0.91		0.73	0.70	1.00	0.06	1.00			1.00	1.00
Satd. Flow (perm)		1379		1188	1085	1534	100	4893			4988	1615
Peak-hour factor, PHF	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Adj. Flow (vph)	11	0	30	252	4	14	23	1462	0	0	2026	8
RTOR Reduction (vph)	0	34	0	0	0	11	0	0	0	0	0	3
Lane Group Flow (vph)	0	7	0	129	128	2	23	1462	0	0	2026	5
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		17.2		17.2	17.2	17.2	70.7	70.7			64.4	64.4
Effective Green, g (s)		17.2		17.2	17.2	17.2	70.7	70.7			64.4	64.4
Actuated g/C Ratio		0.17		0.17	0.17	0.17	0.70	0.70			0.64	0.64
Clearance Time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Lane Grp Cap (vph)		235		202	184	261	102	3428			3183	1030
v/s Ratio Prot							0.01	c0.30			c0.41	
v/s Ratio Perm		0.01		0.11	c0.12	0.00	0.15					0.00
v/c Ratio		0.03		0.64	0.70	0.01	0.23	0.43			0.64	0.00
Uniform Delay, d1		34.9		39.0	39.4	34.8	7.6	6.4			11.1	6.6
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2		0.1		6.8	11.2	0.0	0.8	0.4			1.0	0.0
Delay (s)		35.0		45.7	50.6	34.8	8.4	6.8			12.1	6.6
Level of Service		C		D	D	C	A	A			B	A
Approach Delay (s/veh)		35.0			47.5			6.9			12.1	
Approach LOS		C			D			A			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	100.9	Sum of lost time (s)	17.0
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

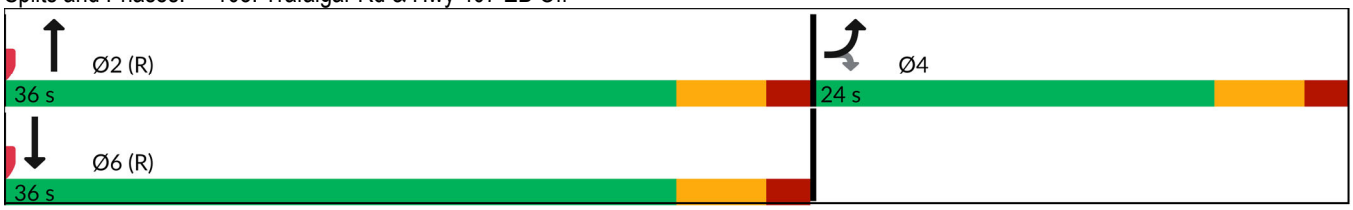


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	75	135	0	1420	1868	0
Future Volume (vph)	75	135	0	1420	1868	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1671	1392	0	4848	4940	0
Flt Permitted	0.950					
Satd. Flow (perm)	1671	1392	0	4848	4940	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		2				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			120.3	363.6	
Travel Time (s)	39.9			8.7	26.2	
Peak Hour Factor	0.79	0.78	0.25	0.85	0.86	0.25
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Adj. Flow (vph)	95	173	0	1671	2172	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	95	173	0	1671	2172	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	24.0	24.0		24.0	24.0	
Total Split (s)	24.0	24.0		36.0	36.0	
Total Split (%)	40.0%	40.0%		60.0%	60.0%	
Maximum Green (s)	18.0	18.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	18.0	18.0		30.0	30.0	
Actuated g/C Ratio	0.30	0.30		0.50	0.50	
v/c Ratio	0.19	0.41		0.69	0.88	
Control Delay (s/veh)	16.9	20.3		13.3	19.1	
Queue Delay	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay (s/veh)	16.9	20.3		13.3	19.1	
LOS	B	C		B	B	
Approach Delay (s/veh)	19.1			13.3	19.1	
Approach LOS	B			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Pretimed			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay (s/veh): 16.7		Intersection LOS: B	
Intersection Capacity Utilization 54.5%		ICU Level of Service A	
Analysis Period (min) 15			

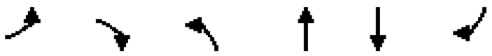
Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off





Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	95	173	1671	2172
v/c Ratio	0.19	0.41	0.69	0.88
Control Delay (s/veh)	16.9	20.3	13.3	19.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.9	20.3	13.3	19.1
Queue Length 50th (m)	8.1	15.6	49.8	75.7
Queue Length 95th (m)	15.4	26.1	59.2	89.7
Internal Link Dist (m)	530.6		96.3	339.6
Turn Bay Length (m)				
Base Capacity (vph)	501	419	2424	2470
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.19	0.41	0.69	0.88

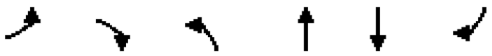
Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	75	135	0	1420	1868	0
Future Volume (vph)	75	135	0	1420	1868	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1671	1392		4848	4940	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1671	1392		4848	4940	
Peak-hour factor, PHF	0.79	0.78	0.25	0.85	0.86	0.25
Adj. Flow (vph)	95	173	0	1671	2172	0
RTOR Reduction (vph)	0	1	0	0	0	0
Lane Group Flow (vph)	95	172	0	1671	2172	0
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	18.0	18.0		30.0	30.0	
Effective Green, g (s)	18.0	18.0		30.0	30.0	
Actuated g/C Ratio	0.30	0.30		0.50	0.50	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	501	417		2424	2470	
v/s Ratio Prot	0.06			0.34	c0.44	
v/s Ratio Perm		c0.12				
v/c Ratio	0.19	0.41		0.69	0.88	
Uniform Delay, d1	15.6	16.8		11.4	13.4	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	3.0		1.6	4.9	
Delay (s)	16.4	19.8		13.1	18.3	
Level of Service	B	B		B	B	
Approach Delay (s/veh)	18.6			13.1	18.3	
Approach LOS	B			B	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



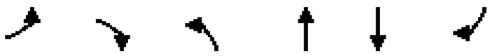
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	65	75	87	1767	1931	72
Future Volume (vph)	65	75	87	1767	1931	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	50.0			30.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5		100.0			
Lane Util. Factor	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)	1337	1404	1570	4940	4940	1615
Flt Permitted	0.950		0.102			
Satd. Flow (perm)	1337	1404	169	4940	4940	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		5				59
Link Speed (k/h)	50			80	80	
Link Distance (m)	107.1			233.3	131.6	
Travel Time (s)	7.7			10.5	5.9	
Peak Hour Factor	0.87	0.83	0.88	0.91	0.89	0.85
Heavy Vehicles (%)	35%	15%	15%	5%	5%	0%
Adj. Flow (vph)	75	90	99	1942	2170	85
Shared Lane Traffic (%)						
Lane Group Flow (vph)	75	90	99	1942	2170	85
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Minimum Split (s)	24.0	24.0	24.9	24.9	24.9	24.9
Total Split (s)	24.0	24.0	46.0	46.0	46.0	46.0
Total Split (%)	34.3%	34.3%	65.7%	65.7%	65.7%	65.7%
Maximum Green (s)	18.0	18.0	39.1	39.1	39.1	39.1
Yellow Time (s)	4.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.9	6.9	6.9	6.9
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Don't Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	18.0	18.0	39.1	39.1	39.1	39.1
Actuated g/C Ratio	0.26	0.26	0.56	0.56	0.56	0.56

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
v/c Ratio	0.22	0.25	1.05	0.70	0.79	0.09
Control Delay (s/veh)	22.6	21.8	134.1	13.0	14.8	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.6	21.8	134.1	13.0	14.8	3.5
LOS	C	C	F	B	B	A
Approach Delay (s/veh)	22.1			18.9	14.4	
Approach LOS	C			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Pretimed			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay (s/veh): 16.7		Intersection LOS: B	
Intersection Capacity Utilization 62.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Trafalgar Rd & South Carpool Lot



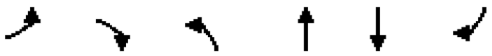


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	75	90	99	1942	2170	85
v/c Ratio	0.22	0.25	1.05	0.70	0.79	0.09
Control Delay (s/veh)	22.6	21.8	134.1	13.0	14.8	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.6	21.8	134.1	13.0	14.8	3.5
Queue Length 50th (m)	8.1	9.3	~15.2	65.0	78.4	1.5
Queue Length 95th (m)	17.8	18.9	#29.6	81.4	96.2	6.3
Internal Link Dist (m)	83.1			209.3	107.6	
Turn Bay Length (m)			50.0			30.0
Base Capacity (vph)	343	364	94	2759	2759	928
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	0.22	0.25	1.05	0.70	0.79	0.09

Intersection Summary

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

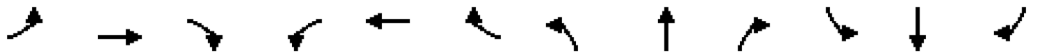
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	65	75	87	1767	1931	72
Future Volume (vph)	65	75	87	1767	1931	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.9	6.9	6.9	6.9
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)	1337	1404	1570	4940	4940	1615
Flt Permitted	0.95	1.00	0.10	1.00	1.00	1.00
Satd. Flow (perm)	1337	1404	169	4940	4940	1615
Peak-hour factor, PHF	0.87	0.83	0.88	0.91	0.89	0.85
Adj. Flow (vph)	75	90	99	1942	2170	85
RTOR Reduction (vph)	0	4	0	0	0	26
Lane Group Flow (vph)	75	86	99	1942	2170	59
Heavy Vehicles (%)	35%	15%	15%	5%	5%	0%
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	18.0	18.0	39.1	39.1	39.1	39.1
Effective Green, g (s)	18.0	18.0	39.1	39.1	39.1	39.1
Actuated g/C Ratio	0.26	0.26	0.56	0.56	0.56	0.56
Clearance Time (s)	6.0	6.0	6.9	6.9	6.9	6.9
Lane Grp Cap (vph)	343	361	94	2759	2759	902
v/s Ratio Prot	0.06			0.39	0.44	
v/s Ratio Perm		c0.06	c0.59			0.04
v/c Ratio	0.22	0.24	1.05	0.70	0.79	0.07
Uniform Delay, d1	20.5	20.6	15.5	11.2	12.2	7.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.5	1.6	108.0	1.5	2.3	0.1
Delay (s)	21.9	22.1	123.4	12.8	14.5	7.2
Level of Service	C	C	F	B	B	A
Approach Delay (s/veh)	22.0			18.1	14.2	
Approach LOS	C			B	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

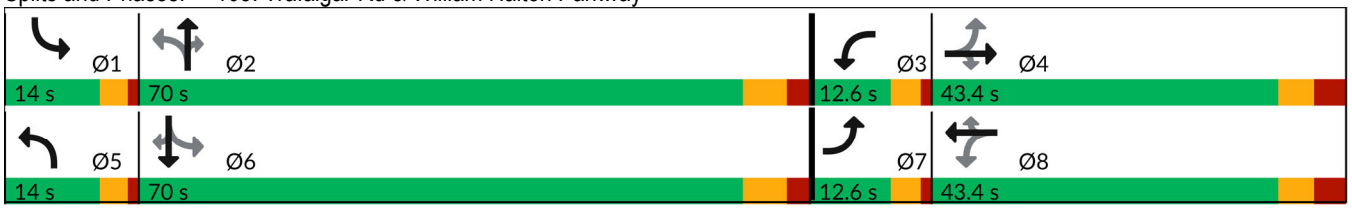


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	221	834	221	169	680	257	259	1375	59	392	1277	337
Future Volume (vph)	221	834	221	169	680	257	259	1375	59	392	1277	337
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	0.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			7.5		
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)	1787	3574	1599	1687	3574	1429	1703	4988	1615	1770	4893	1538
Flt Permitted	0.110			0.110			0.109			0.088		
Satd. Flow (perm)	207	3574	1599	195	3574	1429	195	4988	1615	164	4893	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			149			144			94			186
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		443.3			449.5			285.3			233.3	
Travel Time (s)		31.9			32.4			20.5			16.8	
Peak Hour Factor	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
Adj. Flow (vph)	260	916	266	225	872	343	301	1528	70	478	1419	392
Shared Lane Traffic (%)												
Lane Group Flow (vph)	260	916	266	225	872	343	301	1528	70	478	1419	392
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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)	11.5	38.0	38.0	11.5	38.0	38.0	11.5	42.9	42.9	11.5	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	-2.9	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	4.0	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	Max	Max	None	Max	Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't 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)	48.0	36.4	36.4	48.0	36.4	36.4	76.0	63.1	66.0	76.0	63.1	63.1
Actuated g/C Ratio	0.34	0.26	0.26	0.34	0.26	0.26	0.54	0.45	0.47	0.54	0.45	0.45
v/c Ratio	1.55	0.99	0.51	1.42	0.94	0.72	1.41	0.68	0.09	2.35	0.64	0.49
Control Delay (s/veh)	300.8	77.6	22.5	252.2	68.7	36.2	235.0	32.4	1.9	644.3	31.4	15.8
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 (s/veh)	300.8	77.6	22.5	252.2	68.7	36.2	235.0	32.4	1.9	644.3	31.4	15.8
LOS	F	E	C	F	E	D	F	C	A	F	C	B
Approach Delay (s/veh)		107.7			89.6			63.4			156.7	
Approach LOS		F			F			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Natural Cycle: 125			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 2.35			
Intersection Signal Delay (s/veh): 108.0		Intersection LOS: F	
Intersection Capacity Utilization 99.0%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway



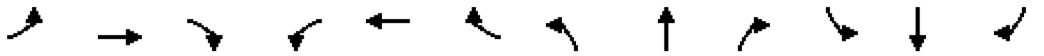


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	260	916	266	225	872	343	301	1528	70	478	1419	392
v/c Ratio	1.55	0.99	0.51	1.42	0.94	0.72	1.41	0.68	0.09	2.35	0.64	0.49
Control Delay (s/veh)	300.8	77.6	22.5	252.2	68.7	36.2	235.0	32.4	1.9	644.3	31.4	15.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	300.8	77.6	22.5	252.2	68.7	36.2	235.0	32.4	1.9	644.3	31.4	15.8
Queue Length 50th (m)	~89.1	140.7	28.0	~71.7	131.7	54.2	~89.6	127.1	0.0	~205.8	115.4	40.3
Queue Length 95th (m)	#135.7	#186.6	48.2	#95.0	131.7	64.6	#140.5	144.7	3.7	#244.4	132.1	63.4
Internal Link Dist (m)		419.3			425.5			261.3			209.3	
Turn Bay Length (m)	100.0		100.0	100.0		150.0	150.0		75.0			
Base Capacity (vph)	168	929	526	158	929	478	213	2248	811	203	2205	795
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	1.55	0.99	0.51	1.42	0.94	0.72	1.41	0.68	0.09	2.35	0.64	0.49

Intersection Summary

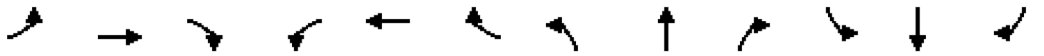
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	221	834	221	169	680	257	259	1375	59	392	1277	337
Future Volume (vph)	221	834	221	169	680	257	259	1375	59	392	1277	337
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	4.0	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)	1787	3574	1599	1687	3574	1429	1703	4988	1615	1770	4893	1538
Flt Permitted	0.11	1.00	1.00	0.11	1.00	1.00	0.11	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	207	3574	1599	195	3574	1429	195	4988	1615	164	4893	1538
Peak-hour factor, PHF	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Adj. Flow (vph)	260	916	266	225	872	343	301	1528	70	478	1419	392
RTOR Reduction (vph)	0	0	110	0	0	107	0	0	37	0	0	102
Lane Group Flow (vph)	260	916	156	225	872	236	301	1528	33	478	1419	290
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
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)	45.0	36.4	36.4	45.0	36.4	36.4	73.1	63.1	63.1	73.1	63.1	63.1
Effective Green, g (s)	45.0	36.4	36.4	45.0	36.4	36.4	73.1	63.1	66.0	73.1	63.1	63.1
Actuated g/C Ratio	0.32	0.26	0.26	0.32	0.26	0.26	0.52	0.45	0.47	0.52	0.45	0.45
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)	163	929	415	154	929	371	209	2248	761	200	2205	693
v/s Ratio Prot	c0.10	0.26		0.09	0.24		0.10	0.31		c0.17	0.29	
v/s Ratio Perm	c0.41		0.10	0.38		0.17	0.65		0.02	c1.08		0.19
v/c Ratio	1.60	0.99	0.38	1.46	0.94	0.64	1.44	0.68	0.04	2.39	0.64	0.42
Uniform Delay, d1	41.3	51.5	42.5	41.7	50.7	45.9	26.7	30.4	20.0	31.9	29.7	26.0
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	294.7	26.0	1.2	239.5	17.0	4.9	223.1	1.7	0.1	640.6	1.5	1.9
Delay (s)	336.0	77.6	43.7	281.3	67.8	50.9	249.8	32.1	20.1	672.5	31.2	27.9
Level of Service	F	E	D	F	E	D	F	C	C	F	C	C
Approach Delay (s/veh)		117.9			97.1			66.2			164.6	
Approach LOS		F			F			E			F	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	114.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.08		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.9
Intersection Capacity Utilization	99.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

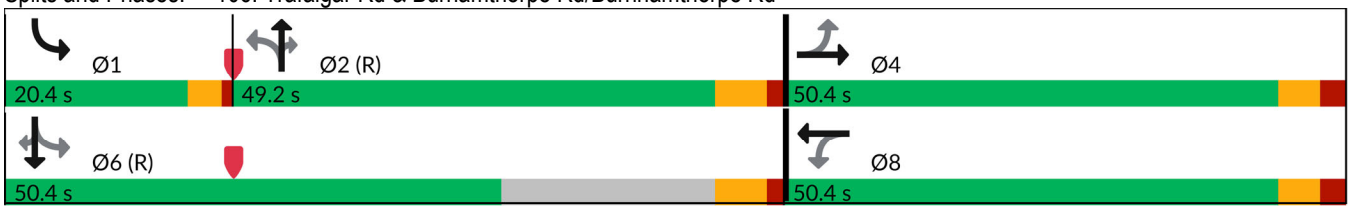


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	212	326	133	205	115	28	64	1513	114	49	1567	50
Future Volume (vph)	212	326	133	205	115	28	64	1513	114	49	1567	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		60.0	60.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	70.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.957			0.956				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1803	0	1770	1816	0	1703	4988	1615	1752	4940	1495
Flt Permitted	0.534			0.144			0.124			0.085		
Satd. Flow (perm)	985	1803	0	268	1816	0	222	4988	1615	157	4940	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			20				90			55
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		828.7			989.6			1077.8			170.3	
Travel Time (s)		49.7			59.4			48.5			7.7	
Peak Hour Factor	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
Adj. Flow (vph)	252	413	168	336	169	70	93	1645	133	75	1685	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	252	581	0	336	239	0	93	1645	133	75	1685	60
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Minimum Split (s)	24.0	24.0		24.0	24.0		26.0	26.0	26.0	11.5	26.0	26.0
Total Split (s)	50.4	50.4		50.4	50.4		49.2	49.2	49.2	20.4	50.4	50.4
Total Split (%)	42.0%	42.0%		42.0%	42.0%		41.0%	41.0%	41.0%	17.0%	42.0%	42.0%
Maximum Green (s)	44.4	44.4		44.4	44.4		43.2	43.2	43.2	16.4	44.4	44.4
Yellow Time (s)	3.7	3.7		3.7	3.7		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.3	2.3		2.3	2.3		1.4	1.4	1.4	1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Act Effct Green (s)	44.4	44.4		44.4	44.4		43.2	43.2	45.2	65.6	63.6	65.6
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.36	0.36	0.38	0.55	0.53	0.55
v/c Ratio	0.69	0.86		3.39	0.35		1.18	0.92	0.20	0.25	0.64	0.07
Control Delay (s/veh)	43.7	48.4		Error	26.7		193.8	45.9	10.1	15.0	21.6	4.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (s/veh)	43.7	48.4		Error	26.7		193.8	45.9	10.1	15.0	21.6	4.0
LOS	D	D		F	C		F	D	B	B	C	A
Approach Delay (s/veh)		47.0			664.5			50.7			20.7	
Approach LOS		D			F			D			C	

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: Pretimed			
Maximum v/c Ratio: 3.39			
Intersection Signal Delay (s/veh): 108.6		Intersection LOS: F	
Intersection Capacity Utilization 103.6%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burhamthorpe Rd/Burnhamthorpe Rd



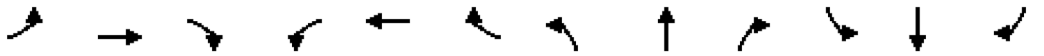


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	252	581	336	239	93	1645	133	75	1685	60
v/c Ratio	0.69	0.86	3.39	0.35	1.18	0.92	0.20	0.25	0.64	0.07
Control Delay (s/veh)	43.7	48.4	Error	26.7	193.8	45.9	10.1	15.0	21.6	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	43.7	48.4	Error	26.7	193.8	45.9	10.1	15.0	21.6	4.0
Queue Length 50th (m)	52.4	129.2	~125.7	38.7	~27.4	141.4	6.8	8.4	104.8	0.6
Queue Length 95th (m)	77.5	146.3	#110.0	42.4	#43.4	#165.6	18.8	11.3	121.3	6.0
Internal Link Dist (m)		804.7		965.6		1053.8			146.3	
Turn Bay Length (m)	30.0		15.0		60.0		60.0	60.0		60.0
Base Capacity (vph)	364	675	99	684	79	1795	664	303	2618	842
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	0.69	0.86	3.39	0.35	1.18	0.92	0.20	0.25	0.64	0.07

Intersection Summary

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

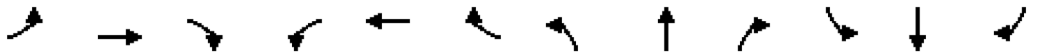
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	212	326	133	205	115	28	64	1513	114	49	1567	50
Future Volume (vph)	212	326	133	205	115	28	64	1513	114	49	1567	50
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	4.0	6.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	1802		1770	1817		1703	4988	1615	1752	4940	1495
Flt Permitted	0.53	1.00		0.14	1.00		0.12	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	984	1802		269	1817		222	4988	1615	156	4940	1495
Peak-hour factor, PHF	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Adj. Flow (vph)	252	413	168	336	169	70	93	1645	133	75	1685	60
RTOR Reduction (vph)	0	9	0	0	13	0	0	0	56	0	0	25
Lane Group Flow (vph)	252	572	0	336	226	0	93	1645	77	75	1685	35
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	44.4	44.4		44.4	44.4		43.2	43.2	43.2	63.6	63.6	63.6
Effective Green, g (s)	44.4	44.4		44.4	44.4		43.2	43.2	45.2	63.6	63.6	65.6
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.36	0.36	0.38	0.53	0.53	0.55
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	4.0	6.0	6.0
Lane Grp Cap (vph)	364	666		99	672		79	1795	608	300	2618	817
v/s Ratio Prot		0.32			0.12			0.33		0.03	c0.34	
v/s Ratio Perm	0.26			c1.25			c0.42		0.05	0.10		0.02
v/c Ratio	0.69	0.86		3.39	0.34		1.18	0.92	0.13	0.25	0.64	0.04
Uniform Delay, d1	32.0	34.9		37.8	27.2		38.4	36.7	24.5	20.1	20.1	12.6
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	10.4	13.6		1102.5	1.4		156.7	8.9	0.4	2.0	1.2	0.1
Delay (s)	42.4	48.5		1140.3	28.6		195.1	45.6	24.9	22.1	21.3	12.7
Level of Service	D	D		F	C		F	D	C	C	C	B
Approach Delay (s/veh)		46.6			678.2			51.5			21.1	
Approach LOS		D			F			D			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	110.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.04		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	103.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

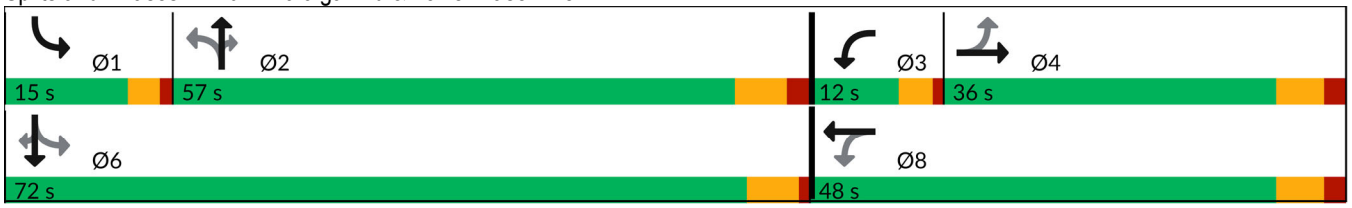


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	226	44	229	287	308	213	1634	265	174	1237	58
Future Volume (vph)	63	226	44	229	287	308	213	1634	265	174	1237	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		90.0	90.0		90.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.965			0.924				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1834	0	1770	1738	0	1805	5036	1599	1752	5085	1615
Flt Permitted	0.134			0.232			0.188			0.072		
Satd. Flow (perm)	250	1834	0	432	1738	0	357	5036	1599	133	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			48				315			92
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			728.6			888.2	
Travel Time (s)		38.5			41.4			32.8			40.0	
Peak Hour Factor	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Adj. Flow (vph)	82	269	81	241	363	376	239	1702	315	196	1359	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	82	350	0	241	739	0	239	1702	315	196	1359	92
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		25.0	25.0	25.0	7.0	25.0	25.0
Minimum Split (s)	22.5	22.5		11.5	22.5		31.6	31.6	31.6	11.5	30.6	30.6
Total Split (s)	36.0	36.0		12.0	48.0		57.0	57.0	57.0	15.0	72.0	72.0
Total Split (%)	30.0%	30.0%		10.0%	40.0%		47.5%	47.5%	47.5%	12.5%	60.0%	60.0%
Maximum Green (s)	29.8	29.8		8.0	41.8		50.4	50.4	50.4	11.0	66.4	66.4
Yellow Time (s)	4.2	4.2		3.0	4.2		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	Max
Act Effct Green (s)	29.8	29.8		44.0	41.8		50.4	50.4	50.4	68.0	66.4	66.4
Actuated g/C Ratio	0.25	0.25		0.37	0.35		0.42	0.42	0.42	0.57	0.55	0.55
v/c Ratio	1.32	0.75		0.98	1.16		1.60	0.80	0.37	0.88	0.48	0.10
Control Delay (s/veh)	260.5	51.8		84.8	123.5		328.4	34.2	3.7	63.7	17.1	2.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	260.5	51.8		84.8	123.5		328.4	34.2	3.7	63.7	17.1	2.8
LOS	F	D		F	F		F	C	A	E	B	A
Approach Delay (s/veh)		91.4			114.0			61.1			21.8	
Approach LOS		F			F			E			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.60			
Intersection Signal Delay (s/veh): 61.1		Intersection LOS: E	
Intersection Capacity Utilization 107.5%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line



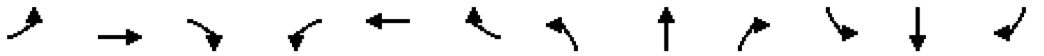


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	82	350	241	739	239	1702	315	196	1359	92
v/c Ratio	1.32	0.75	0.98	1.16	1.60	0.80	0.37	0.88	0.48	0.10
Control Delay (s/veh)	260.5	51.8	84.8	123.5	328.4	34.2	3.7	63.7	17.1	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	260.5	51.8	84.8	123.5	328.4	34.2	3.7	63.7	17.1	2.8
Queue Length 50th (m)	~26.3	78.0	43.4	~209.5	~84.6	133.0	0.0	31.6	71.8	0.0
Queue Length 95th (m)	#49.0	103.8	#95.2	#229.5	#134.6	153.7	12.5	#74.0	84.1	2.2
Internal Link Dist (m)		725.3		666.6		704.6			864.2	
Turn Bay Length (m)	45.0		110.0		90.0		90.0	90.0		90.0
Base Capacity (vph)	62	464	247	636	149	2115	854	223	2813	934
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.32	0.75	0.98	1.16	1.60	0.80	0.37	0.88	0.48	0.10

Intersection Summary

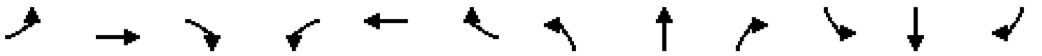
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	226	44	229	287	308	213	1634	265	174	1237	58
Future Volume (vph)	63	226	44	229	287	308	213	1634	265	174	1237	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.97		1.00	0.92		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1834		1770	1738		1805	5036	1599	1752	5085	1615
Flt Permitted	0.13	1.00		0.23	1.00		0.19	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	250	1834		432	1738		358	5036	1599	133	5085	1615
Peak-hour factor, PHF	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Adj. Flow (vph)	82	269	81	241	363	376	239	1702	315	196	1359	92
RTOR Reduction (vph)	0	9	0	0	31	0	0	0	183	0	0	41
Lane Group Flow (vph)	82	341	0	241	708	0	239	1702	132	196	1359	51
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	29.8	29.8		41.8	41.8		50.4	50.4	50.4	66.4	66.4	66.4
Effective Green, g (s)	29.8	29.8		41.8	41.8		50.4	50.4	50.4	66.4	66.4	66.4
Actuated g/C Ratio	0.25	0.25		0.35	0.35		0.42	0.42	0.42	0.55	0.55	0.55
Clearance Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Lane Grp Cap (vph)	62	455		239	605		150	2115	671	222	2813	893
v/s Ratio Prot		0.19		0.07	c0.41			0.34		c0.08	0.27	
v/s Ratio Perm	c0.33			0.28			c0.67		0.08	0.41		0.03
v/c Ratio	1.32	0.75		1.01	1.17		1.59	0.80	0.20	0.88	0.48	0.06
Uniform Delay, d1	45.1	41.7		37.7	39.1		34.8	30.5	22.0	32.0	16.3	12.4
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	222.7	8.0		60.4	93.2		296.1	3.4	0.7	36.2	0.6	0.1
Delay (s)	267.8	49.6		98.1	132.3		330.9	33.9	22.7	68.3	16.9	12.5
Level of Service	F	D		F	F		F	C	C	E	B	B
Approach Delay (s/veh)		91.0			123.9			63.8			22.8	
Approach LOS		F			F			E			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	64.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.42		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	107.5%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

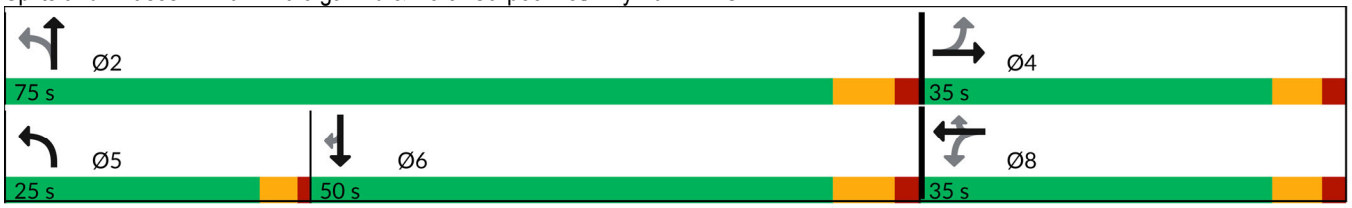


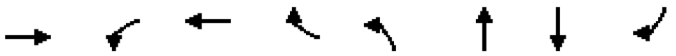
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	20	391	4	30	12	2079	0	0	1505	5
Future Volume (vph)	4	0	20	391	4	30	12	2079	0	0	1505	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.900			0.997	0.850						0.850
Flt Protected		0.987		0.950	0.955		0.950					
Satd. Flow (prot)	0	1539	0	1681	1589	1408	1641	5085	0	0	5085	1615
Flt Permitted		0.900		0.729	0.709		0.099					
Satd. Flow (perm)	0	1403	0	1290	1179	1408	171	5085	0	0	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		79			1	79						69
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			728.6	
Travel Time (s)		9.6			41.3			26.2			52.5	
Peak Hour Factor	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Adj. Flow (vph)	11	0	32	439	11	37	24	2212	0	0	1654	10
Shared Lane Traffic (%)				48%		10%						
Lane Group Flow (vph)	0	43	0	228	226	33	24	2212	0	0	1654	10
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	4.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	27.0			27.0	27.0
Total Split (s)	35.0	35.0		35.0	35.0	35.0	25.0	75.0			50.0	50.0
Total Split (%)	31.8%	31.8%		31.8%	31.8%	31.8%	22.7%	68.2%			45.5%	45.5%
Maximum Green (s)	29.0	29.0		29.0	29.0	29.0	21.0	68.0			43.0	43.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0			2.0	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	4.0	7.0			7.0	7.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	None	Max			Max	Max
Act Effct Green (s)		24.1		24.1	24.1	24.1	71.1	68.1			64.3	64.3
Actuated g/C Ratio		0.23		0.23	0.23	0.23	0.68	0.65			0.61	0.61
v/c Ratio		0.11		0.77	0.84	0.09	0.12	0.67			0.53	0.01
Control Delay (s/veh)		2.3		55.9	64.2	0.4	8.2	13.5			14.1	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		2.3		55.9	64.2	0.4	8.2	13.5			14.1	0.0
LOS		A		E	E	A	A	B			B	A
Approach Delay (s/veh)		2.3			56.0			13.5			14.0	
Approach LOS		A			E			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 105.3			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay (s/veh): 18.3		Intersection LOS: B	
Intersection Capacity Utilization 68.9%		ICU Level of Service C	
Analysis Period (min) 15			

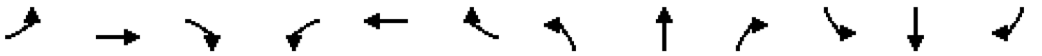
Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off





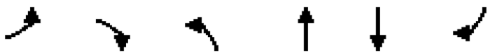
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	43	228	226	33	24	2212	1654	10
v/c Ratio	0.11	0.77	0.84	0.09	0.12	0.67	0.53	0.01
Control Delay (s/veh)	2.3	55.9	64.2	0.4	8.2	13.5	14.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	2.3	55.9	64.2	0.4	8.2	13.5	14.1	0.0
Queue Length 50th (m)	0.0	48.5	50.9	0.0	1.7	106.5	66.5	0.0
Queue Length 95th (m)	0.0	77.5	28.6	0.0	2.6	132.1	108.3	0.0
Internal Link Dist (m)	110.0		550.1			339.6	704.6	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	444	356	326	445	409	3290	3102	1012
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.64	0.69	0.07	0.06	0.67	0.53	0.01

Intersection Summary

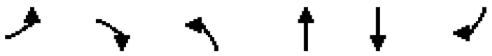


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	20	391	4	30	12	2079	0	0	1505	5
Future Volume (vph)	4	0	20	391	4	30	12	2079	0	0	1505	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.91			0.91	1.00
Frt		0.90		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.96	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1539		1681	1590	1408	1641	5085			5085	1615
Flt Permitted		0.90		0.73	0.71	1.00	0.10	1.00			1.00	1.00
Satd. Flow (perm)		1403		1290	1179	1408	171	5085			5085	1615
Peak-hour factor, PHF	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Adj. Flow (vph)	11	0	32	439	11	37	24	2212	0	0	1654	10
RTOR Reduction (vph)	0	33	0	0	1	26	0	0	0	0	0	4
Lane Group Flow (vph)	0	10	0	228	225	7	24	2212	0	0	1654	6
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		24.1		24.1	24.1	24.1	70.7	70.7			64.3	64.3
Effective Green, g (s)		24.1		24.1	24.1	24.1	70.7	70.7			64.3	64.3
Actuated g/C Ratio		0.22		0.22	0.22	0.22	0.66	0.66			0.60	0.60
Clearance Time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Lane Grp Cap (vph)		313		288	263	314	144	3334			3033	963
v/s Ratio Prot							0.00	c0.43			0.33	
v/s Ratio Perm		0.01		0.18	c0.19	0.01	0.10					0.00
v/c Ratio		0.03		0.79	0.86	0.02	0.17	0.66			0.55	0.01
Uniform Delay, d1		32.7		39.5	40.2	32.7	8.4	11.3			13.0	8.8
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2		0.0		14.2	23.4	0.0	0.4	1.1			0.7	0.0
Delay (s)		32.8		53.6	63.6	32.7	8.8	12.4			13.7	8.8
Level of Service		C		D	E	C	A	B			B	A
Approach Delay (s/veh)		32.8			56.8			12.3			13.7	
Approach LOS		C			E			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	107.8	Sum of lost time (s)	17.0
Intersection Capacity Utilization	68.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



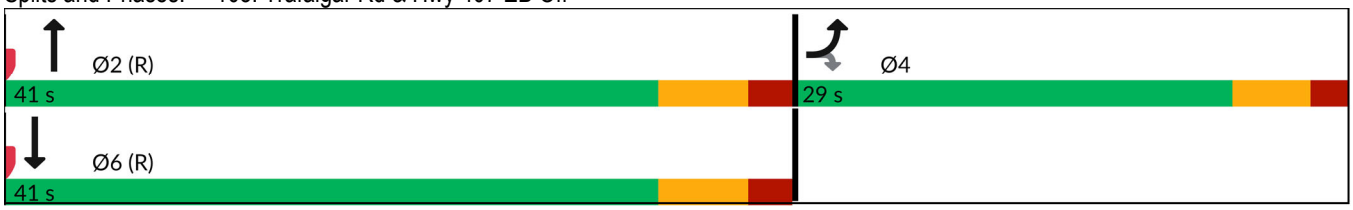
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	42	93	0	2321	1733	0
Future Volume (vph)	42	93	0	2321	1733	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1703	1429	0	5085	5085	0
Flt Permitted	0.950					
Satd. Flow (perm)	1703	1429	0	5085	5085	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		5				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			251.9	363.6	
Travel Time (s)	39.9			18.1	26.2	
Peak Hour Factor	0.75	0.94	0.25	0.94	0.92	0.25
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Adj. Flow (vph)	56	99	0	2469	1884	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	56	99	0	2469	1884	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	29.0	29.0		24.9	24.9	
Total Split (s)	29.0	29.0		41.0	41.0	
Total Split (%)	41.4%	41.4%		58.6%	58.6%	
Maximum Green (s)	23.0	23.0		34.1	34.1	
Yellow Time (s)	4.0	4.0		4.6	4.6	
All-Red Time (s)	2.0	2.0		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.9	6.9	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	23.0	23.0		34.1	34.1	
Actuated g/C Ratio	0.33	0.33		0.49	0.49	
v/c Ratio	0.10	0.21		1.00	0.76	
Control Delay (s/veh)	17.0	17.6		36.7	17.2	
Queue Delay	0.0	0.0		0.0	0.0	



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay (s/veh)	17.0	17.6		36.7	17.2	
LOS	B	B		D	B	
Approach Delay (s/veh)	17.4			36.7	17.2	
Approach LOS	B			D	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 75			
Control Type: Pretimed			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay (s/veh): 27.9		Intersection LOS: C	
Intersection Capacity Utilization 59.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off

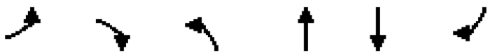




Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	56	99	2469	1884
v/c Ratio	0.10	0.21	1.00	0.76
Control Delay (s/veh)	17.0	17.6	36.7	17.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	17.0	17.6	36.7	17.2
Queue Length 50th (m)	5.3	9.2	116.8	72.9
Queue Length 95th (m)	10.5	19.9	#162.5	91.1
Internal Link Dist (m)	530.6		227.9	339.6
Turn Bay Length (m)				
Base Capacity (vph)	559	472	2477	2477
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.10	0.21	1.00	0.76

Intersection Summary

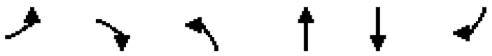
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	42	93	0	2321	1733	0
Future Volume (vph)	42	93	0	2321	1733	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.9	6.9	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1703	1429		5085	5085	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1703	1429		5085	5085	
Peak-hour factor, PHF	0.75	0.94	0.25	0.94	0.92	0.25
Adj. Flow (vph)	56	99	0	2469	1884	0
RTOR Reduction (vph)	0	3	0	0	0	0
Lane Group Flow (vph)	56	96	0	2469	1884	0
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	23.0	23.0		34.1	34.1	
Effective Green, g (s)	23.0	23.0		34.1	34.1	
Actuated g/C Ratio	0.33	0.33		0.49	0.49	
Clearance Time (s)	6.0	6.0		6.9	6.9	
Lane Grp Cap (vph)	559	469		2477	2477	
v/s Ratio Prot	0.03			c0.49	0.37	
v/s Ratio Perm		c0.07				
v/c Ratio	0.10	0.20		1.00	0.76	
Uniform Delay, d1	16.3	16.9		17.9	14.6	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	1.0		17.3	2.3	
Delay (s)	16.7	17.9		35.2	16.9	
Level of Service	B	B		D	B	
Approach Delay (s/veh)	17.5			35.2	16.9	
Approach LOS	B			D	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	27.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

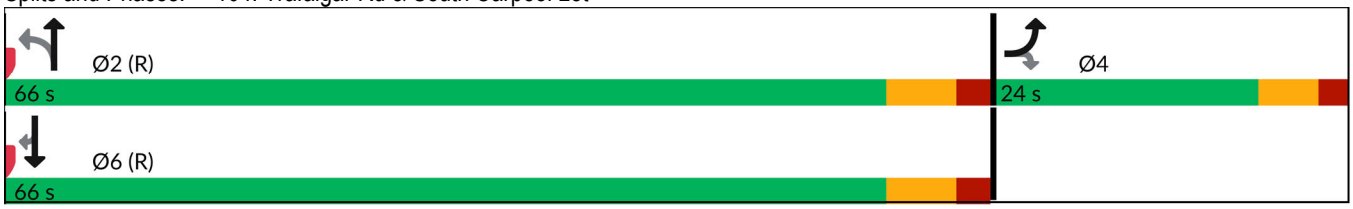


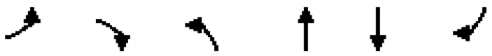
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	80	90	77	2643	1784	42
Future Volume (vph)	80	90	77	2643	1784	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	50.0			30.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5		100.0			
Lane Util. Factor	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)	1504	1455	1570	5085	5085	1615
Flt Permitted	0.950		0.074			
Satd. Flow (perm)	1504	1455	122	5085	5085	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		18				42
Link Speed (k/h)	50			80	80	
Link Distance (m)	107.1			233.3	251.9	
Travel Time (s)	7.7			10.5	11.3	
Peak Hour Factor	0.62	0.78	0.78	0.93	0.90	0.77
Heavy Vehicles (%)	20%	11%	15%	2%	2%	0%
Adj. Flow (vph)	129	115	99	2842	1982	55
Shared Lane Traffic (%)						
Lane Group Flow (vph)	129	115	99	2842	1982	55
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Minimum Split (s)	24.0	24.0	24.9	24.9	24.9	24.9
Total Split (s)	24.0	24.0	66.0	66.0	66.0	66.0
Total Split (%)	26.7%	26.7%	73.3%	73.3%	73.3%	73.3%
Maximum Green (s)	18.0	18.0	59.1	59.1	59.1	59.1
Yellow Time (s)	4.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.9	6.9	6.9	6.9
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Don't Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	18.0	18.0	59.1	59.1	59.1	59.1
Actuated g/C Ratio	0.20	0.20	0.66	0.66	0.66	0.66

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
v/c Ratio	0.43	0.38	1.24	0.85	0.59	0.05
Control Delay (s/veh)	36.7	30.3	201.7	15.4	9.6	2.5
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay (s/veh)	36.7	30.3	201.7	15.6	9.6	2.5
LOS	D	C	F	B	A	A
Approach Delay (s/veh)	33.7			21.8	9.4	
Approach LOS	C			C	A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 120			
Control Type: Pretimed			
Maximum v/c Ratio: 1.24			
Intersection Signal Delay (s/veh): 17.6		Intersection LOS: B	
Intersection Capacity Utilization 66.2%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 104: Trafalgar Rd & South Carpool Lot





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	129	115	99	2842	1982	55
v/c Ratio	0.43	0.38	1.24	0.85	0.59	0.05
Control Delay (s/veh)	36.7	30.3	201.7	15.4	9.6	2.5
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay (s/veh)	36.7	30.3	201.7	15.6	9.6	2.5
Queue Length 50th (m)	20.7	15.3	~22.6	130.8	65.8	0.7
Queue Length 95th (m)	25.0	26.3	#30.8	155.6	78.5	3.5
Internal Link Dist (m)	83.1			209.3	227.9	
Turn Bay Length (m)			50.0			30.0
Base Capacity (vph)	300	305	80	3339	3339	1074
Starvation Cap Reductn	0	0	0	91	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.38	1.24	0.88	0.59	0.05

Intersection Summary

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

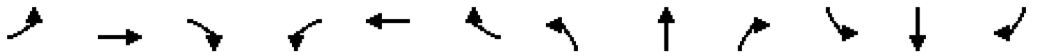
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	80	90	77	2643	1784	42
Future Volume (vph)	80	90	77	2643	1784	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.9	6.9	6.9	6.9
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)	1504	1455	1570	5085	5085	1615
Flt Permitted	0.95	1.00	0.07	1.00	1.00	1.00
Satd. Flow (perm)	1504	1455	122	5085	5085	1615
Peak-hour factor, PHF	0.62	0.78	0.78	0.93	0.90	0.77
Adj. Flow (vph)	129	115	99	2842	1982	55
RTOR Reduction (vph)	0	14	0	0	0	14
Lane Group Flow (vph)	129	101	99	2842	1982	41
Heavy Vehicles (%)	20%	11%	15%	2%	2%	0%
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	18.0	18.0	59.1	59.1	59.1	59.1
Effective Green, g (s)	18.0	18.0	59.1	59.1	59.1	59.1
Actuated g/C Ratio	0.20	0.20	0.66	0.66	0.66	0.66
Clearance Time (s)	6.0	6.0	6.9	6.9	6.9	6.9
Lane Grp Cap (vph)	300	291	80	3339	3339	1060
v/s Ratio Prot	c0.09			0.56	0.39	
v/s Ratio Perm		0.07	c0.81			0.03
v/c Ratio	0.43	0.35	1.24	0.85	0.59	0.04
Uniform Delay, d1	31.5	30.9	15.4	12.0	8.7	5.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.4	3.2	177.5	3.0	0.8	0.1
Delay (s)	36.0	34.2	192.9	15.0	9.5	5.5
Level of Service	D	C	F	B	A	A
Approach Delay (s/veh)	35.1			21.0	9.4	
Approach LOS	D			C	A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

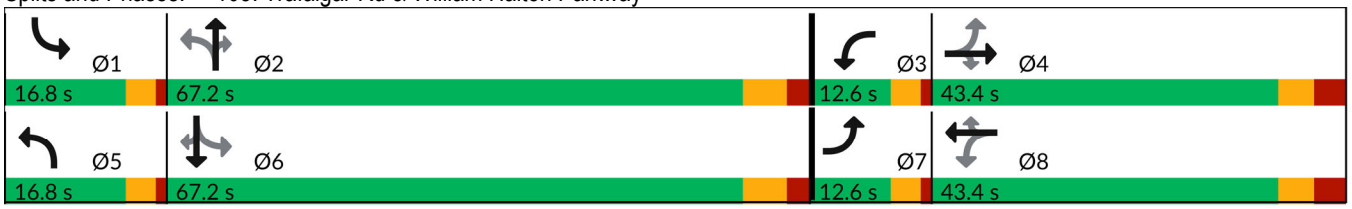


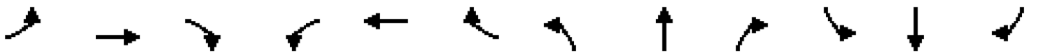
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	315	724	245	164	898	638	229	1768	46	262	1324	288
Future Volume (vph)	315	724	245	164	898	638	229	1768	46	262	1324	288
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	0.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			7.5		
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)	1770	3539	1599	1805	3610	1583	1787	5085	1615	1719	5085	1599
Flt Permitted	0.110			0.147			0.079			0.066		
Satd. Flow (perm)	205	3539	1599	279	3610	1583	149	5085	1615	119	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			183			173			94			178
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		1213.9			1579.7			285.3			233.3	
Travel Time (s)		87.4			113.7			20.5			16.8	
Peak Hour Factor	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
Adj. Flow (vph)	350	746	269	231	1044	751	283	1964	73	285	1540	313
Shared Lane Traffic (%)												
Lane Group Flow (vph)	350	746	269	231	1044	751	283	1964	73	285	1540	313
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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)	11.5	38.0	38.0	11.5	38.0	38.0	11.5	42.9	42.9	11.5	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	Max	Max	None	Max	Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't 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)	48.0	36.4	36.4	48.0	36.4	36.4	76.0	60.3	60.3	76.0	60.3	60.3
Actuated g/C Ratio	0.34	0.26	0.26	0.34	0.26	0.26	0.54	0.43	0.43	0.54	0.43	0.43
v/c Ratio	2.11	0.81	0.49	1.22	1.11	1.39	1.23	0.90	0.10	1.36	0.70	0.40
Control Delay (s/veh)	540.8	56.7	17.4	170.2	112.7	218.4	167.6	43.5	2.6	220.9	34.7	12.7
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 (s/veh)	540.8	56.7	17.4	170.2	112.7	218.4	167.6	43.5	2.6	220.9	34.7	12.7
LOS	F	E	B	F	F	F	F	D	A	F	C	B
Approach Delay (s/veh)		173.1			158.4			57.4			56.3	
Approach LOS		F			F			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Natural Cycle: 135			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 2.11			
Intersection Signal Delay (s/veh): 103.3		Intersection LOS: F	
Intersection Capacity Utilization 109.2%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	350	746	269	231	1044	751	283	1964	73	285	1540	313
v/c Ratio	2.11	0.81	0.49	1.22	1.11	1.39	1.23	0.90	0.10	1.36	0.70	0.40
Control Delay (s/veh)	540.8	56.7	17.4	170.2	112.7	218.4	167.6	43.5	2.6	220.9	34.7	12.7
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 (s/veh)	540.8	56.7	17.4	170.2	112.7	218.4	167.6	43.5	2.6	220.9	34.7	12.7
Queue Length 50th (m)	~145.0	107.8	19.7	~57.9	~182.8	~253.0	~80.9	192.0	0.0	~92.5	132.5	24.6
Queue Length 95th (m)	#209.4	133.2	48.0	#71.6	#210.2	#303.3	#117.7	214.9	0.0	#152.6	140.8	49.2
Internal Link Dist (m)		1189.9			1555.7			261.3			209.3	
Turn Bay Length (m)	100.0		100.0	100.0		150.0	150.0		75.0			
Base Capacity (vph)	166	920	551	189	938	539	230	2190	749	210	2190	790
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	2.11	0.81	0.49	1.22	1.11	1.39	1.23	0.90	0.10	1.36	0.70	0.40

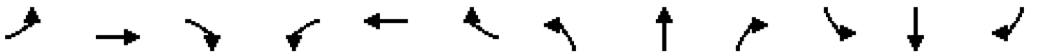
Intersection Summary

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	315	724	245	164	898	638	229	1768	46	262	1324	288
Future Volume (vph)	315	724	245	164	898	638	229	1768	46	262	1324	288
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)	1770	3539	1599	1805	3610	1583	1787	5085	1615	1719	5085	1599
Flt Permitted	0.11	1.00	1.00	0.15	1.00	1.00	0.08	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	205	3539	1599	279	3610	1583	149	5085	1615	120	5085	1599
Peak-hour factor, PHF	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Adj. Flow (vph)	350	746	269	231	1044	751	283	1964	73	285	1540	313
RTOR Reduction (vph)	0	0	135	0	0	128	0	0	42	0	0	101
Lane Group Flow (vph)	350	746	134	231	1044	623	283	1964	31	285	1540	212
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
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)	45.0	36.4	36.4	45.0	36.4	36.4	73.1	60.3	60.3	73.1	60.3	60.3
Effective Green, g (s)	45.0	36.4	36.4	45.0	36.4	36.4	73.1	60.3	60.3	73.1	60.3	60.3
Actuated g/C Ratio	0.32	0.26	0.26	0.32	0.26	0.26	0.52	0.43	0.43	0.52	0.43	0.43
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)	162	920	415	183	938	411	227	2190	695	208	2190	688
v/s Ratio Prot	c0.13	0.21		0.08	0.29		0.11	0.39		c0.12	0.30	
v/s Ratio Perm	c0.56		0.08	0.33		0.39	0.53		0.02	c0.59		0.13
v/c Ratio	2.16	0.81	0.32	1.26	1.11	1.52	1.25	0.90	0.05	1.37	0.70	0.31
Uniform Delay, d1	42.0	48.6	41.8	42.5	51.8	51.8	38.4	37.0	23.1	43.6	32.5	26.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	542.1	6.2	0.9	154.3	65.5	244.3	142.3	6.3	0.1	194.1	1.9	1.2
Delay (s)	584.2	54.8	42.8	196.7	117.3	296.1	180.7	43.3	23.3	237.7	34.5	27.3
Level of Service	F	D	D	F	F	F	F	D	C	F	C	C
Approach Delay (s/veh)		188.2			192.7			59.4			60.5	
Approach LOS		F			F			E			E	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	116.5	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)	21.9
Intersection Capacity Utilization	109.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

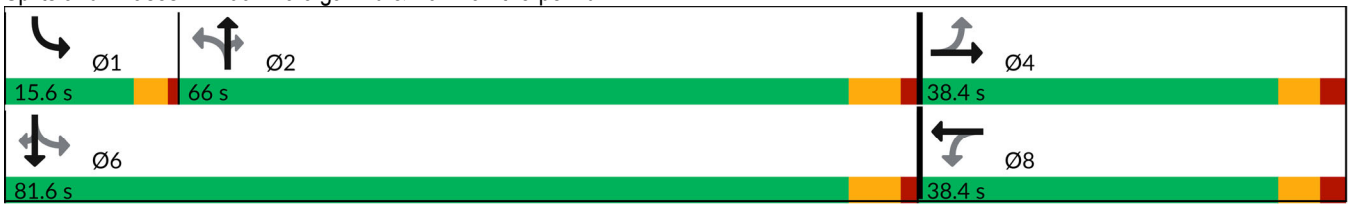


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	429	23	233	381	310	97	1724	143	209	1352	173
Future Volume (vph)	135	429	23	233	381	310	97	1724	143	209	1352	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		60.0	60.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	70.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.993			0.937				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1887	0	1805	1780	0	1805	5036	1615	1480	5085	1599
Flt Permitted	0.123			0.123			0.156			0.062		
Satd. Flow (perm)	229	1887	0	234	1780	0	296	5036	1615	97	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			30				64			80
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		828.7			989.6			1941.0			170.3	
Travel Time (s)		49.7			59.4			87.3			7.7	
Peak Hour Factor	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	1%
Adj. Flow (vph)	161	613	28	295	529	388	124	2028	210	327	1536	201
Shared Lane Traffic (%)												
Lane Group Flow (vph)	161	641	0	295	917	0	124	2028	210	327	1536	201
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		20.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	24.0	24.0		24.0	24.0		26.0	26.0	26.0	11.5	26.0	26.0
Total Split (s)	38.4	38.4		38.4	38.4		66.0	66.0	66.0	15.6	81.6	81.6
Total Split (%)	32.0%	32.0%		32.0%	32.0%		55.0%	55.0%	55.0%	13.0%	68.0%	68.0%
Maximum Green (s)	32.4	32.4		32.4	32.4		60.0	60.0	60.0	11.6	75.6	75.6
Yellow Time (s)	3.7	3.7		3.7	3.7		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.3	2.3		2.3	2.3		1.4	1.4	1.4	1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max	Max	None	Max	Max
Act Effct Green (s)	32.4	32.4		32.4	32.4		60.0	60.0	62.0	77.6	75.6	77.6
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.50	0.50	0.52	0.65	0.63	0.65
v/c Ratio	2.64	1.26		4.68	1.83		0.84	0.81	0.24	1.67	0.48	0.19
Control Delay (s/veh)	802.9	168.2		Error	407.0		70.5	28.3	11.7	348.1	12.4	5.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	802.9	168.2		Error	407.0		70.5	28.3	11.7	348.1	12.4	5.4
LOS	F	F		F	F		E	C	B	F	B	A
Approach Delay (s/veh)		295.6			722.9			29.0			64.9	
Approach LOS		F			F			C			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 100			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 4.68			
Intersection Signal Delay (s/veh): 204.3		Intersection LOS: F	
Intersection Capacity Utilization 110.5%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burnhamthorpe Rd





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	161	641	295	917	124	2028	210	327	1536	201
v/c Ratio	2.64	1.26	4.68	1.83	0.84	0.81	0.24	1.67	0.48	0.19
Control Delay (s/veh)	802.9	168.2	Error	407.0	70.5	28.3	11.7	348.1	12.4	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	802.9	168.2	Error	407.0	70.5	28.3	11.7	348.1	12.4	5.4
Queue Length 50th (m)	~67.1	~199.6	~123.1	~341.2	25.6	149.3	18.6	~104.9	68.8	10.6
Queue Length 95th (m)	#90.2	#182.3	#155.1	#309.7	#52.1	154.5	21.7	#98.1	77.1	18.8
Internal Link Dist (m)		804.7		965.6		1917.0			146.3	
Turn Bay Length (m)	30.0		15.0		60.0		60.0	60.0		60.0
Base Capacity (vph)	61	510	63	502	148	2518	865	196	3203	1062
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	2.64	1.26	4.68	1.83	0.84	0.81	0.24	1.67	0.48	0.19

Intersection Summary

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

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

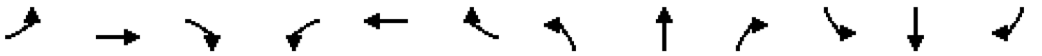
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	429	23	233	381	310	97	1724	143	209	1352	173
Future Volume (vph)	135	429	23	233	381	310	97	1724	143	209	1352	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	4.0	4.0	6.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.99		1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1888		1805	1779		1805	5036	1615	1480	5085	1599
Flt Permitted	0.12	1.00		0.12	1.00		0.16	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	230	1888		235	1779		296	5036	1615	97	5085	1599
Peak-hour factor, PHF	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Adj. Flow (vph)	161	613	28	295	529	388	124	2028	210	327	1536	201
RTOR Reduction (vph)	0	1	0	0	22	0	0	0	31	0	0	28
Lane Group Flow (vph)	161	640	0	295	895	0	124	2028	179	327	1536	173
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	32.4	32.4		32.4	32.4		60.0	60.0	60.0	75.6	75.6	75.6
Effective Green, g (s)	32.4	32.4		32.4	32.4		60.0	60.0	62.0	75.6	75.6	77.6
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.50	0.50	0.52	0.63	0.63	0.65
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	62	509		63	480		148	2518	834	194	3203	1034
v/s Ratio Prot		0.34			0.50			0.40		c0.16	0.30	
v/s Ratio Perm	0.70			c1.26			0.42		0.11	c0.89		0.11
v/c Ratio	2.60	1.26		4.68	1.86		0.84	0.81	0.21	1.69	0.48	0.17
Uniform Delay, d1	43.8	43.8		43.8	43.8		25.8	25.1	15.8	37.5	11.8	8.4
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	763.0	130.7		1692.7	397.1		40.4	2.9	0.6	329.8	0.5	0.3
Delay (s)	806.8	174.5		1736.5	440.9		66.2	28.0	16.4	367.4	12.3	8.7
Level of Service	F	F		F	F		E	C	B	F	B	A
Approach Delay (s/veh)		301.4			756.2			29.0			68.2	
Approach LOS		F			F			C			E	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	212.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.65		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	110.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Appendix F3

2041 Background Operation Synchro Reports



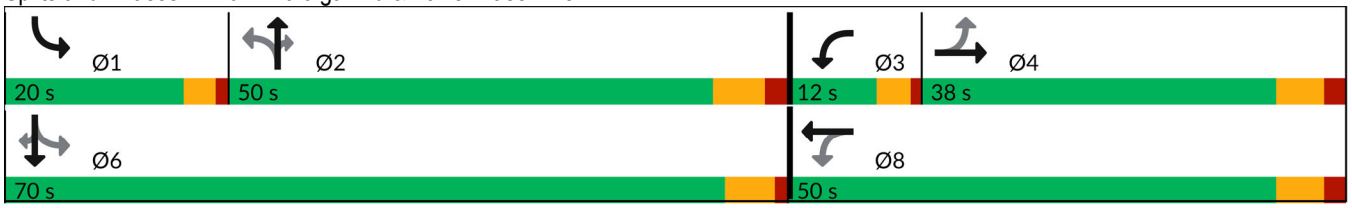


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	332	95	283	114	147	35	1228	227	347	1548	66
Future Volume (vph)	115	332	95	283	114	147	35	1228	227	347	1548	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		90.0	90.0		90.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.963			0.912				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1816	0	1736	1666	0	1597	4848	1568	1752	4988	1553
Flt Permitted	0.561			0.112			0.096			0.083		
Satd. Flow (perm)	1025	1816	0	205	1666	0	161	4848	1568	153	4988	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			67				243			93
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			498.3			434.3	
Travel Time (s)		38.5			41.4			22.4			19.5	
Peak Hour Factor	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Adj. Flow (vph)	137	431	140	388	137	193	49	1498	255	394	1821	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	137	571	0	388	330	0	49	1498	255	394	1821	93
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		25.0	25.0	25.0	7.0	25.0	25.0
Minimum Split (s)	22.5	22.5		11.5	22.5		31.6	31.6	31.6	11.5	30.6	30.6
Total Split (s)	38.0	38.0		12.0	50.0		50.0	50.0	50.0	20.0	70.0	70.0
Total Split (%)	31.7%	31.7%		10.0%	41.7%		41.7%	41.7%	41.7%	16.7%	58.3%	58.3%
Maximum Green (s)	31.8	31.8		8.0	43.8		43.4	43.4	43.4	16.0	64.4	64.4
Yellow Time (s)	4.2	4.2		3.0	4.2		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	Max
Act Effct Green (s)	31.8	31.8		46.0	43.8		43.4	43.4	43.4	66.0	64.4	64.4
Actuated g/C Ratio	0.27	0.27		0.38	0.37		0.36	0.36	0.36	0.55	0.54	0.54
v/c Ratio	0.51	1.17		2.16	0.51		0.84	0.85	0.35	1.33	0.68	0.11
Control Delay (s/veh)	45.1	135.7		558.6	26.5		120.3	41.3	5.4	198.5	21.9	3.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	45.1	135.7		558.6	26.5		120.3	41.3	5.4	198.5	21.9	3.0
LOS	D	F		F	C		F	D	A	F	C	A
Approach Delay (s/veh)		118.2			314.0			38.3			51.3	
Approach LOS		F			F			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 2.16			
Intersection Signal Delay (s/veh): 89.7		Intersection LOS: F	
Intersection Capacity Utilization 108.3%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line



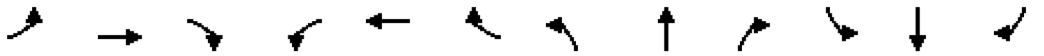


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	137	571	388	330	49	1498	255	394	1821	93
v/c Ratio	0.51	1.17	2.16	0.51	0.84	0.85	0.35	1.33	0.68	0.11
Control Delay (s/veh)	45.1	135.7	558.6	26.5	120.3	41.3	5.4	198.5	21.9	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	45.1	135.7	558.6	26.5	120.3	41.3	5.4	198.5	21.9	3.0
Queue Length 50th (m)	28.9	~167.3	~138.0	50.1	11.1	124.6	1.9	~110.4	115.8	0.0
Queue Length 95th (m)	46.2	#185.1	#150.6	69.8	#26.8	126.7	18.9	#168.1	121.2	4.0
Internal Link Dist (m)		725.3		666.6		474.3			410.3	
Turn Bay Length (m)	45.0		110.0		90.0		90.0	90.0		90.0
Base Capacity (vph)	271	488	180	650	58	1753	722	297	2676	876
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	0.51	1.17	2.16	0.51	0.84	0.85	0.35	1.33	0.68	0.11

Intersection Summary

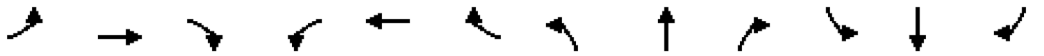
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	332	95	283	114	147	35	1228	227	347	1548	66
Future Volume (vph)	115	332	95	283	114	147	35	1228	227	347	1548	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	1816		1736	1667		1597	4848	1568	1752	4988	1553
Flt Permitted	0.56	1.00		0.11	1.00		0.10	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	1026	1816		204	1667		162	4848	1568	152	4988	1553
Peak-hour factor, PHF	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Adj. Flow (vph)	137	431	140	388	137	193	49	1498	255	394	1821	93
RTOR Reduction (vph)	0	7	0	0	43	0	0	0	155	0	0	43
Lane Group Flow (vph)	137	564	0	388	287	0	49	1498	100	394	1821	50
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	31.8	31.8		43.8	43.8		43.4	43.4	43.4	64.4	64.4	64.4
Effective Green, g (s)	31.8	31.8		43.8	43.8		43.4	43.4	43.4	64.4	64.4	64.4
Actuated g/C Ratio	0.27	0.27		0.37	0.37		0.36	0.36	0.36	0.54	0.54	0.54
Clearance Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Lane Grp Cap (vph)	271	481		176	608		58	1753	567	294	2676	833
v/s Ratio Prot		0.31		c0.15	0.17			0.31		c0.18	0.37	
v/s Ratio Perm	0.13			c0.66			0.30		0.06	c0.54		0.03
v/c Ratio	0.51	1.17		2.20	0.47		0.84	0.85	0.18	1.34	0.68	0.06
Uniform Delay, d1	37.4	44.1		33.1	29.2		35.2	35.4	26.1	36.8	20.3	13.3
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	3.1	97.6		560.2	1.2		79.2	5.6	0.7	174.3	1.4	0.1
Delay (s)	40.5	141.7		593.3	30.5		114.4	40.9	26.8	211.1	21.7	13.4
Level of Service	D	F		F	C		F	D	C	F	C	B
Approach Delay (s/veh)		122.1			334.6			40.9			53.7	
Approach LOS		F			F			D			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	94.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	108.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

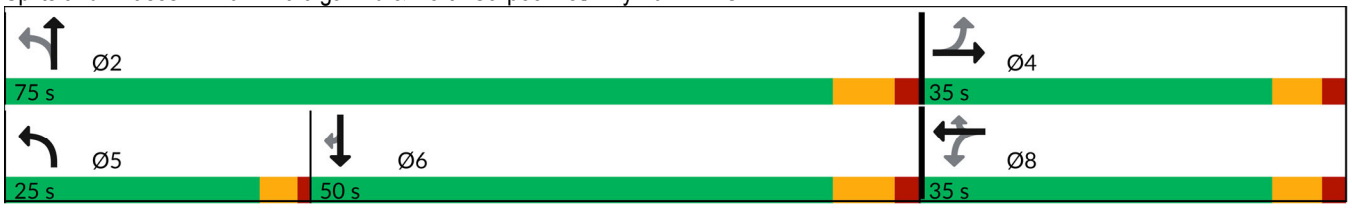


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	10	213	3	7	8	1479	0	0	1923	3
Future Volume (vph)	4	0	10	213	3	7	8	1479	0	0	1923	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.899			0.998	0.850						0.850
Flt Protected		0.988		0.950	0.955		0.950					
Satd. Flow (prot)	0	1497	0	1545	1465	1534	1543	4893	0	0	4988	1615
Flt Permitted		0.911		0.728	0.706		0.060					
Satd. Flow (perm)	0	1380	0	1184	1083	1534	97	4893	0	0	4988	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		79			1	79						69
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			232.3	
Travel Time (s)		9.6			41.3			26.2			16.7	
Peak Hour Factor	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Adj. Flow (vph)	11	0	33	277	6	17	27	1608	0	0	2210	12
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	0	44	0	141	144	15	27	1608	0	0	2210	12
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	4.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	27.0			27.0	27.0
Total Split (s)	35.0	35.0		35.0	35.0	35.0	25.0	75.0			50.0	50.0
Total Split (%)	31.8%	31.8%		31.8%	31.8%	31.8%	22.7%	68.2%			45.5%	45.5%
Maximum Green (s)	29.0	29.0		29.0	29.0	29.0	21.0	68.0			43.0	43.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0			2.0	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	4.0	7.0			7.0	7.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	None	Max			Max	Max
Act Effct Green (s)		18.8		18.8	18.8	18.8	71.3	68.3			62.5	62.5
Actuated g/C Ratio		0.19		0.19	0.19	0.19	0.71	0.68			0.62	0.62
v/c Ratio		0.14		0.64	0.71	0.04	0.18	0.48			0.71	0.01
Control Delay (s/veh)		2.8		50.4	56.4	0.2	8.4	8.8			16.5	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		2.8		50.4	56.4	0.2	8.4	8.8			16.5	0.0
LOS		A		D	E	A	A	A			B	A
Approach Delay (s/veh)		2.8			50.8			8.8			16.4	
Approach LOS		A			D			A			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 100.1			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay (s/veh): 15.8		Intersection LOS: B	
Intersection Capacity Utilization 60.7%		ICU Level of Service B	
Analysis Period (min) 15			

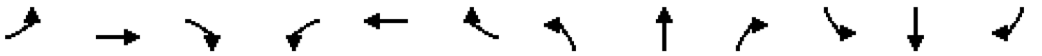
Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off





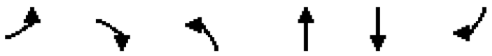
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	44	141	144	15	27	1608	2210	12
v/c Ratio	0.14	0.64	0.71	0.04	0.18	0.48	0.71	0.01
Control Delay (s/veh)	2.8	50.4	56.4	0.2	8.4	8.8	16.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	2.8	50.4	56.4	0.2	8.4	8.8	16.5	0.0
Queue Length 50th (m)	0.0	28.1	30.2	0.0	1.4	50.1	113.7	0.0
Queue Length 95th (m)	0.0	40.9	26.5	0.0	1.7	81.6	161.6	0.0
Internal Link Dist (m)	110.0		550.1			339.6	208.3	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	457	344	315	502	373	3338	3115	1034
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.41	0.46	0.03	0.07	0.48	0.71	0.01

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	10	213	3	7	8	1479	0	0	1923	3
Future Volume (vph)	4	0	10	213	3	7	8	1479	0	0	1923	3
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	4.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.91			0.91	1.00
Frt		0.90		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1496		1545	1465	1534	1543	4893			4988	1615
Flt Permitted		0.91		0.73	0.71	1.00	0.06	1.00			1.00	1.00
Satd. Flow (perm)		1380		1184	1083	1534	98	4893			4988	1615
Peak-hour factor, PHF	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Adj. Flow (vph)	11	0	33	277	6	17	27	1608	0	0	2210	12
RTOR Reduction (vph)	0	36	0	0	1	12	0	0	0	0	0	5
Lane Group Flow (vph)	0	8	0	141	143	3	27	1608	0	0	2210	7
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		18.7		18.7	18.7	18.7	69.9	69.9			62.5	62.5
Effective Green, g (s)		18.7		18.7	18.7	18.7	69.9	69.9			62.5	62.5
Actuated g/C Ratio		0.18		0.18	0.18	0.18	0.69	0.69			0.62	0.62
Clearance Time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Lane Grp Cap (vph)		253		217	199	282	115	3366			3068	993
v/s Ratio Prot							0.01	c0.33			c0.44	
v/s Ratio Perm		0.01		0.12	c0.13	0.00	0.15					0.00
v/c Ratio		0.03		0.65	0.72	0.01	0.23	0.48			0.72	0.01
Uniform Delay, d1		34.0		38.4	39.0	33.9	9.9	7.4			13.5	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		6.8	12.1	0.0	0.8	0.5			1.5	0.0
Delay (s)		34.1		45.3	51.1	33.9	10.7	7.9			15.0	7.6
Level of Service		C		D	D	C	B	A			B	A
Approach Delay (s/veh)		34.1			47.5			7.9			15.0	
Approach LOS		C			D			A			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	101.6	Sum of lost time (s)	17.0
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

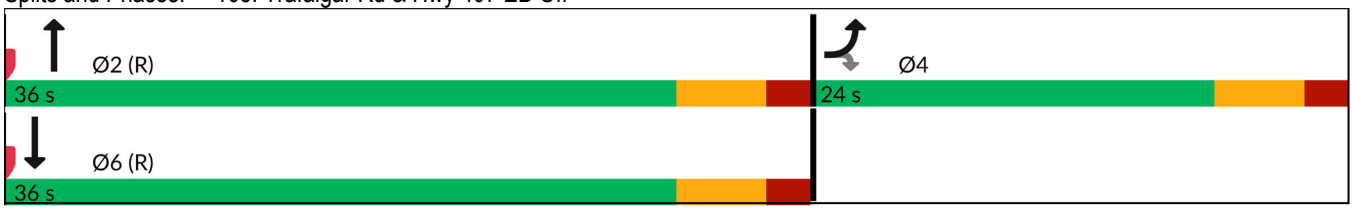


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	82	147	0	1561	2038	0
Future Volume (vph)	82	147	0	1561	2038	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1671	1392	0	4848	4940	0
Flt Permitted	0.950					
Satd. Flow (perm)	1671	1392	0	4848	4940	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		1				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			120.3	363.6	
Travel Time (s)	39.9			8.7	26.2	
Peak Hour Factor	0.79	0.78	0.25	0.85	0.86	0.25
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Adj. Flow (vph)	104	188	0	1836	2370	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	104	188	0	1836	2370	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	24.0	24.0		24.0	24.0	
Total Split (s)	24.0	24.0		36.0	36.0	
Total Split (%)	40.0%	40.0%		60.0%	60.0%	
Maximum Green (s)	18.0	18.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	18.0	18.0		30.0	30.0	
Actuated g/C Ratio	0.30	0.30		0.50	0.50	
v/c Ratio	0.21	0.45		0.76	0.96	
Control Delay (s/veh)	17.1	21.1		14.6	26.8	
Queue Delay	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay (s/veh)	17.1	21.1		14.6	26.8	
LOS	B	C		B	C	
Approach Delay (s/veh)	19.7			14.6	26.8	
Approach LOS	B			B	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Pretimed			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay (s/veh): 21.4		Intersection LOS: C	
Intersection Capacity Utilization 58.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off

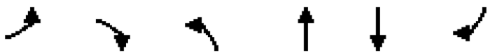




Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	104	188	1836	2370
v/c Ratio	0.21	0.45	0.76	0.96
Control Delay (s/veh)	17.1	21.1	14.6	26.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	17.1	21.1	14.6	26.8
Queue Length 50th (m)	8.9	17.3	57.7	89.0
Queue Length 95th (m)	16.7	28.3	68.1	#121.9
Internal Link Dist (m)	530.6		96.3	339.6
Turn Bay Length (m)				
Base Capacity (vph)	501	418	2424	2470
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	0.45	0.76	0.96

Intersection Summary

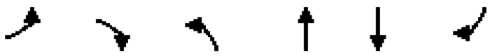
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	82	147	0	1561	2038	0
Future Volume (vph)	82	147	0	1561	2038	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1671	1392		4848	4940	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1671	1392		4848	4940	
Peak-hour factor, PHF	0.79	0.78	0.25	0.85	0.86	0.25
Adj. Flow (vph)	104	188	0	1836	2370	0
RTOR Reduction (vph)	0	1	0	0	0	0
Lane Group Flow (vph)	104	187	0	1836	2370	0
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	18.0	18.0		30.0	30.0	
Effective Green, g (s)	18.0	18.0		30.0	30.0	
Actuated g/C Ratio	0.30	0.30		0.50	0.50	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	501	417		2424	2470	
v/s Ratio Prot	0.06			0.38	c0.48	
v/s Ratio Perm		c0.13				
v/c Ratio	0.21	0.45		0.76	0.96	
Uniform Delay, d1	15.7	17.0		12.1	14.4	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.9	3.5		2.3	10.8	
Delay (s)	16.6	20.5		14.3	25.2	
Level of Service	B	C		B	C	
Approach Delay (s/veh)	19.1			14.3	25.2	
Approach LOS	B			B	C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	60.0	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



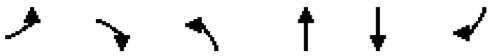
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	71	82	96	1942	2105	80
Future Volume (vph)	71	82	96	1942	2105	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	50.0			30.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5		100.0			
Lane Util. Factor	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)	1337	1404	1570	4940	4940	1615
Flt Permitted	0.950		0.102			
Satd. Flow (perm)	1337	1404	169	4940	4940	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		3				60
Link Speed (k/h)	50			80	80	
Link Distance (m)	107.1			233.3	131.6	
Travel Time (s)	7.7			10.5	5.9	
Peak Hour Factor	0.87	0.83	0.88	0.91	0.89	0.85
Heavy Vehicles (%)	35%	15%	15%	5%	5%	0%
Adj. Flow (vph)	82	99	109	2134	2365	94
Shared Lane Traffic (%)						
Lane Group Flow (vph)	82	99	109	2134	2365	94
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Minimum Split (s)	24.0	24.0	24.9	24.9	24.9	24.9
Total Split (s)	24.0	24.0	46.0	46.0	46.0	46.0
Total Split (%)	34.3%	34.3%	65.7%	65.7%	65.7%	65.7%
Maximum Green (s)	18.0	18.0	39.1	39.1	39.1	39.1
Yellow Time (s)	4.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.9	6.9	6.9	6.9
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Don't Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	18.0	18.0	39.1	39.1	39.1	39.1
Actuated g/C Ratio	0.26	0.26	0.56	0.56	0.56	0.56

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
v/c Ratio	0.24	0.27	1.16	0.77	0.86	0.10
Control Delay (s/veh)	22.9	22.6	167.5	14.5	17.3	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.9	22.6	167.5	14.5	17.3	3.7
LOS	C	C	F	B	B	A
Approach Delay (s/veh)	22.7			21.9	16.8	
Approach LOS	C			C	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Pretimed			
Maximum v/c Ratio: 1.16			
Intersection Signal Delay (s/veh): 19.4		Intersection LOS: B	
Intersection Capacity Utilization 66.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 104: Trafalgar Rd & South Carpool Lot



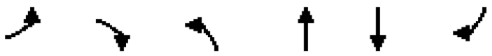


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	82	99	109	2134	2365	94
v/c Ratio	0.24	0.27	1.16	0.77	0.86	0.10
Control Delay (s/veh)	22.9	22.6	167.5	14.5	17.3	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.9	22.6	167.5	14.5	17.3	3.7
Queue Length 50th (m)	8.9	10.6	~18.2	76.1	91.9	1.9
Queue Length 95th (m)	19.1	20.6	#33.8	95.4	112.7	7.0
Internal Link Dist (m)	83.1			209.3	107.6	
Turn Bay Length (m)			50.0			30.0
Base Capacity (vph)	343	363	94	2759	2759	928
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	0.24	0.27	1.16	0.77	0.86	0.10

Intersection Summary

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

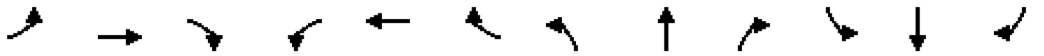
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	71	82	96	1942	2105	80
Future Volume (vph)	71	82	96	1942	2105	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.9	6.9	6.9	6.9
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)	1337	1404	1570	4940	4940	1615
Flt Permitted	0.95	1.00	0.10	1.00	1.00	1.00
Satd. Flow (perm)	1337	1404	169	4940	4940	1615
Peak-hour factor, PHF	0.87	0.83	0.88	0.91	0.89	0.85
Adj. Flow (vph)	82	99	109	2134	2365	94
RTOR Reduction (vph)	0	2	0	0	0	26
Lane Group Flow (vph)	82	97	109	2134	2365	68
Heavy Vehicles (%)	35%	15%	15%	5%	5%	0%
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	18.0	18.0	39.1	39.1	39.1	39.1
Effective Green, g (s)	18.0	18.0	39.1	39.1	39.1	39.1
Actuated g/C Ratio	0.26	0.26	0.56	0.56	0.56	0.56
Clearance Time (s)	6.0	6.0	6.9	6.9	6.9	6.9
Lane Grp Cap (vph)	343	361	94	2759	2759	902
v/s Ratio Prot	0.06			0.43	0.48	
v/s Ratio Perm		c0.07	c0.64			0.04
v/c Ratio	0.24	0.27	1.16	0.77	0.86	0.07
Uniform Delay, d1	20.6	20.7	15.5	12.0	13.1	7.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.6	1.8	142.1	2.2	3.7	0.2
Delay (s)	22.2	22.6	157.6	14.2	16.8	7.3
Level of Service	C	C	F	B	B	A
Approach Delay (s/veh)	22.4			21.2	16.4	
Approach LOS	C			C	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

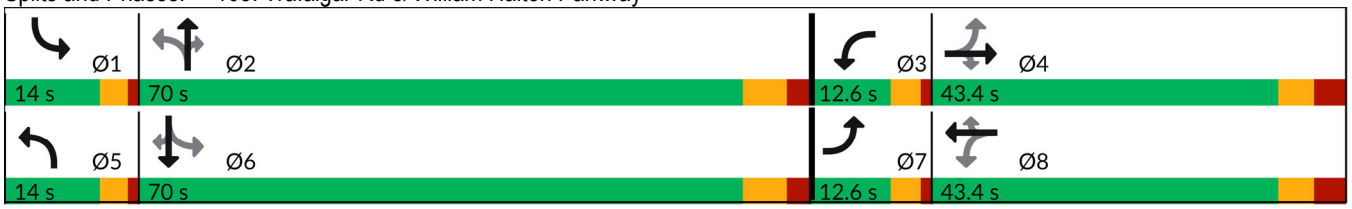


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	242	903	242	172	702	284	268	1513	62	430	1408	350
Future Volume (vph)	242	903	242	172	702	284	268	1513	62	430	1408	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	0.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			7.5		
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)	1787	3574	1599	1687	3574	1429	1703	4988	1615	1770	4893	1538
Flt Permitted	0.110			0.110			0.082			0.064		
Satd. Flow (perm)	207	3574	1599	195	3574	1429	147	4988	1615	119	4893	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			145			140			94			181
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		1206.6			1612.1			285.3			233.3	
Travel Time (s)		86.9			116.1			20.5			16.8	
Peak Hour Factor	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
Adj. Flow (vph)	285	992	292	229	900	379	312	1681	74	524	1564	407
Shared Lane Traffic (%)												
Lane Group Flow (vph)	285	992	292	229	900	379	312	1681	74	524	1564	407
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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)	11.5	38.0	38.0	11.5	38.0	38.0	11.5	42.9	42.9	11.5	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	-2.9	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	4.0	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	Max	Max	None	Max	Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't 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)	48.0	36.4	36.4	48.0	36.4	36.4	76.0	63.1	66.0	76.0	63.1	63.1
Actuated g/C Ratio	0.34	0.26	0.26	0.34	0.26	0.26	0.54	0.45	0.47	0.54	0.45	0.45
v/c Ratio	1.70	1.07	0.56	1.45	0.97	0.80	1.64	0.75	0.09	2.88	0.71	0.51
Control Delay (s/veh)	363.3	98.1	26.4	262.3	73.9	43.6	336.6	34.5	2.3	878.3	33.3	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 (s/veh)	363.3	98.1	26.4	262.3	73.9	43.6	336.6	34.5	2.3	878.3	33.3	17.0
LOS	F	F	C	F	E	D	F	C	A	F	C	B
Approach Delay (s/veh)		132.9			94.9			78.9			208.1	
Approach LOS		F			F			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Natural Cycle: 125			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 2.88			
Intersection Signal Delay (s/veh): 135.4		Intersection LOS: F	
Intersection Capacity Utilization 105.8%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway



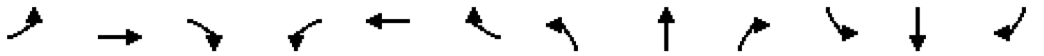


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	285	992	292	229	900	379	312	1681	74	524	1564	407
v/c Ratio	1.70	1.07	0.56	1.45	0.97	0.80	1.64	0.75	0.09	2.88	0.71	0.51
Control Delay (s/veh)	363.3	98.1	26.4	262.3	73.9	43.6	336.6	34.5	2.3	878.3	33.3	17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	363.3	98.1	26.4	262.3	73.9	43.6	336.6	34.5	2.3	878.3	33.3	17.0
Queue Length 50th (m)	~104.4	~167.8	36.7	~74.1	137.3	68.0	~110.4	146.3	0.0	~247.2	132.7	45.2
Queue Length 95th (m)	#151.7	#211.7	58.0	#96.8	136.7	78.1	#161.3	165.6	4.5	#285.2	151.0	69.4
Internal Link Dist (m)		1182.6			1588.1			261.3			209.3	
Turn Bay Length (m)	100.0		100.0	100.0		150.0	150.0		75.0			
Base Capacity (vph)	168	929	523	158	929	475	190	2248	811	182	2205	792
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	1.70	1.07	0.56	1.45	0.97	0.80	1.64	0.75	0.09	2.88	0.71	0.51

Intersection Summary

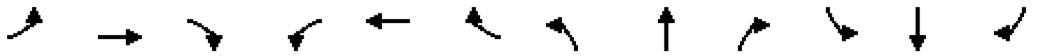
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	242	903	242	172	702	284	268	1513	62	430	1408	350
Future Volume (vph)	242	903	242	172	702	284	268	1513	62	430	1408	350
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	4.0	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)	1787	3574	1599	1687	3574	1429	1703	4988	1615	1770	4893	1538
Flt Permitted	0.11	1.00	1.00	0.11	1.00	1.00	0.08	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	207	3574	1599	195	3574	1429	147	4988	1615	118	4893	1538
Peak-hour factor, PHF	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Adj. Flow (vph)	285	992	292	229	900	379	312	1681	74	524	1564	407
RTOR Reduction (vph)	0	0	107	0	0	104	0	0	39	0	0	99
Lane Group Flow (vph)	285	992	185	229	900	275	312	1681	35	524	1564	308
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
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)	45.0	36.4	36.4	45.0	36.4	36.4	73.1	63.1	63.1	73.1	63.1	63.1
Effective Green, g (s)	45.0	36.4	36.4	45.0	36.4	36.4	73.1	63.1	66.0	73.1	63.1	63.1
Actuated g/C Ratio	0.32	0.26	0.26	0.32	0.26	0.26	0.52	0.45	0.47	0.52	0.45	0.45
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)	163	929	415	154	929	371	187	2248	761	179	2205	693
v/s Ratio Prot	c0.11	0.28		0.09	0.25		0.12	0.34		c0.21	0.32	
v/s Ratio Perm	c0.45		0.12	0.39		0.19	0.75		0.02	c1.31		0.20
v/c Ratio	1.75	1.07	0.45	1.49	0.97	0.74	1.67	0.75	0.05	2.93	0.71	0.44
Uniform Delay, d1	41.5	51.8	43.3	42.0	51.2	47.5	33.5	31.9	20.0	39.1	31.0	26.4
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	360.9	49.4	1.6	250.4	22.3	9.3	323.2	2.3	0.1	882.3	2.0	2.1
Delay (s)	402.4	101.2	44.9	292.3	73.5	56.8	356.7	34.2	20.1	921.4	33.0	28.5
Level of Service	F	F	D	F	E	E	F	C	C	F	C	C
Approach Delay (s/veh)		145.4			102.6			82.4			218.8	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	143.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.47		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.9
Intersection Capacity Utilization	105.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

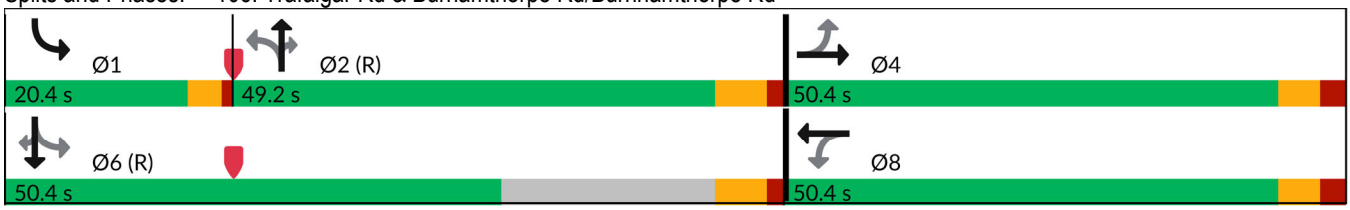


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	230	342	146	212	121	31	71	1642	124	55	1713	55
Future Volume (vph)	230	342	146	212	121	31	71	1642	124	55	1713	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		60.0	60.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	70.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.955			0.954				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1798	0	1770	1813	0	1703	4988	1615	1752	4940	1495
Flt Permitted	0.512			0.105			0.093			0.085		
Satd. Flow (perm)	944	1798	0	196	1813	0	167	4988	1615	157	4940	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			21				90			54
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		828.7			989.6			2053.1			170.3	
Travel Time (s)		49.7			59.4			92.4			7.7	
Peak Hour Factor	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
Adj. Flow (vph)	274	433	185	348	178	78	103	1785	144	85	1842	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	274	618	0	348	256	0	103	1785	144	85	1842	65
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Minimum Split (s)	24.0	24.0		24.0	24.0		26.0	26.0	26.0	11.5	26.0	26.0
Total Split (s)	50.4	50.4		50.4	50.4		49.2	49.2	49.2	20.4	50.4	50.4
Total Split (%)	42.0%	42.0%		42.0%	42.0%		41.0%	41.0%	41.0%	17.0%	42.0%	42.0%
Maximum Green (s)	44.4	44.4		44.4	44.4		43.2	43.2	43.2	16.4	44.4	44.4
Yellow Time (s)	3.7	3.7		3.7	3.7		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.3	2.3		2.3	2.3		1.4	1.4	1.4	1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Act Effct Green (s)	44.4	44.4		44.4	44.4		43.2	43.2	45.2	65.6	63.6	65.6
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.36	0.36	0.38	0.55	0.53	0.55
v/c Ratio	0.79	0.92		4.83	0.37		1.72	0.99	0.22	0.28	0.70	0.08
Control Delay (s/veh)	51.2	56.6		Error	27.2		411.0	58.4	11.2	15.4	23.0	4.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (s/veh)	51.2	56.6		Error	27.2		411.0	58.4	11.2	15.4	23.0	4.6
LOS	D	E		F	C		F	E	B	B	C	A
Approach Delay (s/veh)		54.9			1029.8			73.0			22.1	
Approach LOS		D			F			E			C	

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: Pretimed			
Maximum v/c Ratio: 4.83			
Intersection Signal Delay (s/veh): 156.4		Intersection LOS: F	
Intersection Capacity Utilization 108.4%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burhamthorpe Rd/Burnhamthorpe Rd



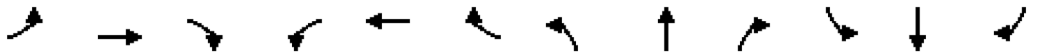


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	274	618	348	256	103	1785	144	85	1842	65
v/c Ratio	0.79	0.92	4.83	0.37	1.72	0.99	0.22	0.28	0.70	0.08
Control Delay (s/veh)	51.2	56.6	Error	27.2	411.0	58.4	11.2	15.4	23.0	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	51.2	56.6	Error	27.2	411.0	58.4	11.2	15.4	23.0	4.6
Queue Length 50th (m)	59.8	143.4	~145.6	42.0	~37.6	160.1	8.5	9.6	120.6	1.2
Queue Length 95th (m)	#90.3	160.8	#128.3	45.4	#53.6	#198.6	21.1	12.5	138.7	7.0
Internal Link Dist (m)		804.7		965.6		2029.1			146.3	
Turn Bay Length (m)	30.0		15.0		60.0		60.0	60.0		60.0
Base Capacity (vph)	349	670	72	684	60	1795	664	303	2618	841
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	0.79	0.92	4.83	0.37	1.72	0.99	0.22	0.28	0.70	0.08

Intersection Summary

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

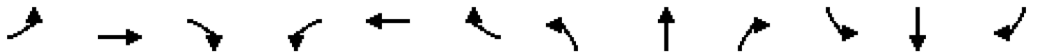
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	230	342	146	212	121	31	71	1642	124	55	1713	55
Future Volume (vph)	230	342	146	212	121	31	71	1642	124	55	1713	55
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	4.0	6.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	1799		1770	1813		1703	4988	1615	1752	4940	1495
Flt Permitted	0.51	1.00		0.11	1.00		0.09	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	945	1799		196	1813		167	4988	1615	156	4940	1495
Peak-hour factor, PHF	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Adj. Flow (vph)	274	433	185	348	178	78	103	1785	144	85	1842	65
RTOR Reduction (vph)	0	6	0	0	13	0	0	0	56	0	0	24
Lane Group Flow (vph)	274	612	0	348	243	0	103	1785	88	85	1842	41
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	44.4	44.4		44.4	44.4		43.2	43.2	43.2	63.6	63.6	63.6
Effective Green, g (s)	44.4	44.4		44.4	44.4		43.2	43.2	45.2	63.6	63.6	65.6
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.36	0.36	0.38	0.53	0.53	0.55
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	4.0	6.0	6.0
Lane Grp Cap (vph)	349	665		72	670		60	1795	608	300	2618	817
v/s Ratio Prot		0.34			0.13			0.36		0.04	c0.37	
v/s Ratio Perm	0.29			c1.77			c0.62		0.05	0.11		0.03
v/c Ratio	0.79	0.92		4.83	0.36		1.72	0.99	0.14	0.28	0.70	0.05
Uniform Delay, d1	33.6	36.1		37.8	27.5		38.4	38.3	24.7	21.7	21.1	12.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	16.1	20.1		1756.0	1.5		383.0	20.0	0.5	2.4	1.6	0.1
Delay (s)	49.7	56.2		1793.8	29.0		421.4	58.2	25.2	24.1	22.7	12.8
Level of Service	D	E		F	C		F	E	C	C	C	B
Approach Delay (s/veh)		54.2			1045.8			74.3			22.5	
Approach LOS		D			F			E			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	158.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.88		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	108.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

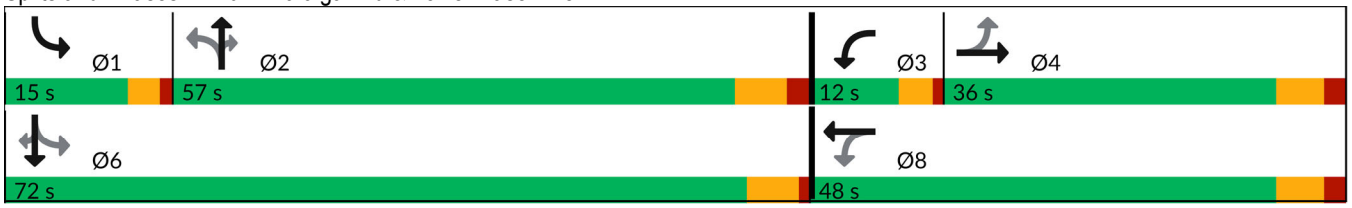


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	250	48	252	317	340	233	1793	292	192	1357	65
Future Volume (vph)	70	250	48	252	317	340	233	1793	292	192	1357	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		90.0	90.0		90.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.966			0.924				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1835	0	1770	1738	0	1805	5036	1599	1752	5085	1615
Flt Permitted	0.134			0.178			0.155			0.072		
Satd. Flow (perm)	250	1835	0	332	1738	0	294	5036	1599	133	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			48				322			103
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			728.6			888.2	
Travel Time (s)		38.5			41.4			32.8			40.0	
Peak Hour Factor	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Adj. Flow (vph)	91	298	89	265	401	415	262	1868	348	216	1491	103
Shared Lane Traffic (%)												
Lane Group Flow (vph)	91	387	0	265	816	0	262	1868	348	216	1491	103
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		25.0	25.0	25.0	7.0	25.0	25.0
Minimum Split (s)	22.5	22.5		11.5	22.5		31.6	31.6	31.6	11.5	30.6	30.6
Total Split (s)	36.0	36.0		12.0	48.0		57.0	57.0	57.0	15.0	72.0	72.0
Total Split (%)	30.0%	30.0%		10.0%	40.0%		47.5%	47.5%	47.5%	12.5%	60.0%	60.0%
Maximum Green (s)	29.8	29.8		8.0	41.8		50.4	50.4	50.4	11.0	66.4	66.4
Yellow Time (s)	4.2	4.2		3.0	4.2		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	Max
Act Effct Green (s)	29.8	29.8		44.0	41.8		50.4	50.4	50.4	68.0	66.4	66.4
Actuated g/C Ratio	0.25	0.25		0.37	0.35		0.42	0.42	0.42	0.57	0.55	0.55
v/c Ratio	1.47	0.83		1.22	1.28		2.13	0.88	0.41	0.97	0.53	0.11
Control Delay (s/veh)	313.7	58.2		163.5	171.4		557.4	38.2	4.8	83.0	17.8	2.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	313.7	58.2		163.5	171.4		557.4	38.2	4.8	83.0	17.8	2.6
LOS	F	E		F	F		F	D	A	F	B	A
Approach Delay (s/veh)		106.8			169.4			88.4			24.7	
Approach LOS		F			F			F			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 2.13			
Intersection Signal Delay (s/veh): 85.2		Intersection LOS: F	
Intersection Capacity Utilization 113.4%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line



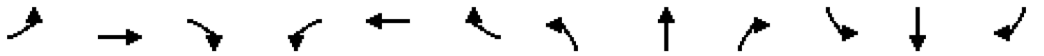


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	91	387	265	816	262	1868	348	216	1491	103
v/c Ratio	1.47	0.83	1.22	1.28	2.13	0.88	0.41	0.97	0.53	0.11
Control Delay (s/veh)	313.7	58.2	163.5	171.4	557.4	38.2	4.8	83.0	17.8	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	313.7	58.2	163.5	171.4	557.4	38.2	4.8	83.0	17.8	2.6
Queue Length 50th (m)	~30.9	88.7	~62.2	~249.9	~103.3	153.8	3.7	37.2	81.8	0.0
Queue Length 95th (m)	#54.2	#122.3	#120.8	#266.7	#127.1	176.3	16.9	#86.1	95.0	2.0
Internal Link Dist (m)		725.3		666.6		704.6			864.2	
Turn Bay Length (m)	45.0		110.0		90.0		90.0	90.0		90.0
Base Capacity (vph)	62	464	217	636	123	2115	858	223	2813	939
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.47	0.83	1.22	1.28	2.13	0.88	0.41	0.97	0.53	0.11

Intersection Summary

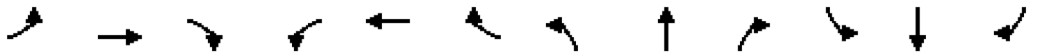
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	250	48	252	317	340	233	1793	292	192	1357	65
Future Volume (vph)	70	250	48	252	317	340	233	1793	292	192	1357	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.97		1.00	0.92		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1834		1770	1738		1805	5036	1599	1752	5085	1615
Flt Permitted	0.13	1.00		0.18	1.00		0.15	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	250	1834		332	1738		294	5036	1599	133	5085	1615
Peak-hour factor, PHF	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Adj. Flow (vph)	91	298	89	265	401	415	262	1868	348	216	1491	103
RTOR Reduction (vph)	0	9	0	0	31	0	0	0	187	0	0	46
Lane Group Flow (vph)	91	378	0	265	785	0	262	1868	161	216	1491	57
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	29.8	29.8		41.8	41.8		50.4	50.4	50.4	66.4	66.4	66.4
Effective Green, g (s)	29.8	29.8		41.8	41.8		50.4	50.4	50.4	66.4	66.4	66.4
Actuated g/C Ratio	0.25	0.25		0.35	0.35		0.42	0.42	0.42	0.55	0.55	0.55
Clearance Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Lane Grp Cap (vph)	62	455		211	605		123	2115	671	222	2813	893
v/s Ratio Prot		0.21		0.08	c0.45			0.37		c0.09	0.29	
v/s Ratio Perm	c0.36			0.35			c0.89		0.10	0.45		0.04
v/c Ratio	1.47	0.83		1.26	1.30		2.13	0.88	0.24	0.97	0.53	0.06
Uniform Delay, d1	45.1	42.7		36.4	39.1		34.8	32.1	22.4	35.3	16.9	12.4
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	279.2	13.5		147.8	145.6		534.8	5.8	0.8	53.8	0.7	0.1
Delay (s)	324.3	56.2		184.2	184.7		569.6	37.9	23.3	89.2	17.7	12.5
Level of Service	F	E		F	F		F	D	C	F	B	B
Approach Delay (s/veh)		107.2			184.6			92.1			25.9	
Approach LOS		F			F			F			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	89.9	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)	20.8
Intersection Capacity Utilization	113.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

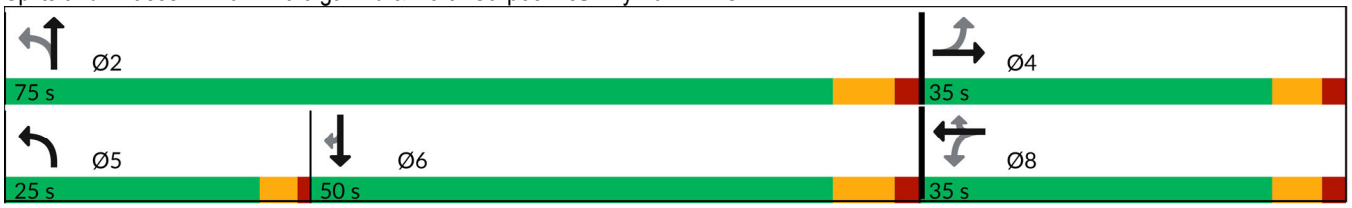


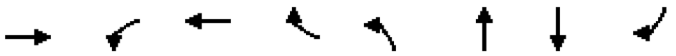
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	22	430	4	33	14	2280	0	0	1651	5
Future Volume (vph)	4	0	22	430	4	33	14	2280	0	0	1651	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.897			0.998	0.850						0.850
Flt Protected		0.988		0.950	0.955		0.950					
Satd. Flow (prot)	0	1532	0	1681	1592	1408	1641	5085	0	0	5085	1615
Flt Permitted		0.904		0.727	0.705		0.074					
Satd. Flow (perm)	0	1402	0	1287	1175	1408	128	5085	0	0	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		79			1	79						69
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			728.6	
Travel Time (s)		9.6			41.3			26.2			52.5	
Peak Hour Factor	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Adj. Flow (vph)	11	0	35	483	11	40	28	2426	0	0	1814	10
Shared Lane Traffic (%)				48%		10%						
Lane Group Flow (vph)	0	46	0	251	247	36	28	2426	0	0	1814	10
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	4.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	27.0			27.0	27.0
Total Split (s)	35.0	35.0		35.0	35.0	35.0	25.0	75.0			50.0	50.0
Total Split (%)	31.8%	31.8%		31.8%	31.8%	31.8%	22.7%	68.2%			45.5%	45.5%
Maximum Green (s)	29.0	29.0		29.0	29.0	29.0	21.0	68.0			43.0	43.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0			2.0	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	4.0	7.0			7.0	7.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	None	Max			Max	Max
Act Effct Green (s)		25.7		25.7	25.7	25.7	71.2	68.1			62.3	62.3
Actuated g/C Ratio		0.24		0.24	0.24	0.24	0.67	0.64			0.58	0.58
v/c Ratio		0.12		0.81	0.87	0.09	0.17	0.75			0.61	0.01
Control Delay (s/veh)		2.8		59.1	68.5	0.6	9.2	15.9			17.0	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		2.8		59.1	68.5	0.6	9.2	15.9			17.0	0.0
LOS		A		E	E	A	A	B			B	A
Approach Delay (s/veh)		2.8			59.5			15.8			16.9	
Approach LOS		A			E			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 106.9			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay (s/veh): 20.9		Intersection LOS: C	
Intersection Capacity Utilization 73.9%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off

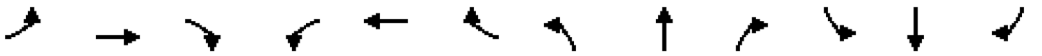




Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	46	251	247	36	28	2426	1814	10
v/c Ratio	0.12	0.81	0.87	0.09	0.17	0.75	0.61	0.01
Control Delay (s/veh)	2.8	59.1	68.5	0.6	9.2	15.9	17.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	2.8	59.1	68.5	0.6	9.2	15.9	17.0	0.0
Queue Length 50th (m)	0.0	54.7	57.0	0.0	2.1	136.1	104.7	0.0
Queue Length 95th (m)	0.0	#92.4	31.3	0.0	2.9	156.1	124.3	0.0
Internal Link Dist (m)	110.0		550.1			339.6	704.6	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	438	349	320	440	383	3241	2962	969
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	0.72	0.77	0.08	0.07	0.75	0.61	0.01

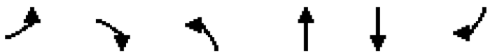
Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	22	430	4	33	14	2280	0	0	1651	5
Future Volume (vph)	4	0	22	430	4	33	14	2280	0	0	1651	5
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	4.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.91			0.91	1.00
Frt		0.90		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.96	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1533		1681	1592	1408	1641	5085			5085	1615
Flt Permitted		0.90		0.73	0.71	1.00	0.07	1.00			1.00	1.00
Satd. Flow (perm)		1402		1287	1176	1408	128	5085			5085	1615
Peak-hour factor, PHF	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Adj. Flow (vph)	11	0	35	483	11	40	28	2426	0	0	1814	10
RTOR Reduction (vph)	0	35	0	0	1	27	0	0	0	0	0	4
Lane Group Flow (vph)	0	11	0	251	246	9	28	2426	0	0	1814	6
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		25.7		25.7	25.7	25.7	69.8	69.8			62.3	62.3
Effective Green, g (s)		25.7		25.7	25.7	25.7	69.8	69.8			62.3	62.3
Actuated g/C Ratio		0.24		0.24	0.24	0.24	0.64	0.64			0.57	0.57
Clearance Time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Lane Grp Cap (vph)		332		304	278	333	131	3271			2919	927
v/s Ratio Prot							0.01	c0.48			0.36	
v/s Ratio Perm		0.01		0.20	c0.21	0.01	0.13					0.00
v/c Ratio		0.03		0.83	0.89	0.03	0.21	0.74			0.62	0.01
Uniform Delay, d1		31.8		39.3	40.0	31.8	10.1	13.2			15.3	9.9
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2		0.0		16.9	27.2	0.0	0.6	1.6			1.0	0.0
Delay (s)		31.9		56.2	67.2	31.8	10.7	14.8			16.3	9.9
Level of Service		C		E	E	C	B	B			B	A
Approach Delay (s/veh)		31.9			59.6			14.7			16.3	
Approach LOS		C			E			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	108.5	Sum of lost time (s)	17.0
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

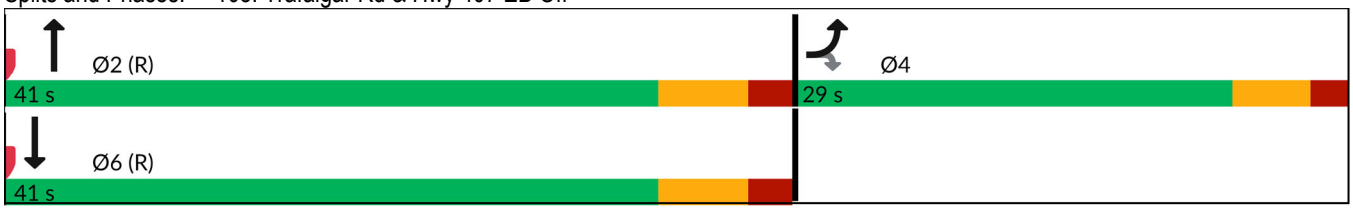


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	47	102	0	2545	1901	0
Future Volume (vph)	47	102	0	2545	1901	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1703	1429	0	5085	5085	0
Flt Permitted	0.950					
Satd. Flow (perm)	1703	1429	0	5085	5085	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		3				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			253.0	363.6	
Travel Time (s)	39.9			18.2	26.2	
Peak Hour Factor	0.75	0.94	0.25	0.94	0.92	0.25
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Adj. Flow (vph)	63	109	0	2707	2066	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	63	109	0	2707	2066	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	29.0	29.0		24.9	24.9	
Total Split (s)	29.0	29.0		41.0	41.0	
Total Split (%)	41.4%	41.4%		58.6%	58.6%	
Maximum Green (s)	23.0	23.0		34.1	34.1	
Yellow Time (s)	4.0	4.0		4.6	4.6	
All-Red Time (s)	2.0	2.0		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.9	6.9	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	23.0	23.0		34.1	34.1	
Actuated g/C Ratio	0.33	0.33		0.49	0.49	
v/c Ratio	0.11	0.23		1.09	0.83	
Control Delay (s/veh)	17.1	18.3		69.2	19.3	
Queue Delay	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay (s/veh)	17.1	18.3		69.2	19.3	
LOS	B	B		E	B	
Approach Delay (s/veh)	17.9			69.2	19.3	
Approach LOS	B			E	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 80			
Control Type: Pretimed			
Maximum v/c Ratio: 1.09			
Intersection Signal Delay (s/veh): 46.6		Intersection LOS: D	
Intersection Capacity Utilization 64.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off



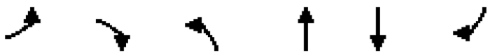


Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	63	109	2707	2066
v/c Ratio	0.11	0.23	1.09	0.83
Control Delay (s/veh)	17.1	18.3	69.2	19.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	17.1	18.3	69.2	19.3
Queue Length 50th (m)	6.0	10.4	~157.9	84.8
Queue Length 95th (m)	11.6	22.0	#188.2	105.7
Internal Link Dist (m)	530.6		229.0	339.6
Turn Bay Length (m)				
Base Capacity (vph)	559	471	2477	2477
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.11	0.23	1.09	0.83

Intersection Summary

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

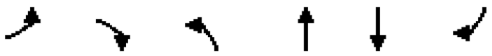
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	47	102	0	2545	1901	0
Future Volume (vph)	47	102	0	2545	1901	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.9	6.9	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1703	1429		5085	5085	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1703	1429		5085	5085	
Peak-hour factor, PHF	0.75	0.94	0.25	0.94	0.92	0.25
Adj. Flow (vph)	63	109	0	2707	2066	0
RTOR Reduction (vph)	0	2	0	0	0	0
Lane Group Flow (vph)	63	107	0	2707	2066	0
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	23.0	23.0		34.1	34.1	
Effective Green, g (s)	23.0	23.0		34.1	34.1	
Actuated g/C Ratio	0.33	0.33		0.49	0.49	
Clearance Time (s)	6.0	6.0		6.9	6.9	
Lane Grp Cap (vph)	559	469		2477	2477	
v/s Ratio Prot	0.04			c0.53	0.41	
v/s Ratio Perm		c0.07				
v/c Ratio	0.11	0.23		1.09	0.83	
Uniform Delay, d1	16.4	17.1		18.0	15.5	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	1.1		49.1	3.5	
Delay (s)	16.8	18.2		67.0	19.0	
Level of Service	B	B		E	B	
Approach Delay (s/veh)	17.7			67.0	19.0	
Approach LOS	B			E	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	45.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

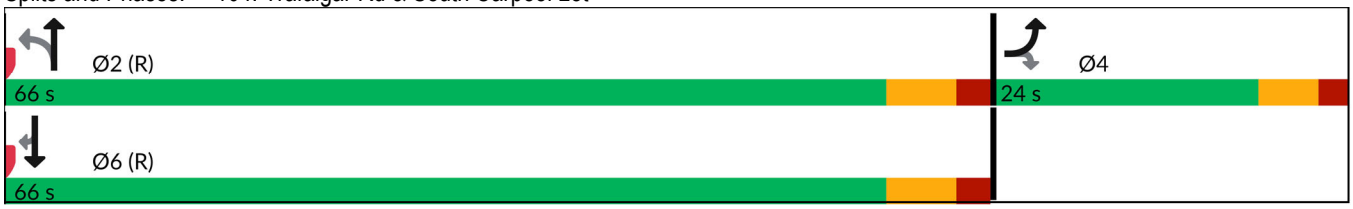


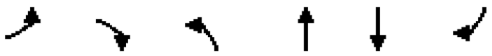
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	88	99	85	2898	1957	47
Future Volume (vph)	88	99	85	2898	1957	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	50.0			30.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5		100.0			
Lane Util. Factor	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)	1504	1455	1570	5085	5085	1615
Flt Permitted	0.950		0.068			
Satd. Flow (perm)	1504	1455	112	5085	5085	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		12				42
Link Speed (k/h)	50			80	80	
Link Distance (m)	107.1			231.4	253.0	
Travel Time (s)	7.7			10.4	11.4	
Peak Hour Factor	0.62	0.78	0.78	0.93	0.90	0.77
Heavy Vehicles (%)	20%	11%	15%	2%	2%	0%
Adj. Flow (vph)	142	127	109	3116	2174	61
Shared Lane Traffic (%)						
Lane Group Flow (vph)	142	127	109	3116	2174	61
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Minimum Split (s)	24.0	24.0	24.9	24.9	24.9	24.9
Total Split (s)	24.0	24.0	66.0	66.0	66.0	66.0
Total Split (%)	26.7%	26.7%	73.3%	73.3%	73.3%	73.3%
Maximum Green (s)	18.0	18.0	59.1	59.1	59.1	59.1
Yellow Time (s)	4.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.9	6.9	6.9	6.9
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Don't Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	18.0	18.0	59.1	59.1	59.1	59.1
Actuated g/C Ratio	0.20	0.20	0.66	0.66	0.66	0.66

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
v/c Ratio	0.47	0.42	1.49	0.93	0.65	0.06
Control Delay (s/veh)	37.9	33.4	303.4	20.6	10.4	2.7
Queue Delay	0.0	0.0	0.0	1.9	0.0	0.0
Total Delay (s/veh)	37.9	33.4	303.4	22.5	10.4	2.7
LOS	D	C	F	C	B	A
Approach Delay (s/veh)	35.8			32.0	10.2	
Approach LOS	D			C	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 150			
Control Type: Pretimed			
Maximum v/c Ratio: 1.49			
Intersection Signal Delay (s/veh): 23.7		Intersection LOS: C	
Intersection Capacity Utilization 71.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 104: Trafalgar Rd & South Carpool Lot





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	142	127	109	3116	2174	61
v/c Ratio	0.47	0.42	1.49	0.93	0.65	0.06
Control Delay (s/veh)	37.9	33.4	303.4	20.6	10.4	2.7
Queue Delay	0.0	0.0	0.0	1.9	0.0	0.0
Total Delay (s/veh)	37.9	33.4	303.4	22.5	10.4	2.7
Queue Length 50th (m)	23.0	18.3	~27.6	163.2	77.0	1.1
Queue Length 95th (m)	27.2	29.9	#38.1	195.3	91.6	3.9
Internal Link Dist (m)	83.1			207.4	229.0	
Turn Bay Length (m)			50.0			30.0
Base Capacity (vph)	300	300	73	3339	3339	1074
Starvation Cap Reductn	0	0	0	122	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.42	1.49	0.97	0.65	0.06

Intersection Summary

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

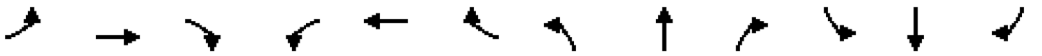
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	88	99	85	2898	1957	47
Future Volume (vph)	88	99	85	2898	1957	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.9	6.9	6.9	6.9
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)	1504	1455	1570	5085	5085	1615
Flt Permitted	0.95	1.00	0.07	1.00	1.00	1.00
Satd. Flow (perm)	1504	1455	112	5085	5085	1615
Peak-hour factor, PHF	0.62	0.78	0.78	0.93	0.90	0.77
Adj. Flow (vph)	142	127	109	3116	2174	61
RTOR Reduction (vph)	0	10	0	0	0	14
Lane Group Flow (vph)	142	117	109	3116	2174	47
Heavy Vehicles (%)	20%	11%	15%	2%	2%	0%
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	18.0	18.0	59.1	59.1	59.1	59.1
Effective Green, g (s)	18.0	18.0	59.1	59.1	59.1	59.1
Actuated g/C Ratio	0.20	0.20	0.66	0.66	0.66	0.66
Clearance Time (s)	6.0	6.0	6.9	6.9	6.9	6.9
Lane Grp Cap (vph)	300	291	73	3339	3339	1060
v/s Ratio Prot	c0.09			0.61	0.43	
v/s Ratio Perm		0.08	c0.97			0.03
v/c Ratio	0.47	0.40	1.49	0.93	0.65	0.04
Uniform Delay, d1	31.8	31.3	15.4	13.7	9.3	5.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.3	4.1	280.9	6.2	1.0	0.1
Delay (s)	37.1	35.4	296.3	19.9	10.3	5.5
Level of Service	D	D	F	B	B	A
Approach Delay (s/veh)	36.3			29.3	10.1	
Approach LOS	D			C	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

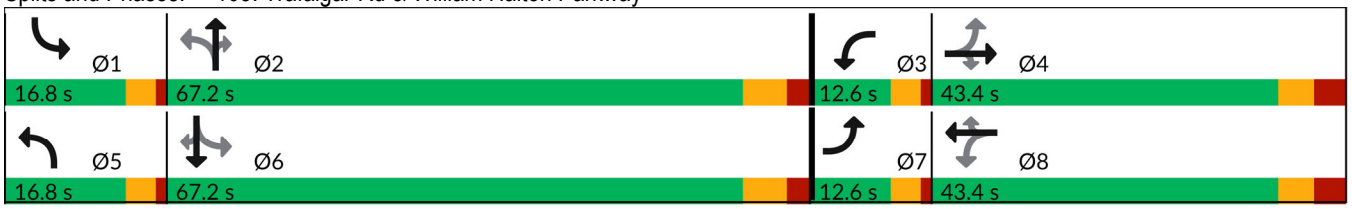


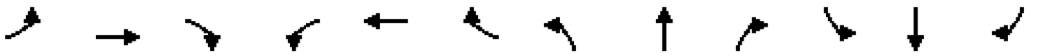
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	331	755	256	169	953	704	245	1947	48	285	1460	310
Future Volume (vph)	331	755	256	169	953	704	245	1947	48	285	1460	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	0.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			7.5		
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)	1770	3539	1599	1805	3610	1583	1787	5085	1615	1719	5085	1599
Flt Permitted	0.110			0.126			0.066			0.066		
Satd. Flow (perm)	205	3539	1599	239	3610	1583	124	5085	1615	119	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			179			172			94			173
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		1213.9			1579.7			277.3			231.4	
Travel Time (s)		87.4			113.7			20.0			16.7	
Peak Hour Factor	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
Adj. Flow (vph)	368	778	281	238	1108	828	302	2163	76	310	1698	337
Shared Lane Traffic (%)												
Lane Group Flow (vph)	368	778	281	238	1108	828	302	2163	76	310	1698	337
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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)	11.5	38.0	38.0	11.5	38.0	38.0	11.5	42.9	42.9	11.5	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	Max	Max	None	Max	Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't 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)	48.0	36.4	36.4	48.0	36.4	36.4	76.0	60.3	60.3	76.0	60.3	60.3
Actuated g/C Ratio	0.34	0.26	0.26	0.34	0.26	0.26	0.54	0.43	0.43	0.54	0.43	0.43
v/c Ratio	2.22	0.85	0.51	1.34	1.18	1.54	1.38	0.99	0.10	1.48	0.78	0.43
Control Delay (s/veh)	588.0	58.9	19.3	214.8	137.4	280.3	228.6	55.9	3.0	268.9	37.1	14.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
Total Delay (s/veh)	588.0	58.9	19.3	214.8	137.4	280.3	228.6	55.9	3.0	268.9	37.6	14.6
LOS	F	E	B	F	F	F	F	E	A	F	D	B
Approach Delay (s/veh)		187.5			200.3			74.9			64.9	
Approach LOS		F			F			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Natural Cycle: 135			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 2.22			
Intersection Signal Delay (s/veh): 123.2		Intersection LOS: F	
Intersection Capacity Utilization 116.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway



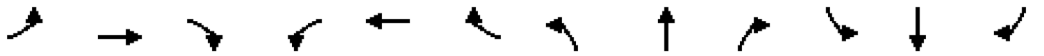


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	368	778	281	238	1108	828	302	2163	76	310	1698	337
v/c Ratio	2.22	0.85	0.51	1.34	1.18	1.54	1.38	0.99	0.10	1.48	0.78	0.43
Control Delay (s/veh)	588.0	58.9	19.3	214.8	137.4	280.3	228.6	55.9	3.0	268.9	37.1	14.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
Total Delay (s/veh)	588.0	58.9	19.3	214.8	137.4	280.3	228.6	55.9	3.0	268.9	37.6	14.6
Queue Length 50th (m)	~156.0	113.7	24.0	~68.8	~203.2	~300.7	~99.6	225.8	0.0	~107.9	152.9	31.1
Queue Length 95th (m)	#221.7	139.8	53.8	#83.8	#230.0	#349.8	#136.4	#266.0	0.0	#169.8	161.0	57.5
Internal Link Dist (m)		1189.9			1555.7			253.3			207.4	
Turn Bay Length (m)	100.0		100.0	100.0		150.0	150.0		75.0			
Base Capacity (vph)	166	920	548	178	938	538	219	2190	749	210	2190	787
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	169	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	2.22	0.85	0.51	1.34	1.18	1.54	1.38	0.99	0.10	1.48	0.84	0.43

Intersection Summary

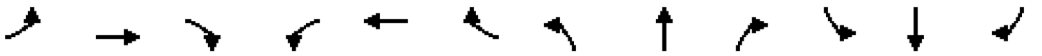
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	331	755	256	169	953	704	245	1947	48	285	1460	310
Future Volume (vph)	331	755	256	169	953	704	245	1947	48	285	1460	310
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)	1770	3539	1599	1805	3610	1583	1787	5085	1615	1719	5085	1599
Flt Permitted	0.11	1.00	1.00	0.13	1.00	1.00	0.07	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	205	3539	1599	240	3610	1583	125	5085	1615	120	5085	1599
Peak-hour factor, PHF	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Adj. Flow (vph)	368	778	281	238	1108	828	302	2163	76	310	1698	337
RTOR Reduction (vph)	0	0	132	0	0	127	0	0	43	0	0	98
Lane Group Flow (vph)	368	778	149	238	1108	701	302	2163	33	310	1698	239
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
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)	45.0	36.4	36.4	45.0	36.4	36.4	73.1	60.3	60.3	73.1	60.3	60.3
Effective Green, g (s)	45.0	36.4	36.4	45.0	36.4	36.4	73.1	60.3	60.3	73.1	60.3	60.3
Actuated g/C Ratio	0.32	0.26	0.26	0.32	0.26	0.26	0.52	0.43	0.43	0.52	0.43	0.43
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)	162	920	415	173	938	411	217	2190	695	208	2190	688
v/s Ratio Prot	c0.14	0.22		0.08	0.31		0.13	0.43		c0.14	0.33	
v/s Ratio Perm	c0.59		0.09	0.36		0.44	0.60		0.02	c0.64		0.15
v/c Ratio	2.27	0.85	0.36	1.38	1.18	1.70	1.39	0.99	0.05	1.49	0.78	0.35
Uniform Delay, d1	42.0	49.1	42.3	41.6	51.8	51.8	42.3	39.5	23.2	44.8	34.1	26.7
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	591.4	8.0	1.1	201.1	92.6	327.5	202.0	16.5	0.1	244.4	2.8	1.4
Delay (s)	633.5	57.1	43.4	242.7	144.4	379.3	244.3	56.0	23.3	289.2	36.8	28.0
Level of Service	F	E	D	F	F	F	F	E	C	F	D	C
Approach Delay (s/veh)		203.0			244.6			77.4			68.9	
Approach LOS		F			F			E			E	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	139.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.78		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.9
Intersection Capacity Utilization	116.3%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

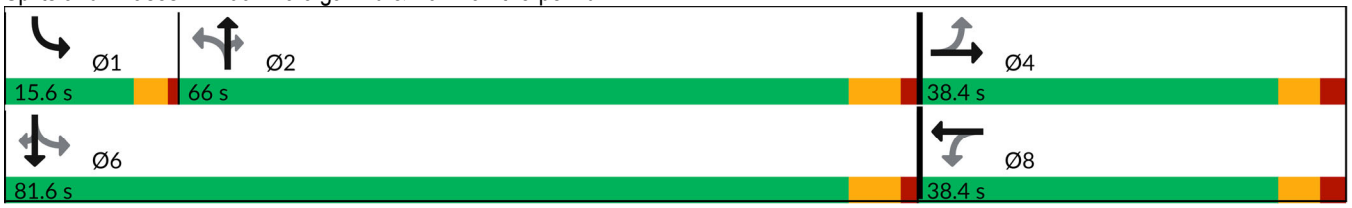


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	459	24	245	407	342	106	1880	159	230	1466	189
Future Volume (vph)	144	459	24	245	407	342	106	1880	159	230	1466	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		60.0	60.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	70.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.993			0.935				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1887	0	1805	1776	0	1805	5036	1615	1480	5085	1599
Flt Permitted	0.123			0.123			0.133			0.062		
Satd. Flow (perm)	229	1887	0	234	1776	0	253	5036	1615	97	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			31				64			67
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		828.7			989.6			1941.0			176.4	
Travel Time (s)		49.7			59.4			87.3			7.9	
Peak Hour Factor	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	1%
Adj. Flow (vph)	171	656	30	310	565	428	136	2212	234	359	1666	220
Shared Lane Traffic (%)												
Lane Group Flow (vph)	171	686	0	310	993	0	136	2212	234	359	1666	220
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		20.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	24.0	24.0		24.0	24.0		26.0	26.0	26.0	11.5	26.0	26.0
Total Split (s)	38.4	38.4		38.4	38.4		66.0	66.0	66.0	15.6	81.6	81.6
Total Split (%)	32.0%	32.0%		32.0%	32.0%		55.0%	55.0%	55.0%	13.0%	68.0%	68.0%
Maximum Green (s)	32.4	32.4		32.4	32.4		60.0	60.0	60.0	11.6	75.6	75.6
Yellow Time (s)	3.7	3.7		3.7	3.7		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.3	2.3		2.3	2.3		1.4	1.4	1.4	1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max	Max	None	Max	Max
Act Effct Green (s)	32.4	32.4		32.4	32.4		60.0	60.0	62.0	77.6	75.6	77.6
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.50	0.50	0.52	0.65	0.63	0.65
v/c Ratio	2.80	1.35		4.92	1.98		1.08	0.88	0.27	1.83	0.52	0.21
Control Delay (s/veh)	874.3	203.5		Error	472.8		135.3	31.9	12.5	417.9	12.9	6.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	874.3	203.5		Error	472.8		135.3	31.9	12.5	417.9	12.9	6.4
LOS	F	F		F	F		F	C	B	F	B	A
Approach Delay (s/veh)		337.4			791.1			35.6			77.1	
Approach LOS		F			F			D			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 4.92			
Intersection Signal Delay (s/veh): 226.8		Intersection LOS: F	
Intersection Capacity Utilization 118.1%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burnhamthorpe Rd





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	171	686	310	993	136	2212	234	359	1666	220
v/c Ratio	2.80	1.35	4.92	1.98	1.08	0.88	0.27	1.83	0.52	0.21
Control Delay (s/veh)	874.3	203.5	Error	472.8	135.3	31.9	12.5	417.9	12.9	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	874.3	203.5	Error	472.8	135.3	31.9	12.5	417.9	12.9	6.4
Queue Length 50th (m)	~72.3	~223.2	~131.0	~380.9	~37.5	173.4	22.0	~121.7	77.5	13.7
Queue Length 95th (m)	#96.5	#201.7	#163.0	#342.1	#64.4	177.5	24.9	#111.2	86.4	22.6
Internal Link Dist (m)		804.7		965.6		1917.0			152.4	
Turn Bay Length (m)	30.0		15.0		60.0		60.0	60.0		60.0
Base Capacity (vph)	61	510	63	502	126	2518	865	196	3203	1057
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	2.80	1.35	4.92	1.98	1.08	0.88	0.27	1.83	0.52	0.21

Intersection Summary

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

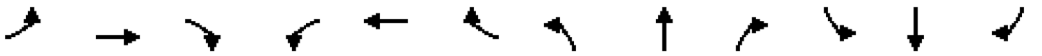
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	459	24	245	407	342	106	1880	159	230	1466	189
Future Volume (vph)	144	459	24	245	407	342	106	1880	159	230	1466	189
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	4.0	6.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.99		1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1888		1805	1777		1805	5036	1615	1480	5085	1599
Flt Permitted	0.12	1.00		0.12	1.00		0.13	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	230	1888		235	1777		253	5036	1615	97	5085	1599
Peak-hour factor, PHF	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Adj. Flow (vph)	171	656	30	310	565	428	136	2212	234	359	1666	220
RTOR Reduction (vph)	0	1	0	0	23	0	0	0	31	0	0	24
Lane Group Flow (vph)	171	685	0	310	970	0	136	2212	203	359	1666	196
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	32.4	32.4		32.4	32.4		60.0	60.0	60.0	75.6	75.6	75.6
Effective Green, g (s)	32.4	32.4		32.4	32.4		60.0	60.0	62.0	75.6	75.6	77.6
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.50	0.50	0.52	0.63	0.63	0.65
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	62	509		63	479		126	2518	834	194	3203	1034
v/s Ratio Prot		0.36			0.55			0.44		c0.18	0.33	
v/s Ratio Perm	0.74			c1.32			0.54		0.13	c0.98		0.12
v/c Ratio	2.76	1.34		4.92	2.03		1.08	0.88	0.24	1.85	0.52	0.19
Uniform Delay, d1	43.8	43.8		43.8	43.8		30.0	26.7	16.0	38.5	12.2	8.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	834.3	167.9		1799.4	468.9		103.0	4.8	0.7	402.0	0.6	0.4
Delay (s)	878.1	211.7		1843.2	512.7		133.0	31.5	16.7	440.4	12.8	8.9
Level of Service	F	F		F	F		F	C	B	F	B	A
Approach Delay (s/veh)		344.7			829.3			35.5			80.8	
Approach LOS		F			F			D			F	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	236.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.84		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	118.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Appendix G1

2031 Total Operation Synchro Reports

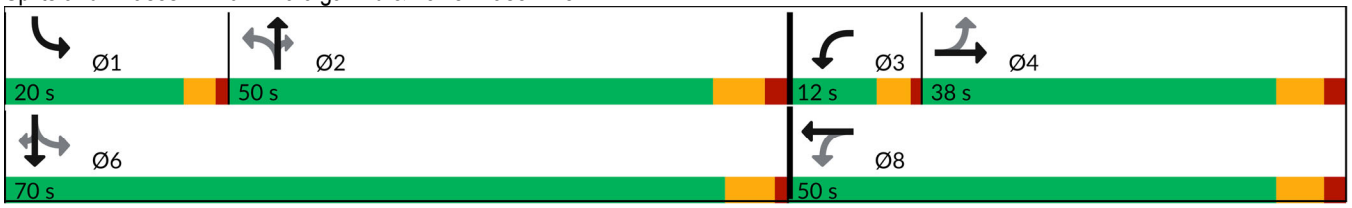


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	273	82	251	93	120	29	1121	224	285	1435	54
Future Volume (vph)	95	273	82	251	93	120	29	1121	224	285	1435	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		90.0	90.0		90.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.962			0.912				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1814	0	1736	1666	0	1597	4848	1568	1752	4988	1553
Flt Permitted	0.593			0.112			0.122			0.083		
Satd. Flow (perm)	1083	1814	0	205	1666	0	205	4848	1568	153	4988	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			67				252			76
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			728.7			434.3	
Travel Time (s)		38.5			41.4			32.8			19.5	
Peak Hour Factor	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Adj. Flow (vph)	113	355	121	344	112	158	40	1367	252	324	1688	76
Shared Lane Traffic (%)												
Lane Group Flow (vph)	113	476	0	344	270	0	40	1367	252	324	1688	76
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		25.0	25.0	25.0	7.0	25.0	25.0
Minimum Split (s)	22.5	22.5		11.5	22.5		31.6	31.6	31.6	11.5	30.6	30.6
Total Split (s)	38.0	38.0		12.0	50.0		50.0	50.0	50.0	20.0	70.0	70.0
Total Split (%)	31.7%	31.7%		10.0%	41.7%		41.7%	41.7%	41.7%	16.7%	58.3%	58.3%
Maximum Green (s)	31.8	31.8		8.0	43.8		43.4	43.4	43.4	16.0	64.4	64.4
Yellow Time (s)	4.2	4.2		3.0	4.2		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	Max
Act Effct Green (s)	31.8	31.8		46.0	43.8		43.4	43.4	43.4	66.0	64.4	64.4
Actuated g/C Ratio	0.27	0.27		0.38	0.37		0.36	0.36	0.36	0.55	0.54	0.54
v/c Ratio	0.40	0.97		1.91	0.42		0.54	0.78	0.35	1.09	0.63	0.09
Control Delay (s/veh)	41.2	76.6		452.1	23.3		60.9	37.9	4.6	111.5	20.8	3.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	41.2	76.6		452.1	23.3		60.9	37.9	4.6	111.5	20.8	3.2
LOS	D	E		F	C		E	D	A	F	C	A
Approach Delay (s/veh)		69.8			263.6			33.4			34.2	
Approach LOS		E			F			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.91			
Intersection Signal Delay (s/veh): 66.6		Intersection LOS: E	
Intersection Capacity Utilization 100.5%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line



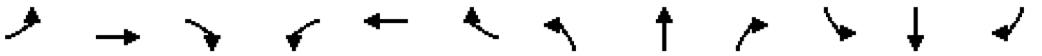


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	113	476	344	270	40	1367	252	324	1688	76
v/c Ratio	0.40	0.97	1.91	0.42	0.54	0.78	0.35	1.09	0.63	0.09
Control Delay (s/veh)	41.2	76.6	452.1	23.3	60.9	37.9	4.6	111.5	20.8	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	41.2	76.6	452.1	23.3	60.9	37.9	4.6	111.5	20.8	3.2
Queue Length 50th (m)	23.0	114.2	~115.0	36.8	7.8	109.4	0.0	~73.7	103.1	0.0
Queue Length 95th (m)	38.4	#138.1	#130.2	54.0	16.7	112.5	16.8	#128.2	108.8	3.9
Internal Link Dist (m)		725.3		666.6		704.7			410.3	
Turn Bay Length (m)	45.0		110.0		90.0		90.0	90.0		90.0
Base Capacity (vph)	286	491	180	650	74	1753	727	297	2676	868
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	0.40	0.97	1.91	0.42	0.54	0.78	0.35	1.09	0.63	0.09

Intersection Summary

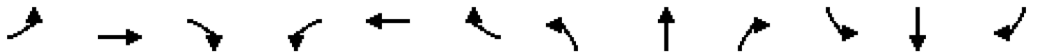
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	273	82	251	93	120	29	1121	224	285	1435	54
Future Volume (vph)	95	273	82	251	93	120	29	1121	224	285	1435	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	1814		1736	1667		1597	4848	1568	1752	4988	1553
Flt Permitted	0.59	1.00		0.11	1.00		0.12	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	1084	1814		204	1667		205	4848	1568	153	4988	1553
Peak-hour factor, PHF	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Adj. Flow (vph)	113	355	121	344	112	158	40	1367	252	324	1688	76
RTOR Reduction (vph)	0	10	0	0	43	0	0	0	161	0	0	35
Lane Group Flow (vph)	113	466	0	344	227	0	40	1367	91	324	1688	41
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	31.8	31.8		43.8	43.8		43.4	43.4	43.4	64.4	64.4	64.4
Effective Green, g (s)	31.8	31.8		43.8	43.8		43.4	43.4	43.4	64.4	64.4	64.4
Actuated g/C Ratio	0.27	0.27		0.37	0.37		0.36	0.36	0.36	0.54	0.54	0.54
Clearance Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Lane Grp Cap (vph)	287	480		176	608		74	1753	567	295	2676	833
v/s Ratio Prot		0.26		c0.13	0.14			0.28		c0.15	0.34	
v/s Ratio Perm	0.10			c0.58			0.20		0.06	c0.44		0.03
v/c Ratio	0.39	0.97		1.95	0.37		0.54	0.78	0.16	1.10	0.63	0.05
Uniform Delay, d1	36.2	43.6		32.7	28.0		30.4	34.1	26.0	36.5	19.5	13.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.9	33.7		449.6	0.8		25.5	3.5	0.6	81.3	1.1	0.1
Delay (s)	38.1	77.3		482.3	28.8		55.9	37.6	26.6	117.8	20.6	13.3
Level of Service	D	E		F	C		E	D	C	F	C	B
Approach Delay (s/veh)		69.8			282.9			36.3			35.4	
Approach LOS		E			F			D			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	70.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.53		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	100.5%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

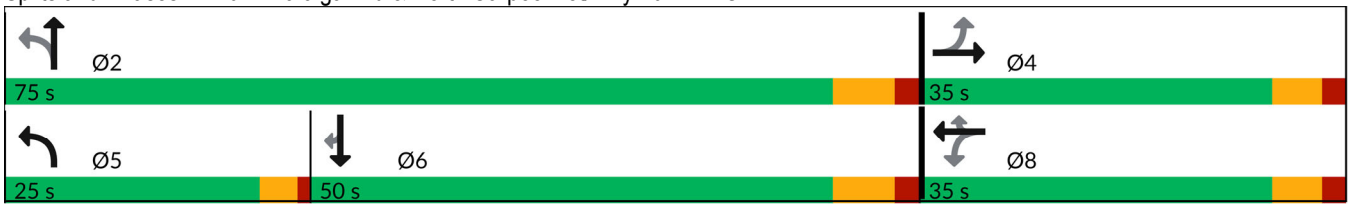


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	9	230	2	6	7	1366	0	0	1766	2
Future Volume (vph)	3	0	9	230	2	6	7	1366	0	0	1766	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.893			0.999	0.850						0.850
Flt Protected		0.990		0.950	0.954		0.950					
Satd. Flow (prot)	0	1481	0	1545	1472	1534	1543	4893	0	0	4988	1615
Flt Permitted		0.929		0.732	0.705		0.059					
Satd. Flow (perm)	0	1390	0	1190	1088	1534	96	4893	0	0	4988	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		79				79						69
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			728.7	
Travel Time (s)		9.6			41.3			26.2			52.5	
Peak Hour Factor	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Adj. Flow (vph)	8	0	30	299	4	14	23	1485	0	0	2030	8
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	0	38	0	152	152	13	23	1485	0	0	2030	8
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	4.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	27.0			27.0	27.0
Total Split (s)	35.0	35.0		35.0	35.0	35.0	25.0	75.0			50.0	50.0
Total Split (%)	31.8%	31.8%		31.8%	31.8%	31.8%	22.7%	68.2%			45.5%	45.5%
Maximum Green (s)	29.0	29.0		29.0	29.0	29.0	21.0	68.0			43.0	43.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0			2.0	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	4.0	7.0			7.0	7.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	None	Max			Max	Max
Act Effct Green (s)		19.5		19.5	19.5	19.5	71.3	68.3			64.5	64.5
Actuated g/C Ratio		0.19		0.19	0.19	0.19	0.71	0.68			0.64	0.64
v/c Ratio		0.11		0.66	0.72	0.04	0.16	0.45			0.64	0.01
Control Delay (s/veh)		1.3		51.5	57.6	0.2	8.1	8.8			14.3	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		1.3		51.5	57.6	0.2	8.1	8.8			14.3	0.0
LOS		A		D	E	A	A	A			B	A
Approach Delay (s/veh)		1.3			52.3			8.7			14.2	
Approach LOS		A			D			A			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 100.8			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay (s/veh): 15.1		Intersection LOS: B	
Intersection Capacity Utilization 58.1%		ICU Level of Service B	
Analysis Period (min) 15			

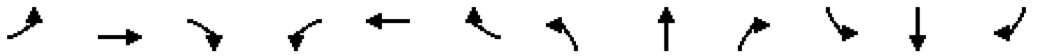
Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off





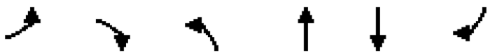
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	38	152	152	13	23	1485	2030	8
v/c Ratio	0.11	0.66	0.72	0.04	0.16	0.45	0.64	0.01
Control Delay (s/veh)	1.3	51.5	57.6	0.2	8.1	8.8	14.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	1.3	51.5	57.6	0.2	8.1	8.8	14.3	0.0
Queue Length 50th (m)	0.0	30.5	32.4	0.0	1.2	46.0	74.1	0.0
Queue Length 95th (m)	0.0	43.6	28.0	0.0	1.5	73.8	141.3	0.0
Internal Link Dist (m)	110.0		550.1			339.6	704.7	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	457	343	313	499	370	3314	3190	1058
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	0.44	0.49	0.03	0.06	0.45	0.64	0.01

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	9	230	2	6	7	1366	0	0	1766	2
Future Volume (vph)	3	0	9	230	2	6	7	1366	0	0	1766	2
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	4.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.91			0.91	1.00
Frt		0.89		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1481		1545	1472	1534	1543	4893			4988	1615
Flt Permitted		0.93		0.73	0.71	1.00	0.06	1.00			1.00	1.00
Satd. Flow (perm)		1390		1191	1088	1534	96	4893			4988	1615
Peak-hour factor, PHF	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Adj. Flow (vph)	8	0	30	299	4	14	23	1485	0	0	2030	8
RTOR Reduction (vph)	0	31	0	0	0	11	0	0	0	0	0	3
Lane Group Flow (vph)	0	7	0	152	152	2	23	1485	0	0	2030	5
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		19.5		19.5	19.5	19.5	70.7	70.7			64.4	64.4
Effective Green, g (s)		19.5		19.5	19.5	19.5	70.7	70.7			64.4	64.4
Actuated g/C Ratio		0.19		0.19	0.19	0.19	0.69	0.69			0.62	0.62
Clearance Time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Lane Grp Cap (vph)		262		225	205	289	98	3352			3112	1007
v/s Ratio Prot							0.01	c0.30			c0.41	
v/s Ratio Perm		0.01		0.13	c0.14	0.00	0.16					0.00
v/c Ratio		0.03		0.68	0.74	0.01	0.23	0.44			0.65	0.00
Uniform Delay, d1		34.1		38.9	39.5	34.0	8.6	7.3			12.3	7.3
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2		0.1		8.1	13.9	0.0	0.9	0.4			1.1	0.0
Delay (s)		34.2		47.0	53.3	34.0	9.5	7.8			13.4	7.3
Level of Service		C		D	D	C	A	A			B	A
Approach Delay (s/veh)		34.2			49.5			7.8			13.4	
Approach LOS		C			D			A			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	103.2	Sum of lost time (s)	17.0
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

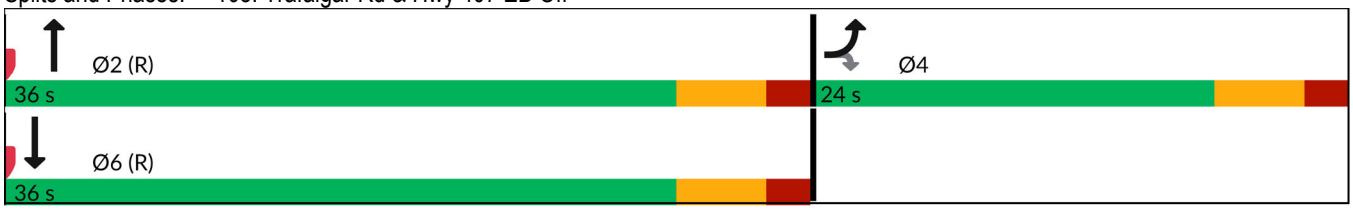


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	68	181	0	1450	1916	0
Future Volume (vph)	68	181	0	1450	1916	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1671	1392	0	4848	4940	0
Flt Permitted	0.950					
Satd. Flow (perm)	1671	1392	0	4848	4940	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		2				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			485.1	363.6	
Travel Time (s)	39.9			34.9	26.2	
Peak Hour Factor	0.79	0.78	0.25	0.85	0.86	0.25
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Adj. Flow (vph)	86	232	0	1706	2228	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	86	232	0	1706	2228	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	24.0	24.0		24.0	24.0	
Total Split (s)	24.0	24.0		36.0	36.0	
Total Split (%)	40.0%	40.0%		60.0%	60.0%	
Maximum Green (s)	18.0	18.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	18.0	18.0		30.0	30.0	
Actuated g/C Ratio	0.30	0.30		0.50	0.50	
v/c Ratio	0.17	0.55		0.70	0.90	
Control Delay (s/veh)	16.7	23.5		13.6	20.6	
Queue Delay	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay (s/veh)	16.7	23.5		13.6	20.6	
LOS	B	C		B	C	
Approach Delay (s/veh)	21.6			13.6	20.6	
Approach LOS	C			B	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Pretimed			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay (s/veh): 17.8		Intersection LOS: B	
Intersection Capacity Utilization 58.2%		ICU Level of Service B	
Analysis Period (min) 15			

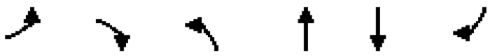
Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off





Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	86	232	1706	2228
v/c Ratio	0.17	0.55	0.70	0.90
Control Delay (s/veh)	16.7	23.5	13.6	20.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.7	23.5	13.6	20.6
Queue Length 50th (m)	7.3	22.1	51.4	79.3
Queue Length 95th (m)	14.3	34.6	60.9	93.9
Internal Link Dist (m)	530.6		461.1	339.6
Turn Bay Length (m)				
Base Capacity (vph)	501	419	2424	2470
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	0.17	0.55	0.70	0.90

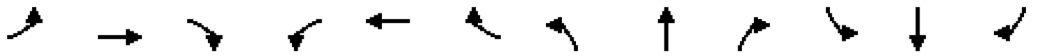
Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	68	181	0	1450	1916	0
Future Volume (vph)	68	181	0	1450	1916	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1671	1392		4848	4940	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1671	1392		4848	4940	
Peak-hour factor, PHF	0.79	0.78	0.25	0.85	0.86	0.25
Adj. Flow (vph)	86	232	0	1706	2228	0
RTOR Reduction (vph)	0	1	0	0	0	0
Lane Group Flow (vph)	86	231	0	1706	2228	0
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	18.0	18.0		30.0	30.0	
Effective Green, g (s)	18.0	18.0		30.0	30.0	
Actuated g/C Ratio	0.30	0.30		0.50	0.50	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	501	417		2424	2470	
v/s Ratio Prot	0.05			0.35	c0.45	
v/s Ratio Perm		c0.17				
v/c Ratio	0.17	0.55		0.70	0.90	
Uniform Delay, d1	15.5	17.6		11.6	13.7	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	5.2		1.7	5.9	
Delay (s)	16.2	22.8		13.3	19.6	
Level of Service	B	C		B	B	
Approach Delay (s/veh)	21.0			13.3	19.6	
Approach LOS	C			B	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

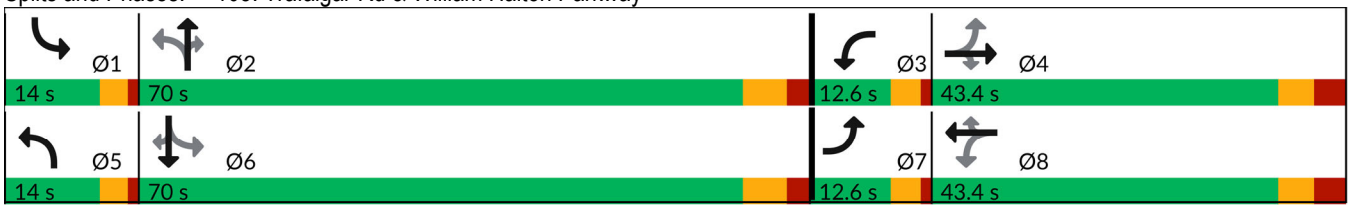


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	832	202	290	681	453	330	1172	218	616	1090	391
Future Volume (vph)	203	832	202	290	681	453	330	1172	218	616	1090	391
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	150.0		150.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
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)	1787	3574	1599	1687	3574	1429	1703	4988	1615	1770	4893	1538
Flt Permitted	0.110			0.110			0.156			0.134		
Satd. Flow (perm)	207	3574	1599	195	3574	1429	280	4988	1615	250	4893	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			156			154			176			184
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		1215.0			165.2			455.6			485.1	
Travel Time (s)		87.5			11.9			32.8			34.9	
Peak Hour Factor	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
Adj. Flow (vph)	239	914	243	387	873	604	384	1302	260	751	1211	455
Shared Lane Traffic (%)												
Lane Group Flow (vph)	239	914	243	387	873	604	384	1302	260	751	1211	455
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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)	11.5	38.0	38.0	11.5	38.0	38.0	11.5	42.9	42.9	11.5	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	-2.9	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	4.0	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	Max	Max	None	Max	Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't 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)	48.0	36.4	36.4	48.0	36.4	36.4	76.0	63.1	66.0	76.0	63.1	63.1
Actuated g/C Ratio	0.34	0.26	0.26	0.34	0.26	0.26	0.54	0.45	0.47	0.54	0.45	0.45
v/c Ratio	1.42	0.98	0.46	2.45	0.94	1.25	1.52	0.58	0.30	3.08	0.55	0.57
Control Delay (s/veh)	249.9	77.1	18.5	690.7	68.8	159.0	273.0	29.9	8.3	960.9	29.2	19.3
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 (s/veh)	249.9	77.1	18.5	690.7	68.8	159.0	273.0	29.9	8.3	960.9	29.2	19.3
LOS	F	E	B	F	E	F	F	C	A	F	C	B
Approach Delay (s/veh)		96.5			227.2			75.0			316.8	
Approach LOS		F			F			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Natural Cycle: 145			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 3.08			
Intersection Signal Delay (s/veh): 192.8		Intersection LOS: F	
Intersection Capacity Utilization 114.1%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway



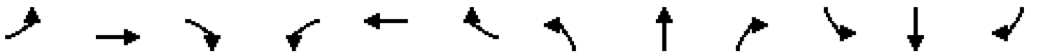


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	239	914	243	387	873	604	384	1302	260	751	1211	455
v/c Ratio	1.42	0.98	0.46	2.45	0.94	1.25	1.52	0.58	0.30	3.08	0.55	0.57
Control Delay (s/veh)	249.9	77.1	18.5	690.7	68.8	159.0	273.0	29.9	8.3	960.9	29.2	19.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	249.9	77.1	18.5	690.7	68.8	159.0	273.0	29.9	8.3	960.9	29.2	19.3
Queue Length 50th (m)	~76.2	140.2	20.0	~171.0	131.8	~184.0	~106.7	101.6	13.4	~348.0	92.8	57.2
Queue Length 95th (m)	#121.6	#186.0	38.9	#187.0	131.8	#185.9	#161.7	117.2	26.7	#380.6	107.7	84.1
Internal Link Dist (m)		1191.0			141.2			431.6			461.1	
Turn Bay Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	150.0		150.0
Base Capacity (vph)	168	929	531	158	929	485	253	2248	854	244	2205	794
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	1.42	0.98	0.46	2.45	0.94	1.25	1.52	0.58	0.30	3.08	0.55	0.57

Intersection Summary

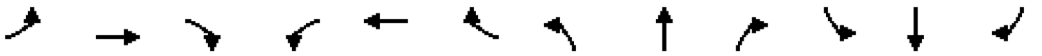
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	832	202	290	681	453	330	1172	218	616	1090	391
Future Volume (vph)	203	832	202	290	681	453	330	1172	218	616	1090	391
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	4.0	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)	1787	3574	1599	1687	3574	1429	1703	4988	1615	1770	4893	1538
Flt Permitted	0.11	1.00	1.00	0.11	1.00	1.00	0.16	1.00	1.00	0.13	1.00	1.00
Satd. Flow (perm)	207	3574	1599	195	3574	1429	280	4988	1615	250	4893	1538
Peak-hour factor, PHF	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Adj. Flow (vph)	239	914	243	387	873	604	384	1302	260	751	1211	455
RTOR Reduction (vph)	0	0	115	0	0	114	0	0	93	0	0	101
Lane Group Flow (vph)	239	914	128	387	873	490	384	1302	167	751	1211	354
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
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)	45.0	36.4	36.4	45.0	36.4	36.4	73.1	63.1	63.1	73.1	63.1	63.1
Effective Green, g (s)	45.0	36.4	36.4	45.0	36.4	36.4	73.1	63.1	66.0	73.1	63.1	63.1
Actuated g/C Ratio	0.32	0.26	0.26	0.32	0.26	0.26	0.52	0.45	0.47	0.52	0.45	0.45
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)	163	929	415	154	929	371	247	2248	761	239	2205	693
v/s Ratio Prot	0.09	0.26		c0.15	0.24		0.11	0.26		c0.22	0.25	
v/s Ratio Perm	0.38		0.08	c0.65		0.34	0.70		0.10	c1.42		0.23
v/c Ratio	1.47	0.98	0.31	2.51	0.94	1.32	1.55	0.58	0.22	3.14	0.55	0.51
Uniform Delay, d1	41.3	51.5	41.7	41.7	50.7	51.8	25.0	28.6	21.8	24.0	28.1	27.4
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	240.2	25.6	0.9	699.7	17.2	162.2	268.6	1.1	0.7	974.9	1.0	2.7
Delay (s)	281.4	77.1	42.5	741.4	67.9	214.0	293.6	29.7	22.5	999.0	29.1	30.1
Level of Service	F	E	D	F	E	F	F	C	C	F	C	C
Approach Delay (s/veh)		106.1			255.1			80.8			330.6	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	207.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.90		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.9
Intersection Capacity Utilization	114.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

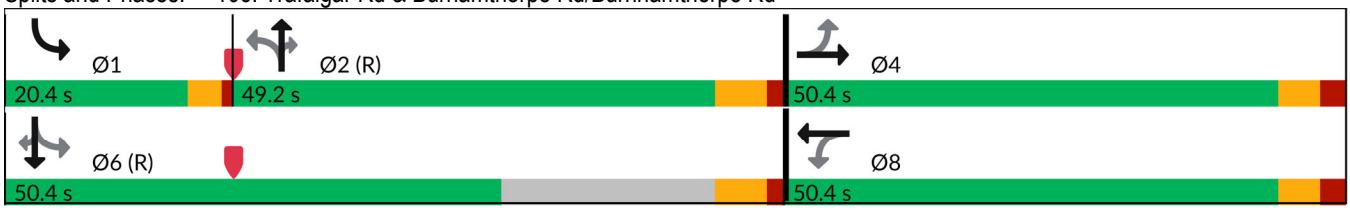


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	208	312	121	199	110	51	59	1522	105	70	1458	55
Future Volume (vph)	208	312	121	199	110	51	59	1522	105	70	1458	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		60.0	60.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	70.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.958			0.934				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1805	0	1770	1775	0	1703	4988	1615	1752	4940	1495
Flt Permitted	0.471			0.179			0.151			0.085		
Satd. Flow (perm)	869	1805	0	333	1775	0	271	4988	1615	157	4940	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			38				82			64
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		828.7			989.6			1077.8			455.6	
Travel Time (s)		49.7			59.4			48.5			20.5	
Peak Hour Factor	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
Adj. Flow (vph)	248	395	153	326	162	128	86	1654	122	108	1568	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	248	548	0	326	290	0	86	1654	122	108	1568	65
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Minimum Split (s)	24.0	24.0		24.0	24.0		26.0	26.0	26.0	11.5	26.0	26.0
Total Split (s)	50.4	50.4		50.4	50.4		49.2	49.2	49.2	20.4	50.4	50.4
Total Split (%)	42.0%	42.0%		42.0%	42.0%		41.0%	41.0%	41.0%	17.0%	42.0%	42.0%
Maximum Green (s)	44.4	44.4		44.4	44.4		43.2	43.2	43.2	16.4	44.4	44.4
Yellow Time (s)	3.7	3.7		3.7	3.7		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.3	2.3		2.3	2.3		1.4	1.4	1.4	1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Act Effct Green (s)	44.4	44.4		44.4	44.4		43.2	43.2	45.2	65.6	63.6	65.6
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.36	0.36	0.38	0.55	0.53	0.55
v/c Ratio	0.77	0.81		2.65	0.43		0.89	0.92	0.19	0.36	0.60	0.08
Control Delay (s/veh)	51.4	43.5		785.0	26.7		104.1	46.4	10.3	18.1	20.6	3.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (s/veh)	51.4	43.5		785.0	26.7		104.1	46.4	10.3	18.1	20.6	3.4
LOS	D	D		F	C		F	D	B	B	C	A
Approach Delay (s/veh)		46.0			428.0			46.7			19.8	
Approach LOS		D			F			D			B	

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: 130			
Control Type: Pretimed			
Maximum v/c Ratio: 2.65			
Intersection Signal Delay (s/veh): 84.1		Intersection LOS: F	
Intersection Capacity Utilization 99.6%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burhamthorpe Rd/Burnhamthorpe Rd



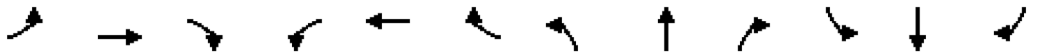


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	248	548	326	290	86	1654	122	108	1568	65
v/c Ratio	0.77	0.81	2.65	0.43	0.89	0.92	0.19	0.36	0.60	0.08
Control Delay (s/veh)	51.4	43.5	785.0	26.7	104.1	46.4	10.3	18.1	20.6	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	51.4	43.5	785.0	26.7	104.1	46.4	10.3	18.1	20.6	3.4
Queue Length 50th (m)	53.6	117.4	~136.4	46.0	19.8	142.6	6.3	12.4	94.2	0.1
Queue Length 95th (m)	#86.3	134.5	#121.9	48.4	#35.2	#168.1	17.9	15.2	109.5	5.8
Internal Link Dist (m)		804.7		965.6		1053.8			431.6	
Turn Bay Length (m)	30.0		15.0		60.0		60.0	60.0		60.0
Base Capacity (vph)	321	679	123	680	97	1795	659	303	2618	846
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.81	2.65	0.43	0.89	0.92	0.19	0.36	0.60	0.08

Intersection Summary

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

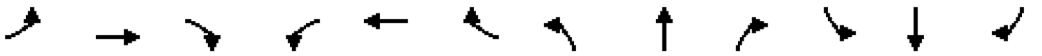
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	208	312	121	199	110	51	59	1522	105	70	1458	55
Future Volume (vph)	208	312	121	199	110	51	59	1522	105	70	1458	55
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	4.0	6.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	1805		1770	1774		1703	4988	1615	1752	4940	1495
Flt Permitted	0.47	1.00		0.18	1.00		0.15	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	868	1805		334	1774		270	4988	1615	156	4940	1495
Peak-hour factor, PHF	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Adj. Flow (vph)	248	395	153	326	162	128	86	1654	122	108	1568	65
RTOR Reduction (vph)	0	11	0	0	24	0	0	0	51	0	0	29
Lane Group Flow (vph)	248	537	0	326	266	0	86	1654	71	108	1568	36
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	44.4	44.4		44.4	44.4		43.2	43.2	43.2	63.6	63.6	63.6
Effective Green, g (s)	44.4	44.4		44.4	44.4		43.2	43.2	45.2	63.6	63.6	65.6
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.36	0.36	0.38	0.53	0.53	0.55
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	4.0	6.0	6.0
Lane Grp Cap (vph)	321	667		123	656		97	1795	608	300	2618	817
v/s Ratio Prot		0.30			0.15			c0.33		0.05	c0.32	
v/s Ratio Perm	0.29			c0.98			0.32		0.04	0.14		0.02
v/c Ratio	0.77	0.80		2.65	0.41		0.89	0.92	0.12	0.36	0.60	0.04
Uniform Delay, d1	33.3	33.9		37.8	28.0		36.1	36.8	24.4	20.8	19.4	12.6
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	16.4	10.0		765.5	1.9		64.2	9.3	0.4	3.3	1.0	0.1
Delay (s)	49.8	43.9		803.3	29.9		100.3	46.1	24.8	24.2	20.4	12.7
Level of Service	D	D		F	C		F	D	C	C	C	B
Approach Delay (s/veh)		45.7			439.2			47.2			20.4	
Approach LOS		D			F			D			C	

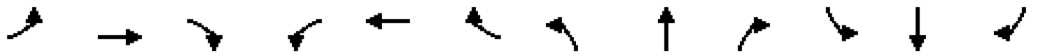
Intersection Summary			
HCM 2000 Control Delay (s/veh)	85.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.61		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	99.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1589	77	0	1183	6	0	0	89	0	0	241
Future Volume (vph)	0	1589	77	0	1183	6	0	0	89	0	0	241
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
Frt		0.993			0.999				0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3514	0	0	3536	0	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3514	0	0	3536	0	0	0	1611	0	0	1611
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		165.2			220.0			185.6			207.5	
Travel Time (s)		11.9			15.8			13.4			14.9	
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
Adj. Flow (vph)	0	1727	84	0	1286	7	0	0	97	0	0	262
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1811	0	0	1293	0	0	0	97	0	0	262
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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 58.6%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1589	77	0	1183	6	0	0	89	0	0	241
Future Volume (Veh/h)	0	1589	77	0	1183	6	0	0	89	0	0	241
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1727	84	0	1286	7	0	0	97	0	0	262
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		165										
pX, platoon unblocked				0.75			0.75	0.75	0.75	0.75	0.75	
vC, conflicting volume	1293			1811			2674	3062	906	2250	3101	647
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1293			1423			2568	3082	222	2005	3133	647
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	37
cM capacity (veh/h)	532			358			4	9	589	22	8	414

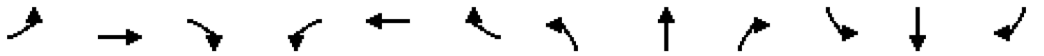
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	1151	660	857	436	97	262
Volume Left	0	0	0	0	0	0
Volume Right	0	84	0	7	97	262
cSH	1700	1700	1700	1700	589	414
Volume to Capacity	0.68	0.39	0.50	0.26	0.16	0.63
Queue Length 95th (m)	0.0	0.0	0.0	0.0	4.7	33.8
Control Delay (s/veh)	0.0	0.0	0.0	0.0	12.3	27.5
Lane LOS					B	D
Approach Delay (s/veh)	0.0		0.0		12.3	27.5
Approach LOS					B	D

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	58.6%	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)	482	1119	77	54	771	14	293	10	89	49	10	125
Future Volume (vph)	482	1119	77	54	771	14	293	10	89	49	10	125
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	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993			0.998			0.969			0.908	
Flt Protected		0.986			0.997			0.964			0.987	
Satd. Flow (prot)	0	3465	0	0	3522	0	0	1740	0	0	1669	0
Flt Permitted		0.986			0.997			0.964			0.987	
Satd. Flow (perm)	0	3465	0	0	3522	0	0	1740	0	0	1669	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		220.0			1108.5			243.0			268.9	
Travel Time (s)		15.8			79.8			17.5			19.4	
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
Adj. Flow (vph)	524	1216	84	59	838	15	318	11	97	53	11	136
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1824	0	0	912	0	0	426	0	0	200	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)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

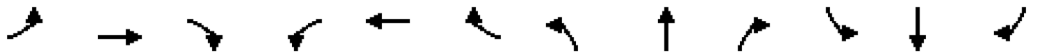
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 117.2%		ICU Level of Service H	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	482	1119	77	54	771	14	293	10	89	49	10	125
Future Volume (Veh/h)	482	1119	77	54	771	14	293	10	89	49	10	125
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	524	1216	84	59	838	15	318	11	97	53	11	136
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		385										
pX, platoon unblocked				0.77			0.77	0.77	0.77	0.77	0.77	
vC, conflicting volume	853			1300			2985	3277	650	2722	3312	427
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	853			799			2980	3359	0	2640	3403	427
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 %	33			91			0	0	88	0	0	76
cM capacity (veh/h)	782			633			0	2	838	0	2	576

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	1132	692	478	434	426	200
Volume Left	524	0	59	0	318	53
Volume Right	0	84	0	15	97	136
cSH	782	1700	633	1700	0	0
Volume to Capacity	0.67	0.41	0.09	0.26	Err	Err
Queue Length 95th (m)	41.9	0.0	2.5	0.0	Err	Err
Control Delay (s/veh)	18.4	0.0	2.6	0.0	Err	Err
Lane LOS	C		A		F	F
Approach Delay (s/veh)	11.4		1.4		Err	Err
Approach LOS					F	F

Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	117.2%	ICU Level of Service	H	
Analysis Period (min)	15			

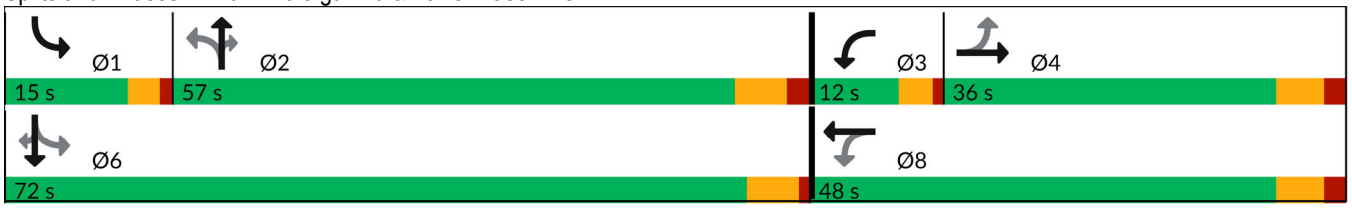


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	205	40	225	260	279	195	1652	299	159	1279	53
Future Volume (vph)	57	205	40	225	260	279	195	1652	299	159	1279	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		90.0	90.0		90.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.965			0.924				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1834	0	1770	1738	0	1805	5036	1599	1752	5085	1615
Flt Permitted	0.134			0.280			0.176			0.072		
Satd. Flow (perm)	250	1834	0	522	1738	0	334	5036	1599	133	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			48				356			84
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			728.6			888.2	
Travel Time (s)		38.5			41.4			32.8			40.0	
Peak Hour Factor	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Adj. Flow (vph)	74	244	74	237	329	340	219	1721	356	179	1405	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	318	0	237	669	0	219	1721	356	179	1405	84
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		25.0	25.0	25.0	7.0	25.0	25.0
Minimum Split (s)	22.5	22.5		11.5	22.5		31.6	31.6	31.6	11.5	30.6	30.6
Total Split (s)	36.0	36.0		12.0	48.0		57.0	57.0	57.0	15.0	72.0	72.0
Total Split (%)	30.0%	30.0%		10.0%	40.0%		47.5%	47.5%	47.5%	12.5%	60.0%	60.0%
Maximum Green (s)	29.8	29.8		8.0	41.8		50.4	50.4	50.4	11.0	66.4	66.4
Yellow Time (s)	4.2	4.2		3.0	4.2		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	Max
Act Effct Green (s)	29.8	29.8		44.0	41.8		50.4	50.4	50.4	68.0	66.4	66.4
Actuated g/C Ratio	0.25	0.25		0.37	0.35		0.42	0.42	0.42	0.57	0.55	0.55
v/c Ratio	1.19	0.69		0.86	1.05		1.56	0.81	0.41	0.80	0.50	0.09
Control Delay (s/veh)	217.0	47.9		60.7	85.9		313.8	34.5	3.7	51.5	17.3	2.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	217.0	47.9		60.7	85.9		313.8	34.5	3.7	51.5	17.3	2.8
LOS	F	D		E	F		F	C	A	D	B	A
Approach Delay (s/veh)		79.9			79.3			56.4			20.3	
Approach LOS		E			E			E			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.56			
Intersection Signal Delay (s/veh): 50.6		Intersection LOS: D	
Intersection Capacity Utilization 105.1%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line



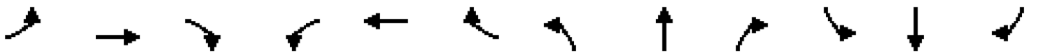


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	74	318	237	669	219	1721	356	179	1405	84
v/c Ratio	1.19	0.69	0.86	1.05	1.56	0.81	0.41	0.80	0.50	0.09
Control Delay (s/veh)	217.0	47.9	60.7	85.9	313.8	34.5	3.7	51.5	17.3	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	217.0	47.9	60.7	85.9	313.8	34.5	3.7	51.5	17.3	2.8
Queue Length 50th (m)	~22.2	69.1	42.6	~172.8	~76.8	135.3	0.0	26.8	75.2	0.0
Queue Length 95th (m)	#44.4	93.2	#84.3	#195.9	#125.3	156.0	12.9	#63.5	88.0	2.3
Internal Link Dist (m)		725.3		666.6		704.6			864.2	
Turn Bay Length (m)	45.0		110.0		90.0		90.0	90.0		90.0
Base Capacity (vph)	62	464	274	636	140	2115	878	223	2813	931
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.19	0.69	0.86	1.05	1.56	0.81	0.41	0.80	0.50	0.09

Intersection Summary

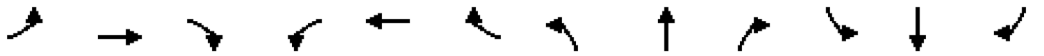
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	205	40	225	260	279	195	1652	299	159	1279	53
Future Volume (vph)	57	205	40	225	260	279	195	1652	299	159	1279	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.97		1.00	0.92		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1834		1770	1738		1805	5036	1599	1752	5085	1615
Flt Permitted	0.13	1.00		0.28	1.00		0.18	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	250	1834		521	1738		335	5036	1599	133	5085	1615
Peak-hour factor, PHF	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Adj. Flow (vph)	74	244	74	237	329	340	219	1721	356	179	1405	84
RTOR Reduction (vph)	0	9	0	0	31	0	0	0	206	0	0	38
Lane Group Flow (vph)	74	309	0	237	638	0	219	1721	150	179	1405	46
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	29.8	29.8		41.8	41.8		50.4	50.4	50.4	66.4	66.4	66.4
Effective Green, g (s)	29.8	29.8		41.8	41.8		50.4	50.4	50.4	66.4	66.4	66.4
Actuated g/C Ratio	0.25	0.25		0.35	0.35		0.42	0.42	0.42	0.55	0.55	0.55
Clearance Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Lane Grp Cap (vph)	62	455		264	605		140	2115	671	222	2813	893
v/s Ratio Prot		0.17		0.06	c0.37			0.34		c0.07	0.28	
v/s Ratio Perm	c0.30			0.25			c0.65		0.09	0.37		0.03
v/c Ratio	1.19	0.68		0.90	1.05		1.56	0.81	0.22	0.81	0.50	0.05
Uniform Delay, d1	45.1	40.8		36.3	39.1		34.8	30.7	22.3	29.8	16.5	12.3
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	175.8	5.2		29.3	51.7		285.6	3.6	0.8	26.0	0.6	0.1
Delay (s)	220.9	46.0		65.6	90.8		320.4	34.2	23.0	55.7	17.2	12.4
Level of Service	F	D		E	F		F	C	C	E	B	B
Approach Delay (s/veh)		79.0			84.2			59.8			21.1	
Approach LOS		E			F			E			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	53.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.34		
Actuated Cycle Length (s)	120.0	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			

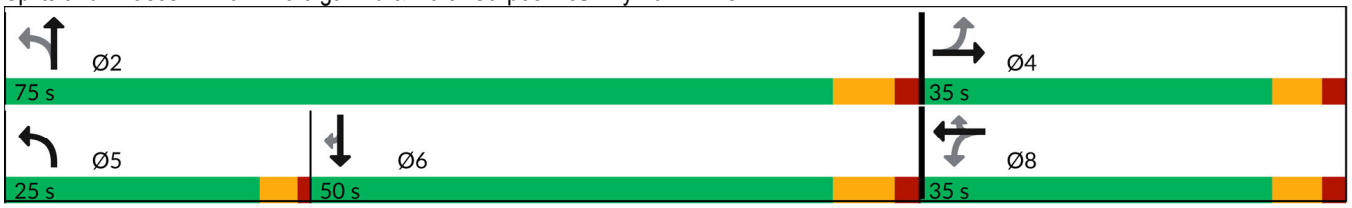


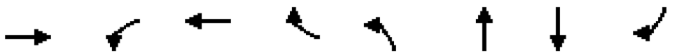
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	18	414	3	27	11	2116	0	0	1539	5
Future Volume (vph)	3	0	18	414	3	27	11	2116	0	0	1539	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.894			0.998	0.850						0.850
Flt Protected		0.989		0.950	0.954		0.950					
Satd. Flow (prot)	0	1525	0	1681	1596	1408	1641	5085	0	0	5085	1615
Flt Permitted		0.920		0.733	0.709		0.093					
Satd. Flow (perm)	0	1418	0	1297	1186	1408	161	5085	0	0	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		79			1	79						69
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			728.6	
Travel Time (s)		9.6			41.3			26.2			52.5	
Peak Hour Factor	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Adj. Flow (vph)	8	0	29	465	8	33	22	2251	0	0	1691	10
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	0	37	0	237	239	30	22	2251	0	0	1691	10
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	4.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	27.0			27.0	27.0
Total Split (s)	35.0	35.0		35.0	35.0	35.0	25.0	75.0			50.0	50.0
Total Split (%)	31.8%	31.8%		31.8%	31.8%	31.8%	22.7%	68.2%			45.5%	45.5%
Maximum Green (s)	29.0	29.0		29.0	29.0	29.0	21.0	68.0			43.0	43.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0			2.0	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	4.0	7.0			7.0	7.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	None	Max			Max	Max
Act Effct Green (s)		25.0		25.0	25.0	25.0	71.1	68.1			64.2	64.2
Actuated g/C Ratio		0.24		0.24	0.24	0.24	0.67	0.64			0.60	0.60
v/c Ratio		0.09		0.78	0.85	0.08	0.12	0.69			0.55	0.01
Control Delay (s/veh)		1.0		55.8	65.9	0.4	8.3	14.2			14.6	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		1.0		55.8	65.9	0.4	8.3	14.2			14.6	0.0
LOS		A		E	E	A	A	B			B	A
Approach Delay (s/veh)		1.0			57.3			14.2			14.6	
Approach LOS		A			E			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 106.2			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay (s/veh): 19.0		Intersection LOS: B	
Intersection Capacity Utilization 70.2%		ICU Level of Service C	
Analysis Period (min) 15			

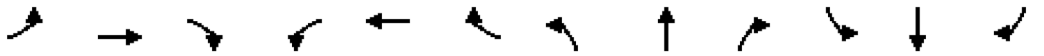
Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off





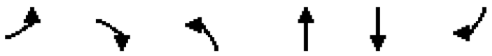
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	37	237	239	30	22	2251	1691	10
v/c Ratio	0.09	0.78	0.85	0.08	0.12	0.69	0.55	0.01
Control Delay (s/veh)	1.0	55.8	65.9	0.4	8.3	14.2	14.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	1.0	55.8	65.9	0.4	8.3	14.2	14.6	0.0
Queue Length 50th (m)	0.0	50.9	54.6	0.0	1.6	115.5	72.4	0.0
Queue Length 95th (m)	0.0	80.8	30.3	0.0	2.5	136.2	111.5	0.0
Internal Link Dist (m)	110.0		550.1			339.6	704.6	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	445	354	325	442	400	3262	3076	1003
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	0.67	0.74	0.07	0.06	0.69	0.55	0.01

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	18	414	3	27	11	2116	0	0	1539	5
Future Volume (vph)	3	0	18	414	3	27	11	2116	0	0	1539	5
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	4.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.91			0.91	1.00
Frt		0.89		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1525		1681	1597	1408	1641	5085			5085	1615
Flt Permitted		0.92		0.73	0.71	1.00	0.09	1.00			1.00	1.00
Satd. Flow (perm)		1419		1297	1186	1408	161	5085			5085	1615
Peak-hour factor, PHF	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Adj. Flow (vph)	8	0	29	465	8	33	22	2251	0	0	1691	10
RTOR Reduction (vph)	0	28	0	0	1	23	0	0	0	0	0	4
Lane Group Flow (vph)	0	9	0	237	238	7	22	2251	0	0	1691	6
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		25.1		25.1	25.1	25.1	70.6	70.6			64.3	64.3
Effective Green, g (s)		25.1		25.1	25.1	25.1	70.6	70.6			64.3	64.3
Actuated g/C Ratio		0.23		0.23	0.23	0.23	0.65	0.65			0.59	0.59
Clearance Time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Lane Grp Cap (vph)		327		299	273	325	135	3302			3007	955
v/s Ratio Prot							0.00	c0.44			0.33	
v/s Ratio Perm		0.01		0.18	c0.20	0.00	0.10					0.00
v/c Ratio		0.03		0.79	0.87	0.02	0.16	0.68			0.56	0.01
Uniform Delay, d1		32.3		39.4	40.3	32.3	8.9	12.0			13.6	9.1
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2		0.0		13.8	25.4	0.0	0.4	1.2			0.8	0.0
Delay (s)		32.4		53.1	65.7	32.3	9.3	13.1			14.4	9.1
Level of Service		C		D	E	C	A	B			B	A
Approach Delay (s/veh)		32.4			57.8			13.1			14.3	
Approach LOS		C			E			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	108.7	Sum of lost time (s)	17.0
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

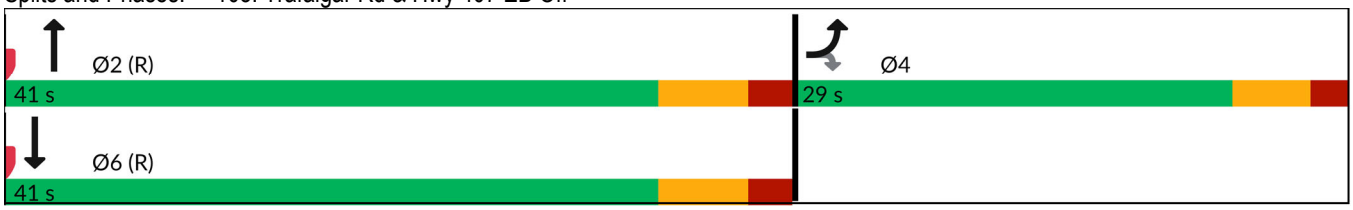


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	38	149	0	2361	1806	0
Future Volume (vph)	38	149	0	2361	1806	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1703	1429	0	5085	5085	0
Flt Permitted	0.950					
Satd. Flow (perm)	1703	1429	0	5085	5085	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		4				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			479.2	363.6	
Travel Time (s)	39.9			34.5	26.2	
Peak Hour Factor	0.75	0.94	0.25	0.94	0.92	0.25
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Adj. Flow (vph)	51	159	0	2512	1963	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	51	159	0	2512	1963	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	29.0	29.0		24.9	24.9	
Total Split (s)	29.0	29.0		41.0	41.0	
Total Split (%)	41.4%	41.4%		58.6%	58.6%	
Maximum Green (s)	23.0	23.0		34.1	34.1	
Yellow Time (s)	4.0	4.0		4.6	4.6	
All-Red Time (s)	2.0	2.0		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.9	6.9	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	23.0	23.0		34.1	34.1	
Actuated g/C Ratio	0.33	0.33		0.49	0.49	
v/c Ratio	0.09	0.34		1.01	0.79	
Control Delay (s/veh)	16.9	19.8		41.2	18.0	
Queue Delay	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay (s/veh)	16.9	19.8		41.2	18.0	
LOS	B	B		D	B	
Approach Delay (s/veh)	19.1			41.2	18.0	
Approach LOS	B			D	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 75			
Control Type: Pretimed			
Maximum v/c Ratio: 1.01			
Intersection Signal Delay (s/veh): 30.5		Intersection LOS: C	
Intersection Capacity Utilization 60.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off



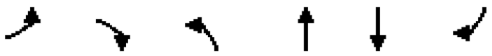


Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	51	159	2512	1963
v/c Ratio	0.09	0.34	1.01	0.79
Control Delay (s/veh)	16.9	19.8	41.2	18.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.9	19.8	41.2	18.0
Queue Length 50th (m)	4.8	15.9	~124.5	77.9
Queue Length 95th (m)	9.8	30.8	#167.1	97.1
Internal Link Dist (m)	530.6		455.2	339.6
Turn Bay Length (m)				
Base Capacity (vph)	559	472	2477	2477
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.09	0.34	1.01	0.79

Intersection Summary

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

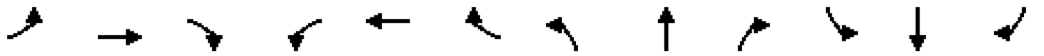
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	38	149	0	2361	1806	0
Future Volume (vph)	38	149	0	2361	1806	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.9	6.9	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1703	1429		5085	5085	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1703	1429		5085	5085	
Peak-hour factor, PHF	0.75	0.94	0.25	0.94	0.92	0.25
Adj. Flow (vph)	51	159	0	2512	1963	0
RTOR Reduction (vph)	0	3	0	0	0	0
Lane Group Flow (vph)	51	156	0	2512	1963	0
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	23.0	23.0		34.1	34.1	
Effective Green, g (s)	23.0	23.0		34.1	34.1	
Actuated g/C Ratio	0.33	0.33		0.49	0.49	
Clearance Time (s)	6.0	6.0		6.9	6.9	
Lane Grp Cap (vph)	559	469		2477	2477	
v/s Ratio Prot	0.03			c0.49	0.39	
v/s Ratio Perm		c0.11				
v/c Ratio	0.09	0.33		1.01	0.79	
Uniform Delay, d1	16.3	17.7		18.0	15.0	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	1.9		21.7	2.7	
Delay (s)	16.6	19.6		39.6	17.7	
Level of Service	B	B		D	B	
Approach Delay (s/veh)	18.9			39.6	17.7	
Approach LOS	B			D	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	29.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

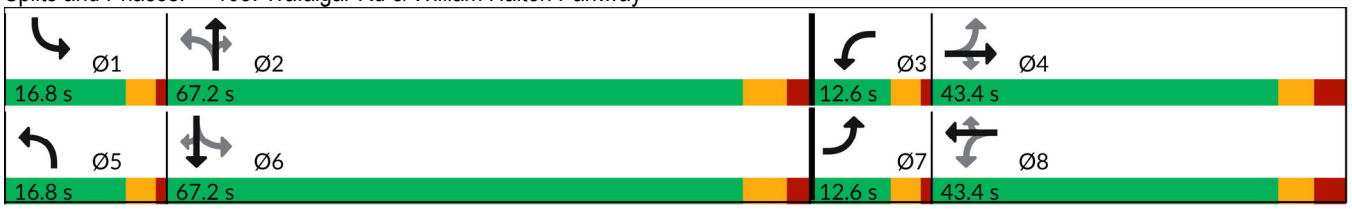


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	299	763	236	352	880	917	284	1535	221	529	1120	306
Future Volume (vph)	299	763	236	352	880	917	284	1535	221	529	1120	306
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	150.0		150.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
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)	1770	3539	1599	1805	3610	1583	1787	5085	1615	1719	5085	1599
Flt Permitted	0.110			0.121			0.128			0.066		
Satd. Flow (perm)	205	3539	1599	230	3610	1583	241	5085	1615	119	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			184			175			174			176
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		1213.9			161.0			461.4			479.2	
Travel Time (s)		87.4			11.6			33.2			34.5	
Peak Hour Factor	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
Adj. Flow (vph)	332	787	259	496	1023	1079	351	1706	351	575	1302	333
Shared Lane Traffic (%)												
Lane Group Flow (vph)	332	787	259	496	1023	1079	351	1706	351	575	1302	333
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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)	11.5	38.0	38.0	11.5	38.0	38.0	11.5	42.9	42.9	11.5	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	Max	Max	None	Max	Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't 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)	48.0	36.4	36.4	48.0	36.4	36.4	76.0	60.3	60.3	76.0	60.3	60.3
Actuated g/C Ratio	0.34	0.26	0.26	0.34	0.26	0.26	0.54	0.43	0.43	0.54	0.43	0.43
v/c Ratio	2.00	0.86	0.47	2.83	1.09	1.99	1.29	0.78	0.44	2.74	0.59	0.42
Control Delay (s/veh)	493.7	59.6	16.1	858.8	105.2	477.9	180.4	37.2	15.3	814.5	31.9	14.1
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 (s/veh)	493.7	59.6	16.1	858.8	105.2	477.9	180.4	37.2	15.3	814.5	31.9	14.1
LOS	F	E	B	F	F	F	F	D	B	F	C	B
Approach Delay (s/veh)		156.0			403.8			54.9			232.8	
Approach LOS		F			F			D			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Natural Cycle: 145			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 2.83			
Intersection Signal Delay (s/veh): 222.4		Intersection LOS: F	
Intersection Capacity Utilization 118.1%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway



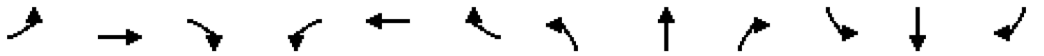


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	332	787	259	496	1023	1079	351	1706	351	575	1302	333
v/c Ratio	2.00	0.86	0.47	2.83	1.09	1.99	1.29	0.78	0.44	2.74	0.59	0.42
Control Delay (s/veh)	493.7	59.6	16.1	858.8	105.2	477.9	180.4	37.2	15.3	814.5	31.9	14.1
Queue Delay	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 (s/veh)	493.7	59.6	16.1	858.8	105.2	477.9	180.4	37.2	15.3	814.5	31.9	14.1
Queue Length 50th (m)	~133.9	115.5	17.1	~229.5	~176.2	~453.3	~96.8	154.0	34.1	~270.4	105.0	29.5
Queue Length 95th (m)	#197.7	141.7	44.2	#222.1	#203.5	#496.8	#133.6	173.9	26.7	#345.9	113.5	55.6
Internal Link Dist (m)		1189.9			137.0			437.4			455.2	
Turn Bay Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	150.0		150.0
Base Capacity (vph)	166	920	551	175	938	541	272	2190	794	210	2190	788
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	2.00	0.86	0.47	2.83	1.09	1.99	1.29	0.78	0.44	2.74	0.59	0.42

Intersection Summary

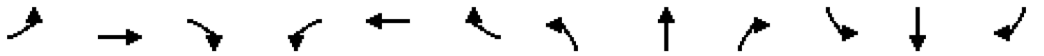
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	299	763	236	352	880	917	284	1535	221	529	1120	306
Future Volume (vph)	299	763	236	352	880	917	284	1535	221	529	1120	306
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)	1770	3539	1599	1805	3610	1583	1787	5085	1615	1719	5085	1599
Flt Permitted	0.11	1.00	1.00	0.12	1.00	1.00	0.13	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	205	3539	1599	230	3610	1583	240	5085	1615	120	5085	1599
Peak-hour factor, PHF	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Adj. Flow (vph)	332	787	259	496	1023	1079	351	1706	351	575	1302	333
RTOR Reduction (vph)	0	0	136	0	0	130	0	0	99	0	0	100
Lane Group Flow (vph)	332	787	123	496	1023	950	351	1706	252	575	1302	233
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
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)	45.0	36.4	36.4	45.0	36.4	36.4	73.1	60.3	60.3	73.1	60.3	60.3
Effective Green, g (s)	45.0	36.4	36.4	45.0	36.4	36.4	73.1	60.3	60.3	73.1	60.3	60.3
Actuated g/C Ratio	0.32	0.26	0.26	0.32	0.26	0.26	0.52	0.43	0.43	0.52	0.43	0.43
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)	162	920	415	170	938	411	266	2190	695	208	2190	688
v/s Ratio Prot	0.13	0.22		c0.18	0.28		0.12	0.34		c0.25	0.26	
v/s Ratio Perm	0.53		0.08	c0.76		0.60	0.57		0.16	c1.19		0.15
v/c Ratio	2.05	0.86	0.30	2.92	1.09	2.31	1.32	0.78	0.36	2.76	0.59	0.34
Uniform Delay, d1	42.0	49.3	41.5	41.3	51.8	51.8	27.6	34.1	26.9	42.3	30.5	26.6
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	493.0	8.6	0.8	878.8	57.2	597.2	167.8	2.8	1.5	807.3	1.2	1.3
Delay (s)	535.0	57.9	42.4	920.0	109.0	649.0	195.4	37.0	28.3	849.6	31.7	27.9
Level of Service	F	E	D	F	F	F	F	D	C	F	C	C
Approach Delay (s/veh)		169.9			488.1			58.8			243.9	
Approach LOS		F			F			E			F	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	254.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.81		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.9
Intersection Capacity Utilization	118.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

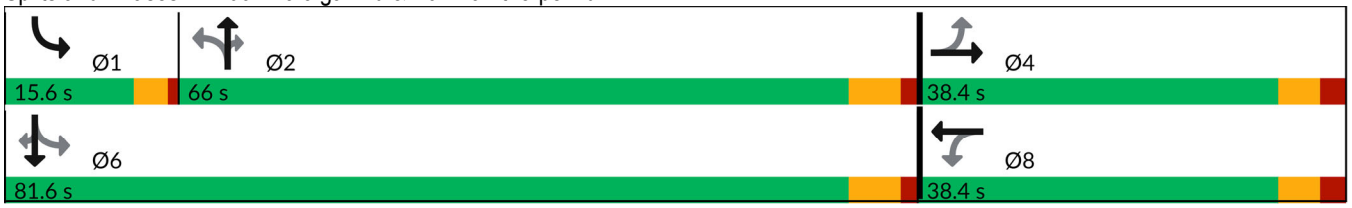


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	403	22	222	357	310	89	1721	131	228	1307	173
Future Volume (vph)	135	403	22	222	357	310	89	1721	131	228	1307	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		60.0	60.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	70.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.993			0.934				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1887	0	1805	1775	0	1805	5036	1615	1480	5085	1599
Flt Permitted	0.123			0.123			0.165			0.062		
Satd. Flow (perm)	229	1887	0	234	1775	0	314	5036	1615	97	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			32				64			95
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		828.7			989.6			1941.0			461.4	
Travel Time (s)		49.7			59.4			87.3			20.8	
Peak Hour Factor	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	1%
Adj. Flow (vph)	161	576	27	281	496	388	114	2025	193	356	1485	201
Shared Lane Traffic (%)												
Lane Group Flow (vph)	161	603	0	281	884	0	114	2025	193	356	1485	201
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		20.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	24.0	24.0		24.0	24.0		26.0	26.0	26.0	11.5	26.0	26.0
Total Split (s)	38.4	38.4		38.4	38.4		66.0	66.0	66.0	15.6	81.6	81.6
Total Split (%)	32.0%	32.0%		32.0%	32.0%		55.0%	55.0%	55.0%	13.0%	68.0%	68.0%
Maximum Green (s)	32.4	32.4		32.4	32.4		60.0	60.0	60.0	11.6	75.6	75.6
Yellow Time (s)	3.7	3.7		3.7	3.7		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.3	2.3		2.3	2.3		1.4	1.4	1.4	1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max	Max	None	Max	Max
Act Effct Green (s)	32.4	32.4		32.4	32.4		60.0	60.0	62.0	77.6	75.6	77.6
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.50	0.50	0.52	0.65	0.63	0.65
v/c Ratio	2.64	1.18		4.46	1.76		0.73	0.80	0.22	1.82	0.46	0.19
Control Delay (s/veh)	802.9	139.8		Error	378.5		52.8	28.2	11.1	411.3	12.2	4.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	802.9	139.8		Error	378.5		52.8	28.2	11.1	411.3	12.2	4.8
LOS	F	F		F	F		D	C	B	F	B	A
Approach Delay (s/veh)		279.5			674.5			28.0			81.0	
Approach LOS		F			F			C			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 4.46			
Intersection Signal Delay (s/veh): 195.2		Intersection LOS: F	
Intersection Capacity Utilization 110.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burnhamthorpe Rd



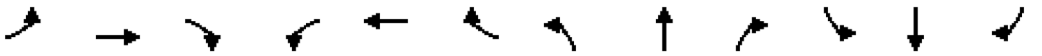


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	161	603	281	884	114	2025	193	356	1485	201
v/c Ratio	2.64	1.18	4.46	1.76	0.73	0.80	0.22	1.82	0.46	0.19
Control Delay (s/veh)	802.9	139.8	Error	378.5	52.8	28.2	11.1	411.3	12.2	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	802.9	139.8	Error	378.5	52.8	28.2	11.1	411.3	12.2	4.8
Queue Length 50th (m)	~67.1	~179.7	~115.8	~323.5	21.5	148.9	16.2	~120.1	65.7	9.2
Queue Length 95th (m)	#90.2	#166.0	#147.2	#294.6	#44.1	154.1	19.4	#110.2	73.8	17.2
Internal Link Dist (m)		804.7		965.6		1917.0			437.4	
Turn Bay Length (m)	30.0		15.0		60.0		60.0	60.0		60.0
Base Capacity (vph)	61	510	63	502	157	2518	865	196	3203	1067
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	2.64	1.18	4.46	1.76	0.73	0.80	0.22	1.82	0.46	0.19

Intersection Summary

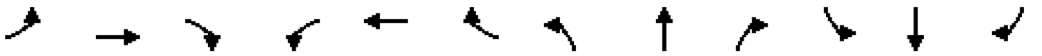
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



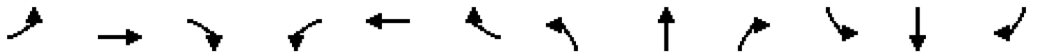
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	403	22	222	357	310	89	1721	131	228	1307	173
Future Volume (vph)	135	403	22	222	357	310	89	1721	131	228	1307	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	4.0	4.0	6.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.99		1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1887		1805	1775		1805	5036	1615	1480	5085	1599
Flt Permitted	0.12	1.00		0.12	1.00		0.16	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	230	1887		235	1775		313	5036	1615	97	5085	1599
Peak-hour factor, PHF	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Adj. Flow (vph)	161	576	27	281	496	388	114	2025	193	356	1485	201
RTOR Reduction (vph)	0	1	0	0	23	0	0	0	31	0	0	34
Lane Group Flow (vph)	161	602	0	281	861	0	114	2025	162	356	1485	167
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	32.4	32.4		32.4	32.4		60.0	60.0	60.0	75.6	75.6	75.6
Effective Green, g (s)	32.4	32.4		32.4	32.4		60.0	60.0	62.0	75.6	75.6	77.6
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.50	0.50	0.52	0.63	0.63	0.65
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	62	509		63	479		156	2518	834	194	3203	1034
v/s Ratio Prot		0.32			0.48			0.40		c0.18	0.29	
v/s Ratio Perm	0.70			c1.20			0.36		0.10	c0.97		0.10
v/c Ratio	2.60	1.18		4.46	1.80		0.73	0.80	0.19	1.84	0.46	0.16
Uniform Delay, d1	43.8	43.8		43.8	43.8		23.6	25.1	15.6	37.5	11.6	8.4
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	763.0	100.5		1593.1	366.8		25.8	2.8	0.5	395.2	0.5	0.3
Delay (s)	806.8	144.3		1636.9	410.6		49.5	27.9	16.1	432.7	12.1	8.7
Level of Service	F	F		F	F		D	C	B	F	B	A
Approach Delay (s/veh)		283.9			706.4			28.0			85.1	
Approach LOS		F			F			C			F	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	202.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	110.3%	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)	0	1414	99	0	1778	13	0	0	37	0	0	371
Future Volume (vph)	0	1414	99	0	1778	13	0	0	37	0	0	371
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
Frt		0.990			0.999				0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3504	0	0	3536	0	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3504	0	0	3536	0	0	0	1611	0	0	1611
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		161.0			234.1			145.8			194.6	
Travel Time (s)		11.6			16.9			10.5			14.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1537	108	0	1933	14	0	0	40	0	0	403
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1645	0	0	1947	0	0	0	40	0	0	403
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

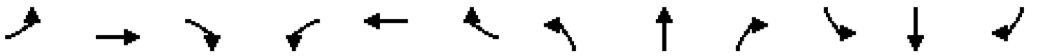
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 79.2%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1414	99	0	1778	13	0	0	37	0	0	371
Future Volume (Veh/h)	0	1414	99	0	1778	13	0	0	37	0	0	371
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1537	108	0	1933	14	0	0	40	0	0	403
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		161										
pX, platoon unblocked				0.79			0.79	0.79	0.79	0.79	0.79	
vC, conflicting volume	1947			1645			2961	3538	823	2749	3585	974
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1947			1289			2950	3680	250	2682	3739	974
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			0	100	93	100	100	0
cM capacity (veh/h)	297			423			0	4	594	8	3	252

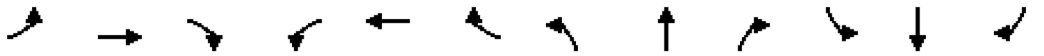
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	1025	620	1289	658	40	403
Volume Left	0	0	0	0	0	0
Volume Right	0	108	0	14	40	403
cSH	1700	1700	1700	1700	594	252
Volume to Capacity	0.60	0.36	0.76	0.39	0.07	1.60
Queue Length 95th (m)	0.0	0.0	0.0	0.0	1.7	199.9
Control Delay (s/veh)	0.0	0.0	0.0	0.0	11.5	324.2
Lane LOS					B	F
Approach Delay (s/veh)	0.0		0.0		11.5	324.2
Approach LOS					B	F

Intersection Summary				
Average Delay	32.5			
Intersection Capacity Utilization	79.2%	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)	533	819	99	111	1350	9	248	10	37	77	10	193
Future Volume (vph)	533	819	99	111	1350	9	248	10	37	77	10	193
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	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990			0.999			0.983			0.907	
Flt Protected		0.982			0.996			0.960			0.986	
Satd. Flow (prot)	0	3441	0	0	3522	0	0	1758	0	0	1666	0
Flt Permitted		0.982			0.996			0.960			0.986	
Satd. Flow (perm)	0	3441	0	0	3522	0	0	1758	0	0	1666	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		234.1			1187.2			147.6			240.2	
Travel Time (s)		16.9			85.5			10.6			17.3	
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
Adj. Flow (vph)	579	890	108	121	1467	10	270	11	40	84	11	210
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1577	0	0	1598	0	0	321	0	0	305	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)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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 128.6%		ICU Level of Service H	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	533	819	99	111	1350	9	248	10	37	77	10	193
Future Volume (Veh/h)	533	819	99	111	1350	9	248	10	37	77	10	193
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	579	890	108	121	1467	10	270	11	40	84	11	210
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		395										
pX, platoon unblocked				0.81			0.81	0.81	0.81	0.81	0.81	
vC, conflicting volume	1477			998			3293	3821	499	3363	3870	739
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1477			527			3362	4014	0	3448	4075	739
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 %	0			86			0	0	95	0	0	42
cM capacity (veh/h)	452			839			0	0	878	0	0	360

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	1024	553	855	744	321	305
Volume Left	579	0	121	0	270	84
Volume Right	0	108	0	10	40	210
cSH	452	1700	839	1700	0	0
Volume to Capacity	1.28	0.33	0.14	0.44	Err	Err
Queue Length 95th (m)	197.4	0.0	4.0	0.0	Err	Err
Control Delay (s/veh)	168.8	0.0	3.6	0.0	Err	Err
Lane LOS	F		A		F	F
Approach Delay (s/veh)	109.6		1.9		Err	Err
Approach LOS					F	F

Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	128.6%	ICU Level of Service	H	
Analysis Period (min)	15			

Appendix G2

Mitigation Analysis– 2031

Left-Turn Lane Warrant - William Halton Parkway at Street D, 2031 Total Traffic Volumes

	V_L	V_O	S
AM	482	839	130
PM	533	1470	130

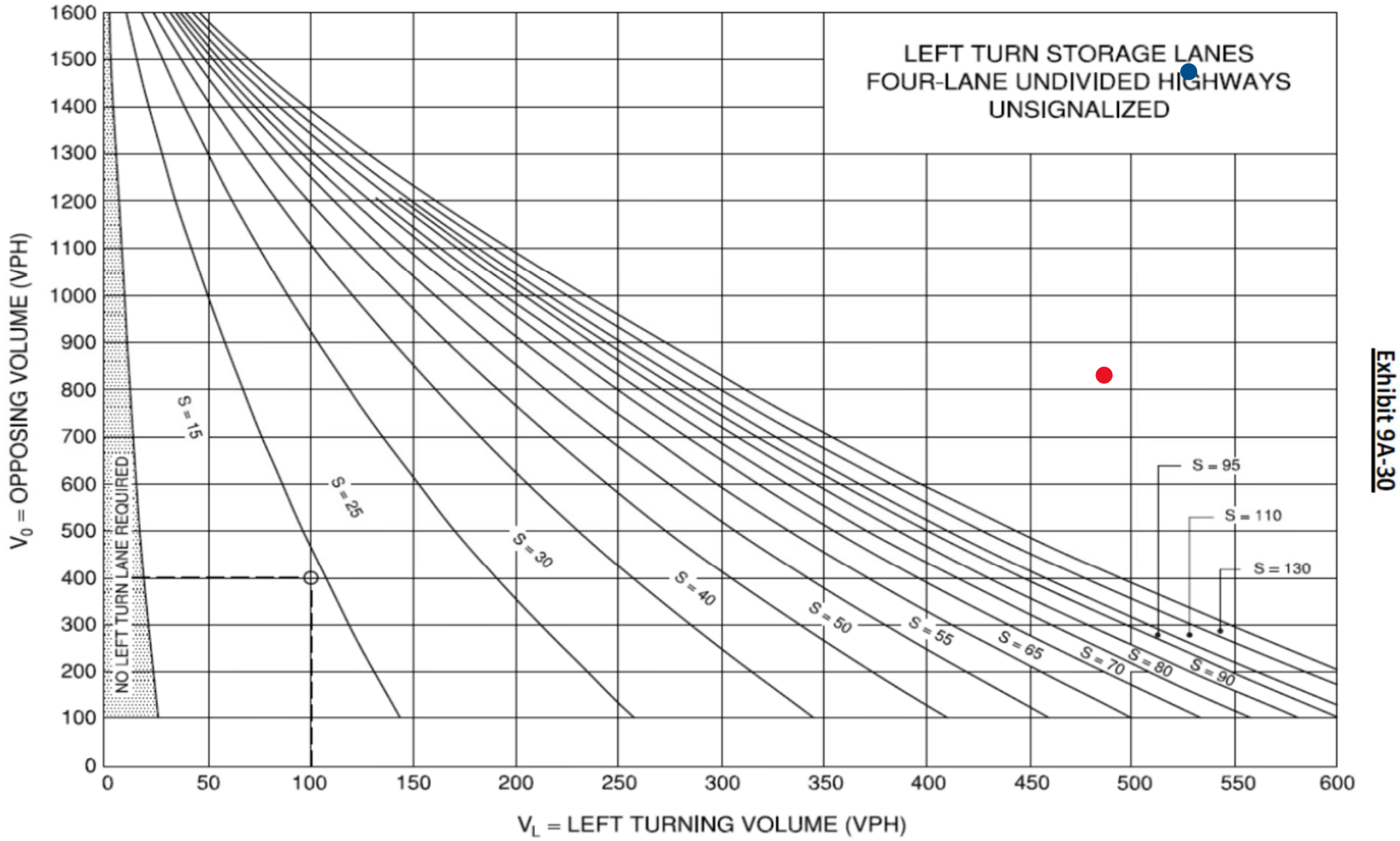


Exhibit 9A-30

Signal Justification Calculation for Forecast Volumes
(OTM Book 12 - Justification 7)

Horizon Year: Total - 2031
Municipality: Oakville, Halton Region
Project number: 210156

Major Street: William Halton Parkway
Minor Street: Street D/ARGO Lands
North/South?: N

Number of Approach Lanes: 2 or more
Tee Intersection? N
Flow Conditions: Restricted

PM Forecast Only? N

Justification Result		
200% Satisfied	No	Case 1: Signal is undoubtedly warranted
100% Satisfied	Yes	Case 2: Signal might be warranted
< 100 % Satisfied		Case 3: Signal warrant is unlikely

	Major Street						Minor Street						
	William Halton Parkway						Street D/ARGO Lands						
	Eastbound			Westbound			Northbound			Southbound			Peds
Time Period	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	Crossing
AM Peak Hour	482	1119	77	54	771	14	293	10	89	49	10	125	0
PM Peak Hour	533	819	99	111	1350	9	248	10	37	77	10	193	0
Average Hourly Volume	254	485	44	41	530	6	135	5	32	32	5	80	0

Warrant	AHV
1A - All	1647
1B - Minor	288
2A - Major	1360
2B - Cross	299

Warrant 1 - Minimum Vehicular Volume

	Approach Lanes	1		2 or more		Average Hourly Volume
1A	Flow Conditions	Free	Restricted	Free	Restricted	
					X	
	All Approaches	480	720	600	900	1647
					% Fulfilled	183.0%

	Approach Lanes	1		2 or more		Average Hourly Volume
1B	Flow Conditions	Free	Restricted	Free	Restricted	
					X	
	Minor Street Approaches	120	170	120	170	288
					% Fulfilled	169.3%

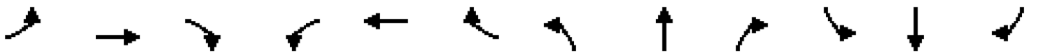
Warrant 2 - Delay To Cross Traffic

	Approach Lanes	1		2 or more		Average Hourly Volume
2A	Flow Conditions	Free	Restricted	Free	Restricted	
					X	
	Major Street Approaches	480	720	600	900	1360
					% Fulfilled	151.1%

	Approach Lanes	1		2 or more		Average Hourly Volume
2B	Flow Conditions	Free	Restricted	Free	Restricted	
					X	
	Traffic Crossing Major Street	50	75	50	75	299
					% Fulfilled	398.2%

Appendix G3

2031 Total with Improvements Synchro Reports

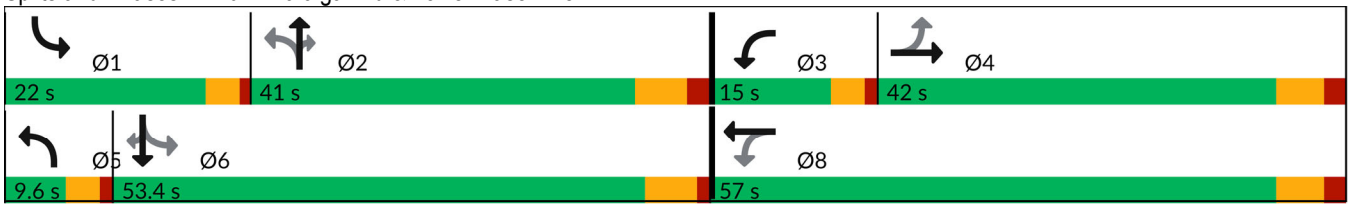


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	273	82	251	93	120	29	1121	224	285	1435	54
Future Volume (vph)	95	273	82	251	93	120	29	1121	224	285	1435	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		90.0	90.0		90.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.962			0.912				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1814	0	1736	1666	0	1597	4848	1568	1752	4988	1553
Flt Permitted	0.593			0.122			0.113			0.099		
Satd. Flow (perm)	1083	1814	0	223	1666	0	190	4848	1568	183	4988	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			73				252			102
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			728.7			434.3	
Travel Time (s)		38.5			41.4			32.8			19.5	
Peak Hour Factor	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Adj. Flow (vph)	113	355	121	344	112	158	40	1367	252	324	1688	76
Shared Lane Traffic (%)												
Lane Group Flow (vph)	113	476	0	344	270	0	40	1367	252	324	1688	76
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		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		2	6		6
Detector Phase	4	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0		5.0	25.0	25.0	7.0	25.0	25.0
Minimum Split (s)	22.5	22.5		9.5	22.5		9.5	31.6	31.6	11.5	30.6	30.6
Total Split (s)	42.0	42.0		15.0	57.0		9.6	41.0	41.0	22.0	53.4	53.4
Total Split (%)	35.0%	35.0%		12.5%	47.5%		8.0%	34.2%	34.2%	18.3%	44.5%	44.5%
Maximum Green (s)	35.8	35.8		11.0	50.8		5.6	34.4	34.4	18.0	47.8	47.8
Yellow Time (s)	4.2	4.2		3.0	4.2		3.0	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.0	2.0		1.0	2.0		1.0	2.0	2.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		4.0	6.2		4.0	6.6	6.6	4.0	5.6	5.6
Lead/Lag	Lag	Lag		Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	5.0	5.0		3.0	5.0		3.0	5.0	5.0	0.2	5.0	5.0
Recall Mode	None	None		None	None		None	Max	Max	Max	Max	Max
Act Effct Green (s)	33.8	33.8		51.0	48.8		42.6	34.4	34.4	59.1	49.9	49.9
Actuated g/C Ratio	0.29	0.29		0.43	0.41		0.36	0.29	0.29	0.50	0.42	0.42
v/c Ratio	0.36	0.90		1.45	0.37		0.30	0.97	0.40	0.98	0.80	0.11
Control Delay (s/veh)	37.3	60.3		249.1	18.6		23.3	59.2	6.0	78.2	34.4	2.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.3	60.3		249.1	18.6		23.3	59.2	6.0	78.2	34.4	2.4
LOS	D	E		F	B		C	E	A	E	C	A
Approach Delay (s/veh)		55.9			147.7			50.2			40.0	
Approach LOS		E			F			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 118.1			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.45			
Intersection Signal Delay (s/veh): 58.7		Intersection LOS: E	
Intersection Capacity Utilization 88.0%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line



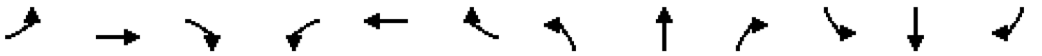


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	113	476	344	270	40	1367	252	324	1688	76
v/c Ratio	0.36	0.90	1.45	0.37	0.30	0.97	0.40	0.98	0.80	0.11
Control Delay (s/veh)	37.3	60.3	249.1	18.6	23.3	59.2	6.0	78.2	34.4	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.3	60.3	249.1	18.6	23.3	59.2	6.0	78.2	34.4	2.4
Queue Length 50th (m)	21.9	108.4	~96.4	31.9	5.0	123.3	0.0	64.4	137.6	0.0
Queue Length 95th (m)	36.5	122.0	#111.6	47.4	9.0	#127.4	18.9	#121.1	145.1	1.2
Internal Link Dist (m)		725.3		666.6		704.7			410.3	
Turn Bay Length (m)	45.0		110.0		90.0		90.0	90.0		90.0
Base Capacity (vph)	328	560	237	758	135	1413	635	330	2106	714
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	0.85	1.45	0.36	0.30	0.97	0.40	0.98	0.80	0.11

Intersection Summary

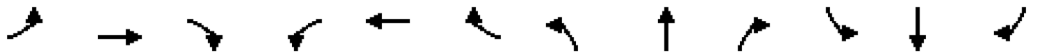
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	273	82	251	93	120	29	1121	224	285	1435	54
Future Volume (vph)	95	273	82	251	93	120	29	1121	224	285	1435	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2		4.0	6.2		4.0	6.6	6.6	4.0	5.6	5.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	1814		1736	1667		1597	4848	1568	1752	4988	1553
Flt Permitted	0.59	1.00		0.12	1.00		0.11	1.00	1.00	0.10	1.00	1.00
Satd. Flow (perm)	1084	1814		223	1667		191	4848	1568	183	4988	1553
Peak-hour factor, PHF	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Adj. Flow (vph)	113	355	121	344	112	158	40	1367	252	324	1688	76
RTOR Reduction (vph)	0	11	0	0	43	0	0	0	177	0	0	44
Lane Group Flow (vph)	113	465	0	344	227	0	40	1367	75	324	1688	32
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	33.8	33.8		48.8	48.8		39.7	35.3	35.3	58.3	49.9	49.9
Effective Green, g (s)	33.8	33.8		48.8	48.8		39.7	35.3	35.3	58.3	49.9	49.9
Actuated g/C Ratio	0.28	0.28		0.41	0.41		0.33	0.30	0.30	0.49	0.42	0.42
Clearance Time (s)	6.2	6.2		4.0	6.2		4.0	6.6	6.6	4.0	5.6	5.6
Vehicle Extension (s)	5.0	5.0		3.0	5.0		3.0	5.0	5.0	0.2	5.0	5.0
Lane Grp Cap (vph)	308	515		231	684		115	1439	465	327	2093	651
v/s Ratio Prot		0.26		c0.14	0.14		0.01	0.28		c0.15	0.34	
v/s Ratio Perm	0.10			c0.47			0.10		0.05	c0.34		0.02
v/c Ratio	0.37	0.90		1.49	0.33		0.35	0.95	0.16	0.99	0.81	0.05
Uniform Delay, d1	34.0	41.0		29.3	23.9		28.4	40.9	30.9	36.0	30.3	20.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.5	20.1		241.7	0.6		1.8	14.5	0.7	47.5	3.4	0.1
Delay (s)	35.5	61.1		271.0	24.5		30.2	55.4	31.6	83.5	33.7	20.6
Level of Service	D	E		F	C		C	E	C	F	C	C
Approach Delay (s/veh)		56.2			162.6			51.2			41.0	
Approach LOS		E			F			D			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	61.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	118.9	Sum of lost time (s)	20.8
Intersection Capacity Utilization	88.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

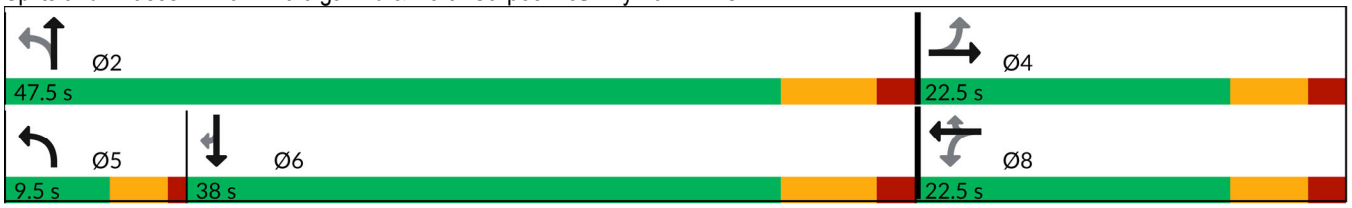


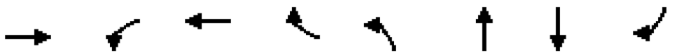
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	9	230	2	6	7	1366	0	0	1766	2
Future Volume (vph)	3	0	9	230	2	6	7	1366	0	0	1766	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.893			0.999	0.850						0.850
Flt Protected		0.990		0.950	0.954		0.950					
Satd. Flow (prot)	0	1481	0	1545	1472	1534	1543	4893	0	0	4988	1615
Flt Permitted		0.920		0.732	0.705		0.098					
Satd. Flow (perm)	0	1376	0	1190	1088	1534	159	4893	0	0	4988	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		125				125						109
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			728.7	
Travel Time (s)		9.6			41.3			26.2			52.5	
Peak Hour Factor	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Adj. Flow (vph)	8	0	30	299	4	14	23	1485	0	0	2030	8
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	0	38	0	152	152	13	23	1485	0	0	2030	8
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	4.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	27.0			27.0	27.0
Total Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	47.5			38.0	38.0
Total Split (%)	32.1%	32.1%		32.1%	32.1%	32.1%	13.6%	67.9%			54.3%	54.3%
Maximum Green (s)	16.5	16.5		16.5	16.5	16.5	5.5	40.5			31.0	31.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0			2.0	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	4.0	7.0			7.0	7.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	None	Max			Max	Max
Act Effct Green (s)		13.6		13.6	13.6	13.6	43.6	40.6			36.9	36.9
Actuated g/C Ratio		0.20		0.20	0.20	0.20	0.65	0.60			0.55	0.55
v/c Ratio		0.10		0.63	0.69	0.03	0.11	0.50			0.74	0.01
Control Delay (s/veh)		0.5		36.9	42.1	0.2	6.1	8.7			15.9	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		0.5		36.9	42.1	0.2	6.1	8.7			15.9	0.0
LOS		A		D	D	A	A	A			B	A
Approach Delay (s/veh)		0.5			37.9			8.7			15.9	
Approach LOS		A			D			A			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 67.2			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay (s/veh): 14.7		Intersection LOS: B	
Intersection Capacity Utilization 58.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off

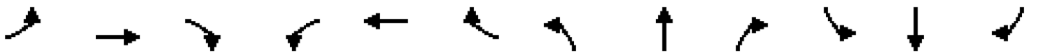




Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	38	152	152	13	23	1485	2030	8
v/c Ratio	0.10	0.63	0.69	0.03	0.11	0.50	0.74	0.01
Control Delay (s/veh)	0.5	36.9	42.1	0.2	6.1	8.7	15.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	0.5	36.9	42.1	0.2	6.1	8.7	15.9	0.0
Queue Length 50th (m)	0.0	19.3	20.4	0.0	1.0	38.4	62.0	0.0
Queue Length 95th (m)	0.0	31.5	20.0	0.0	1.1	51.9	#110.2	0.0
Internal Link Dist (m)	110.0		550.1			339.6	704.7	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	432	292	267	471	216	2954	2741	936
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	0.52	0.57	0.03	0.11	0.50	0.74	0.01

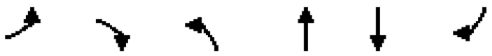
Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	9	230	2	6	7	1366	0	0	1766	2
Future Volume (vph)	3	0	9	230	2	6	7	1366	0	0	1766	2
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	4.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.91			0.91	1.00
Frt		0.89		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1481		1545	1472	1534	1543	4893			4988	1615
Flt Permitted		0.92		0.73	0.71	1.00	0.10	1.00			1.00	1.00
Satd. Flow (perm)		1377		1191	1088	1534	159	4893			4988	1615
Peak-hour factor, PHF	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Adj. Flow (vph)	8	0	30	299	4	14	23	1485	0	0	2030	8
RTOR Reduction (vph)	0	31	0	0	0	10	0	0	0	0	0	4
Lane Group Flow (vph)	0	7	0	152	152	3	23	1485	0	0	2030	4
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		13.6		13.6	13.6	13.6	43.0	43.0			36.9	36.9
Effective Green, g (s)		13.6		13.6	13.6	13.6	43.0	43.0			36.9	36.9
Actuated g/C Ratio		0.20		0.20	0.20	0.20	0.62	0.62			0.53	0.53
Clearance Time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Lane Grp Cap (vph)		269		232	212	299	139	3022			2644	856
v/s Ratio Prot							0.00	c0.30			c0.41	
v/s Ratio Perm		0.01		0.13	c0.14	0.00	0.10					0.00
v/c Ratio		0.03		0.66	0.72	0.01	0.17	0.49			0.77	0.00
Uniform Delay, d1		22.7		25.8	26.2	22.6	8.3	7.3			13.0	7.7
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2		0.0		6.8	11.3	0.0	0.4	0.6			2.2	0.0
Delay (s)		22.7		32.6	37.5	22.6	8.7	7.9			15.2	7.7
Level of Service		C		C	D	C	A	A			B	A
Approach Delay (s/veh)		22.7			34.6			7.9			15.1	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	69.6	Sum of lost time (s)	17.0
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

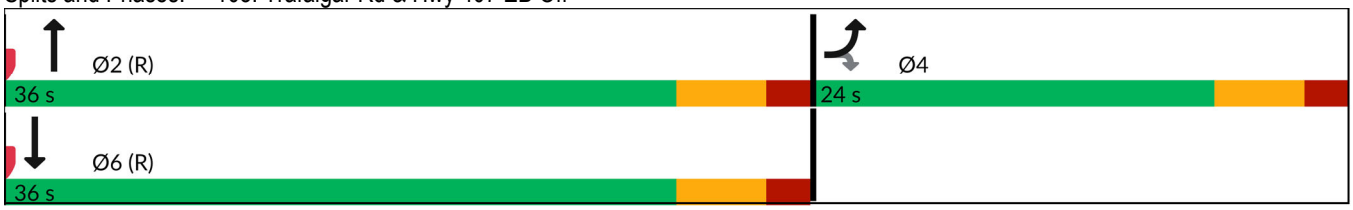


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	68	181	0	1450	1916	0
Future Volume (vph)	68	181	0	1450	1916	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1671	1392	0	4848	4940	0
Flt Permitted	0.950					
Satd. Flow (perm)	1671	1392	0	4848	4940	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		2				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			485.1	363.6	
Travel Time (s)	39.9			34.9	26.2	
Peak Hour Factor	0.79	0.78	0.25	0.85	0.86	0.25
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Adj. Flow (vph)	86	232	0	1706	2228	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	86	232	0	1706	2228	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			7.2	7.2	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	24.0	24.0		24.0	24.0	
Total Split (s)	24.0	24.0		36.0	36.0	
Total Split (%)	40.0%	40.0%		60.0%	60.0%	
Maximum Green (s)	18.0	18.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	18.0	18.0		30.0	30.0	
Actuated g/C Ratio	0.30	0.30		0.50	0.50	
v/c Ratio	0.17	0.55		0.70	0.90	
Control Delay (s/veh)	16.7	23.5		13.6	20.6	
Queue Delay	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay (s/veh)	16.7	23.5		13.6	20.6	
LOS	B	C		B	C	
Approach Delay (s/veh)	21.6			13.6	20.6	
Approach LOS	C			B	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Pretimed			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay (s/veh): 17.8		Intersection LOS: B	
Intersection Capacity Utilization 58.2%		ICU Level of Service B	
Analysis Period (min) 15			

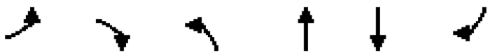
Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off





Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	86	232	1706	2228
v/c Ratio	0.17	0.55	0.70	0.90
Control Delay (s/veh)	16.7	23.5	13.6	20.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.7	23.5	13.6	20.6
Queue Length 50th (m)	7.3	22.1	51.4	79.3
Queue Length 95th (m)	14.3	34.6	60.9	93.9
Internal Link Dist (m)	530.6		461.1	339.6
Turn Bay Length (m)				
Base Capacity (vph)	501	419	2424	2470
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	0.17	0.55	0.70	0.90

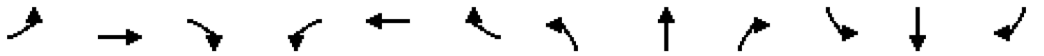
Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	68	181	0	1450	1916	0
Future Volume (vph)	68	181	0	1450	1916	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1671	1392		4848	4940	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1671	1392		4848	4940	
Peak-hour factor, PHF	0.79	0.78	0.25	0.85	0.86	0.25
Adj. Flow (vph)	86	232	0	1706	2228	0
RTOR Reduction (vph)	0	1	0	0	0	0
Lane Group Flow (vph)	86	231	0	1706	2228	0
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	18.0	18.0		30.0	30.0	
Effective Green, g (s)	18.0	18.0		30.0	30.0	
Actuated g/C Ratio	0.30	0.30		0.50	0.50	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	501	417		2424	2470	
v/s Ratio Prot	0.05			0.35	c0.45	
v/s Ratio Perm		c0.17				
v/c Ratio	0.17	0.55		0.70	0.90	
Uniform Delay, d1	15.5	17.6		11.6	13.7	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	5.2		1.7	5.9	
Delay (s)	16.2	22.8		13.3	19.6	
Level of Service	B	C		B	B	
Approach Delay (s/veh)	21.0			13.3	19.6	
Approach LOS	C			B	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

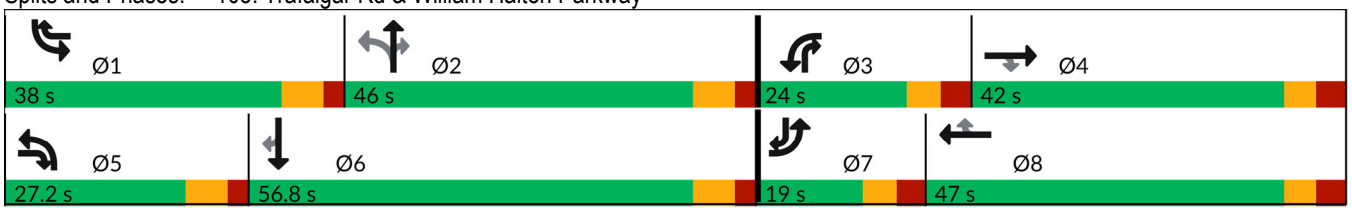


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	832	202	290	681	453	330	1172	218	616	1090	391
Future Volume (vph)	203	832	202	290	681	453	330	1172	218	616	1090	391
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	150.0		150.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3467	3574	1599	3273	3574	1429	3303	4988	1615	3433	4893	1538
Flt Permitted	0.950			0.950			0.163			0.950		
Satd. Flow (perm)	3467	3574	1599	3273	3574	1429	567	4988	1615	3433	4893	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			129			79			129			79
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		1215.0			165.2			455.6			485.1	
Travel Time (s)		87.5			11.9			32.8			34.9	
Peak Hour Factor	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
Adj. Flow (vph)	239	914	243	387	873	604	384	1302	260	751	1211	455
Shared Lane Traffic (%)												
Lane Group Flow (vph)	239	914	243	387	873	604	384	1302	260	751	1211	455
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8	2		2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	20.0	7.0	7.0	20.0	7.0	7.0	20.0	7.0	7.0	20.0	7.0
Minimum Split (s)	14.0	38.0	13.9	14.0	38.0	13.9	13.9	42.9	14.0	13.9	42.9	14.0
Total Split (s)	19.0	42.0	27.2	24.0	47.0	38.0	27.2	46.0	24.0	38.0	56.8	19.0
Total Split (%)	12.7%	28.0%	18.1%	16.0%	31.3%	25.3%	18.1%	30.7%	16.0%	25.3%	37.9%	12.7%
Maximum Green (s)	12.0	35.0	20.3	17.0	40.0	31.1	20.3	39.1	17.0	31.1	49.9	12.0
Yellow Time (s)	3.7	3.7	4.6	3.7	3.7	4.6	4.6	4.6	3.7	4.6	4.6	3.7
All-Red Time (s)	3.3	3.3	2.3	3.3	3.3	2.3	2.3	2.3	3.3	2.3	2.3	3.3
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)	7.0	7.0	6.9	7.0	7.0	6.9	6.9	6.9	7.0	6.9	6.9	7.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0
Recall Mode	None	None	None	None	None	None	None	Max	None	None	Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		24.0			24.0			29.0			29.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	12.0	35.0	58.6	17.0	40.0	78.1	55.7	39.1	63.0	31.1	53.6	72.5
Actuated g/C Ratio	0.08	0.23	0.39	0.11	0.27	0.52	0.37	0.26	0.42	0.21	0.36	0.48
v/c Ratio	0.86	1.10	0.35	1.05	0.92	0.77	0.75	1.00	0.35	1.06	0.69	0.58
Control Delay (s/veh)	95.8	113.5	15.4	121.7	68.2	32.9	37.6	80.1	15.6	105.4	44.2	26.6
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 (s/veh)	95.8	113.5	15.4	121.7	68.2	32.9	37.6	80.1	15.6	105.4	44.2	26.6
LOS	F	F	B	F	E	C	D	F	B	F	D	C
Approach Delay (s/veh)		93.4			67.9			63.1			59.9	
Approach LOS		F			E			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.10			
Intersection Signal Delay (s/veh): 68.8		Intersection LOS: E	
Intersection Capacity Utilization 94.7%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway



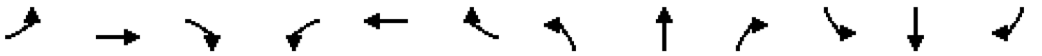


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	239	914	243	387	873	604	384	1302	260	751	1211	455
v/c Ratio	0.86	1.10	0.35	1.05	0.92	0.77	0.75	1.00	0.35	1.06	0.69	0.58
Control Delay (s/veh)	95.8	113.5	15.4	121.7	68.2	32.9	37.6	80.1	15.6	105.4	44.2	26.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	95.8	113.5	15.4	121.7	68.2	32.9	37.6	80.1	15.6	105.4	44.2	26.6
Queue Length 50th (m)	38.8	~169.7	23.4	~67.4	140.5	131.5	34.4	~150.8	26.1	~132.2	118.9	83.9
Queue Length 95th (m)	#57.0	#213.5	37.7	#75.1	139.2	130.6	46.8	#186.3	42.8	#147.5	141.7	116.7
Internal Link Dist (m)		1191.0			141.2			431.6			461.1	
Turn Bay Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	150.0		150.0
Base Capacity (vph)	277	833	739	370	953	781	594	1300	753	711	1748	784
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	0.86	1.10	0.33	1.05	0.92	0.77	0.65	1.00	0.35	1.06	0.69	0.58

Intersection Summary

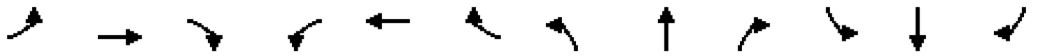
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	832	202	290	681	453	330	1172	218	616	1090	391
Future Volume (vph)	203	832	202	290	681	453	330	1172	218	616	1090	391
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	6.9	7.0	7.0	6.9	6.9	6.9	7.0	6.9	6.9	7.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3467	3574	1599	3273	3574	1429	3303	4988	1615	3433	4893	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.16	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3273	3574	1429	567	4988	1615	3433	4893	1538
Peak-hour factor, PHF	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Adj. Flow (vph)	239	914	243	387	873	604	384	1302	260	751	1211	455
RTOR Reduction (vph)	0	0	85	0	0	42	0	0	81	0	0	44
Lane Group Flow (vph)	239	914	158	387	873	562	384	1302	179	751	1211	411
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8	2		2			6
Actuated Green, G (s)	12.0	35.0	51.6	17.0	40.0	71.1	55.7	39.1	56.1	31.1	53.6	65.6
Effective Green, g (s)	12.0	35.0	51.6	17.0	40.0	71.1	55.7	39.1	56.1	31.1	53.6	65.6
Actuated g/C Ratio	0.08	0.23	0.34	0.11	0.27	0.47	0.37	0.26	0.37	0.21	0.36	0.44
Clearance Time (s)	7.0	7.0	6.9	7.0	7.0	6.9	6.9	6.9	7.0	6.9	6.9	7.0
Vehicle Extension (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0
Lane Grp Cap (vph)	277	833	550	370	953	677	513	1300	604	711	1748	672
v/s Ratio Prot	0.07	c0.26	0.03	c0.12	c0.24	0.17	0.08	c0.26	0.03	c0.22	0.25	0.05
v/s Ratio Perm			0.07			0.22	0.19		0.08			0.22
v/c Ratio	0.86	1.10	0.29	1.05	0.92	0.83	0.75	1.00	0.30	1.06	0.69	0.61
Uniform Delay, d1	68.2	57.5	35.8	66.5	53.4	34.2	34.2	55.5	33.1	59.5	41.2	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	23.1	61.2	0.3	59.3	13.8	8.5	5.9	25.3	0.3	49.6	2.3	1.7
Delay (s)	91.3	118.7	36.1	125.8	67.1	42.8	40.1	80.8	33.3	109.0	43.5	34.1
Level of Service	F	F	D	F	E	D	D	F	C	F	D	C
Approach Delay (s/veh)		99.6			71.4			66.4			62.1	
Approach LOS		F			E			E			E	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	72.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	27.8
Intersection Capacity Utilization	94.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

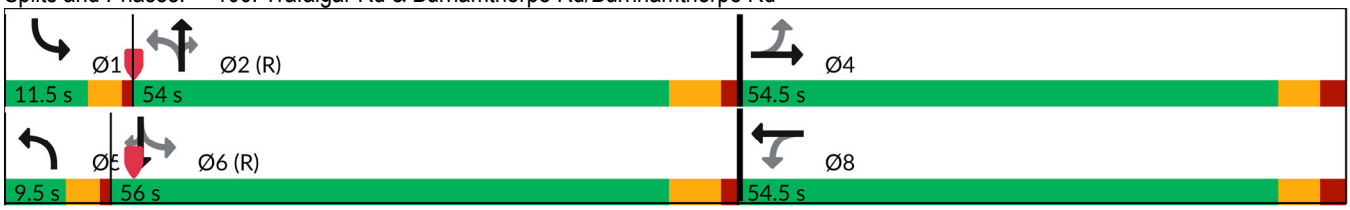


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	208	312	121	199	110	51	59	1522	105	70	1458	55
Future Volume (vph)	208	312	121	199	110	51	59	1522	105	70	1458	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		60.0	60.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	70.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.958			0.934				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1805	0	1770	1775	0	1703	4988	1615	1752	4940	1495
Flt Permitted	0.490			0.220			0.083			0.080		
Satd. Flow (perm)	904	1805	0	410	1775	0	149	4988	1615	148	4940	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			40				88			64
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		828.7			989.6			1077.8			455.6	
Travel Time (s)		49.7			59.4			48.5			20.5	
Peak Hour Factor	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
Adj. Flow (vph)	248	395	153	326	162	128	86	1654	122	108	1568	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	248	548	0	326	290	0	86	1654	122	108	1568	65
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Minimum Split (s)	24.0	24.0		24.0	24.0		9.5	26.0	26.0	11.5	26.0	26.0
Total Split (s)	54.5	54.5		54.5	54.5		9.5	54.0	54.0	11.5	56.0	56.0
Total Split (%)	45.4%	45.4%		45.4%	45.4%		7.9%	45.0%	45.0%	9.6%	46.7%	46.7%
Maximum Green (s)	48.5	48.5		48.5	48.5		5.5	48.0	48.0	7.5	50.0	50.0
Yellow Time (s)	3.7	3.7		3.7	3.7		3.0	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.3	2.3		2.3	2.3		1.0	1.4	1.4	1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Act Effct Green (s)	48.5	48.5		48.5	48.5		55.5	48.0	50.0	59.5	50.0	52.0
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.46	0.40	0.42	0.50	0.42	0.43
v/c Ratio	0.68	0.74		1.98	0.39		0.61	0.83	0.17	0.62	0.76	0.10
Control Delay (s/veh)	40.6	36.5		484.3	23.4		36.2	36.8	8.1	34.4	32.9	5.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (s/veh)	40.6	36.5		484.3	23.4		36.2	36.8	8.1	34.4	32.9	5.4
LOS	D	D		F	C		D	D	A	C	C	A
Approach Delay (s/veh)		37.7			267.3			34.9			32.0	
Approach LOS		D			F			C			C	

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: Pretimed			
Maximum v/c Ratio: 1.98			
Intersection Signal Delay (s/veh): 62.9		Intersection LOS: E	
Intersection Capacity Utilization 88.4%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burhamthorpe Rd/Burnhamthorpe Rd



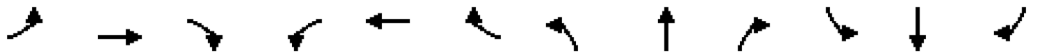


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	248	548	326	290	86	1654	122	108	1568	65
v/c Ratio	0.68	0.74	1.98	0.39	0.61	0.83	0.17	0.62	0.76	0.10
Control Delay (s/veh)	40.6	36.5	484.3	23.4	36.2	36.8	8.1	34.4	32.9	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	40.6	36.5	484.3	23.4	36.2	36.8	8.1	34.4	32.9	5.4
Queue Length 50th (m)	49.8	110.0	~125.4	42.9	10.6	132.9	4.9	13.4	119.6	0.2
Queue Length 95th (m)	75.0	126.1	#111.0	45.1	14.7	153.6	15.7	16.5	139.1	7.4
Internal Link Dist (m)		804.7		965.6		1053.8			431.6	
Turn Bay Length (m)	30.0		15.0		60.0		60.0	60.0		60.0
Base Capacity (vph)	365	741	165	741	140	1995	724	173	2058	684
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.74	1.98	0.39	0.61	0.83	0.17	0.62	0.76	0.10

Intersection Summary

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

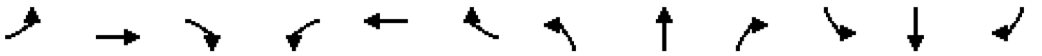
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	208	312	121	199	110	51	59	1522	105	70	1458	55
Future Volume (vph)	208	312	121	199	110	51	59	1522	105	70	1458	55
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		4.0	6.0	4.0	4.0	6.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	1805		1770	1774		1703	4988	1615	1752	4940	1495
Flt Permitted	0.49	1.00		0.22	1.00		0.08	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	903	1805		409	1774		149	4988	1615	148	4940	1495
Peak-hour factor, PHF	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Adj. Flow (vph)	248	395	153	326	162	128	86	1654	122	108	1568	65
RTOR Reduction (vph)	0	12	0	0	24	0	0	0	51	0	0	36
Lane Group Flow (vph)	248	536	0	326	266	0	86	1654	71	108	1568	29
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	48.5	48.5		48.5	48.5		53.5	48.0	48.0	57.5	50.0	50.0
Effective Green, g (s)	48.5	48.5		48.5	48.5		53.5	48.0	50.0	57.5	50.0	52.0
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.45	0.40	0.42	0.48	0.42	0.43
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Grp Cap (vph)	364	729		165	716		137	1995	672	171	2058	647
v/s Ratio Prot		0.30			0.15		0.03	c0.33		c0.04	0.32	
v/s Ratio Perm	0.27			c0.80			0.25		0.04	0.26		0.02
v/c Ratio	0.68	0.74		1.98	0.37		0.63	0.83	0.11	0.63	0.76	0.04
Uniform Delay, d1	29.4	30.3		35.8	25.1		23.0	32.3	21.4	23.3	29.9	19.6
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	9.9	6.5		460.2	1.5		19.8	4.2	0.3	16.4	2.7	0.1
Delay (s)	39.3	36.8		495.9	26.5		42.8	36.5	21.7	39.7	32.6	19.8
Level of Service	D	D		F	C		D	D	C	D	C	B
Approach Delay (s/veh)		37.6			274.9			35.8			32.6	
Approach LOS		D			F			D			C	

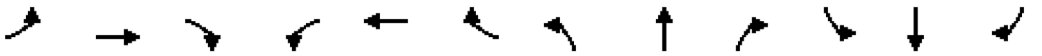
Intersection Summary			
HCM 2000 Control Delay (s/veh)	64.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.35		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	88.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1589	77	0	1183	6	0	0	89	0	0	241
Future Volume (vph)	0	1589	77	0	1183	6	0	0	89	0	0	241
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
Frt		0.993			0.999				0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3514	0	0	3536	0	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3514	0	0	3536	0	0	0	1611	0	0	1611
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		165.2			220.0			185.6			207.5	
Travel Time (s)		11.9			15.8			13.4			14.9	
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
Adj. Flow (vph)	0	1727	84	0	1286	7	0	0	97	0	0	262
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1811	0	0	1293	0	0	0	97	0	0	262
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

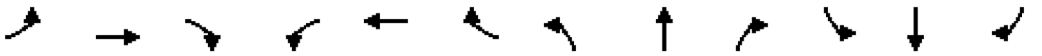
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.6%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1589	77	0	1183	6	0	0	89	0	0	241
Future Volume (Veh/h)	0	1589	77	0	1183	6	0	0	89	0	0	241
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1727	84	0	1286	7	0	0	97	0	0	262
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		165			220							
pX, platoon unblocked	0.78			0.77			0.88	0.88	0.77	0.88	0.88	0.78
vC, conflicting volume	1293			1811			2674	3062	906	2250	3101	647
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	802			1461			1494	1932	288	1014	1976	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	82	100	100	69
cM capacity (veh/h)	635			354			52	58	547	140	54	842

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	1151	660	857	436	97	262
Volume Left	0	0	0	0	0	0
Volume Right	0	84	0	7	97	262
cSH	1700	1700	1700	1700	547	842
Volume to Capacity	0.68	0.39	0.50	0.26	0.18	0.31
Queue Length 95th (m)	0.0	0.0	0.0	0.0	5.1	10.6
Control Delay (s/veh)	0.0	0.0	0.0	0.0	13.0	11.2
Lane LOS					B	B
Approach Delay (s/veh)	0.0		0.0		13.0	11.2
Approach LOS					B	B

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	58.6%	ICU Level of Service		B
Analysis Period (min)	15			

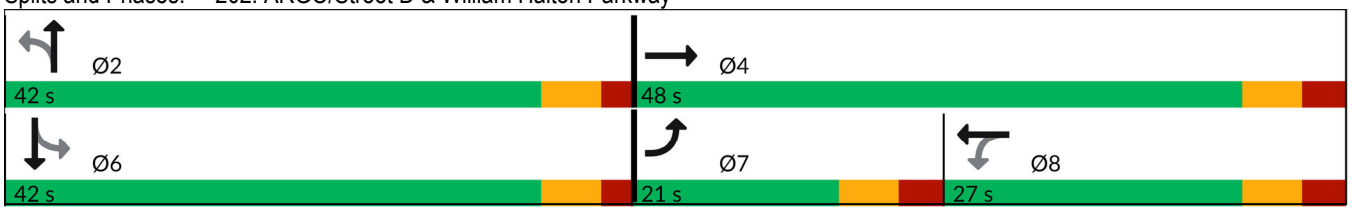


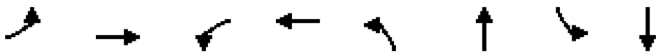
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	482	1119	77	54	771	14	293	10	89	49	10	125
Future Volume (vph)	482	1119	77	54	771	14	293	10	89	49	10	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	50.0		0.0	0.0		0.0
Storage Lanes	2		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990			0.997			0.865			0.861	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3504	0	1770	3529	0	1770	1611	0	1770	1604	0
Flt Permitted	0.950			0.212			0.663			0.687		
Satd. Flow (perm)	3433	3504	0	395	3529	0	1235	1611	0	1280	1604	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			2			29			136	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		220.0			1108.5			243.0			268.9	
Travel Time (s)		15.8			79.8			17.5			19.4	
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
Adj. Flow (vph)	524	1216	84	59	838	15	318	11	97	53	11	136
Shared Lane Traffic (%)												
Lane Group Flow (vph)	524	1300	0	59	853	0	318	108	0	53	147	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)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases				8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	15.0		15.0	15.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	12.0	25.0		25.0	25.0		42.0	42.0		42.0	42.0	
Total Split (s)	21.0	48.0		27.0	27.0		42.0	42.0		42.0	42.0	
Total Split (%)	23.3%	53.3%		30.0%	30.0%		46.7%	46.7%		46.7%	46.7%	
Maximum Green (s)	14.0	41.0		20.0	20.0		36.0	36.0		36.0	36.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	0.2		0.2	0.2		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		Max	Max		None	None		None	None	
Walk Time (s)		7.0		7.0	7.0		14.0	14.0		14.0	14.0	
Flash Don't Walk (s)		11.0		11.0	11.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	14.1	41.4		20.2	20.2		24.8	24.8		24.8	24.8	
Actuated g/C Ratio	0.18	0.52		0.25	0.25		0.31	0.31		0.31	0.31	
v/c Ratio	0.86	0.71		0.59	0.95		0.82	0.21		0.13	0.25	
Control Delay (s/veh)	48.9	18.5		56.6	51.8		42.9	15.1		19.1	5.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	48.9	18.5		56.6	51.8		42.9	15.1		19.1	5.3	
LOS	D	B		E	D		D	B		B	A	
Approach Delay (s/veh)		27.2			52.1			35.9			8.9	
Approach LOS		C			D			D			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 79.3			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay (s/veh): 34.0		Intersection LOS: C	
Intersection Capacity Utilization 92.1%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 202: ARGO/Street D & William Halton Parkway





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	524	1300	59	853	318	108	53	147
v/c Ratio	0.86	0.71	0.59	0.95	0.82	0.21	0.13	0.25
Control Delay (s/veh)	48.9	18.5	56.6	51.8	42.9	15.1	19.1	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	48.9	18.5	56.6	51.8	42.9	15.1	19.1	5.3
Queue Length 50th (m)	41.8	76.7	8.2	69.5	45.7	8.9	5.9	1.2
Queue Length 95th (m)	#82.5	132.1	#31.0	#131.4	76.6	19.6	13.6	12.6
Internal Link Dist (m)		196.0		1084.5		219.0		244.9
Turn Bay Length (m)					50.0			
Base Capacity (vph)	611	1833	100	899	565	753	586	808
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	0.86	0.71	0.59	0.95	0.56	0.14	0.09	0.18

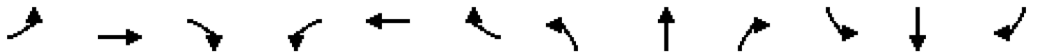
Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	482	1119	77	54	771	14	293	10	89	49	10	125
Future Volume (vph)	482	1119	77	54	771	14	293	10	89	49	10	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.87		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3505		1770	3530		1770	1612		1770	1604	
Flt Permitted	0.95	1.00		0.21	1.00		0.66	1.00		0.69	1.00	
Satd. Flow (perm)	3433	3505		395	3530		1236	1612		1280	1604	
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)	524	1216	84	59	838	15	318	11	97	53	11	136
RTOR Reduction (vph)	0	5	0	0	1	0	0	20	0	0	93	0
Lane Group Flow (vph)	524	1295	0	59	852	0	318	88	0	53	54	0
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases				8			2			6		
Actuated Green, G (s)	14.1	41.4		20.3	20.3		24.8	24.8		24.8	24.8	
Effective Green, g (s)	14.1	41.4		20.3	20.3		24.8	24.8		24.8	24.8	
Actuated g/C Ratio	0.18	0.52		0.26	0.26		0.31	0.31		0.31	0.31	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	0.2		0.2	0.2		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	611	1832		101	904		387	504		400	502	
v/s Ratio Prot	0.15	c0.37			c0.24			0.05			0.03	
v/s Ratio Perm				0.15			c0.26			0.04		
v/c Ratio	0.86	0.71		0.58	0.94		0.82	0.17		0.13	0.11	
Uniform Delay, d1	31.6	14.3		25.8	28.9		25.2	19.8		19.5	19.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.4	1.0		22.4	18.8		13.1	0.2		0.2	0.1	
Delay (s)	43.0	15.3		48.1	47.7		38.3	19.9		19.6	19.4	
Level of Service	D	B		D	D		D	B		B	B	
Approach Delay (s/veh)		23.3			47.7			33.6			19.5	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	31.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	79.2	Sum of lost time (s)	20.0
Intersection Capacity Utilization	92.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

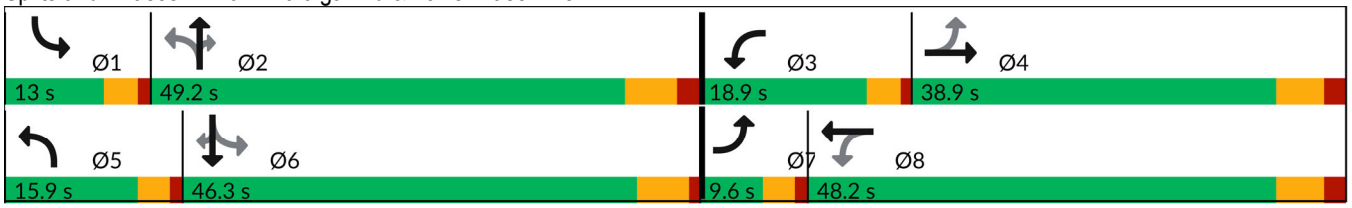


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	205	40	225	260	279	195	1652	299	158	1279	53
Future Volume (vph)	57	205	40	225	260	279	195	1652	299	158	1279	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		90.0	90.0		90.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.965			0.924				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1834	0	1770	1738	0	1805	5036	1599	1752	5085	1615
Flt Permitted	0.117			0.330			0.094			0.098		
Satd. Flow (perm)	218	1834	0	615	1738	0	179	5036	1599	181	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			48				322			138
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			728.6			888.2	
Travel Time (s)		38.5			41.4			32.8			40.0	
Peak Hour Factor	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Adj. Flow (vph)	74	244	74	237	329	340	219	1721	356	178	1405	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	318	0	237	669	0	219	1721	356	178	1405	84
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	pm+pt	NA		pm+pt	NA		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			8			2		2	6		6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		7.0	10.0		5.0	25.0	25.0	7.0	25.0	25.0
Minimum Split (s)	9.5	22.5		11.5	22.5		9.5	31.6	31.6	11.5	30.6	30.6
Total Split (s)	9.6	38.9		18.9	48.2		15.9	49.2	49.2	13.0	46.3	46.3
Total Split (%)	8.0%	32.4%		15.8%	40.2%		13.3%	41.0%	41.0%	10.8%	38.6%	38.6%
Maximum Green (s)	5.6	32.7		14.9	42.0		11.9	42.6	42.6	9.0	40.7	40.7
Yellow Time (s)	3.0	4.2		3.0	4.2		3.0	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0	2.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.2		4.0	6.2		4.0	6.6	6.6	4.0	5.6	5.6
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0		0.2	5.0		3.0	5.0	5.0	0.2	5.0	5.0
Recall Mode	None	None		None	None		None	Max	Max	Max	Max	Max
Act Effct Green (s)	41.2	33.4		51.8	42.1		57.0	42.7	42.7	51.5	40.9	40.9
Actuated g/C Ratio	0.35	0.28		0.44	0.36		0.48	0.36	0.36	0.44	0.35	0.35
v/c Ratio	0.50	0.60		0.61	1.03		0.88	0.95	0.45	0.89	0.80	0.13
Control Delay (s/veh)	31.9	41.1		28.6	79.0		60.9	49.0	6.4	68.8	39.4	1.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	31.9	41.1		28.6	79.0		60.9	49.0	6.4	68.8	39.4	1.0
LOS	C	D		C	E		E	D	A	E	D	A
Approach Delay (s/veh)		39.4			65.8			43.5			40.6	
Approach LOS		D			E			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 118.1			
Natural Cycle: 120			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay (s/veh): 46.1		Intersection LOS: D	
Intersection Capacity Utilization 92.9%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line



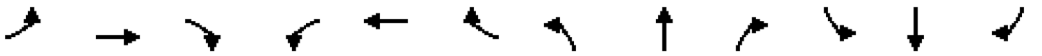


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	74	318	237	669	219	1721	356	178	1405	84
v/c Ratio	0.50	0.60	0.61	1.03	0.88	0.95	0.45	0.89	0.80	0.13
Control Delay (s/veh)	31.9	41.1	28.6	79.0	60.9	49.0	6.4	68.8	39.4	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	31.9	41.1	28.6	79.0	60.9	49.0	6.4	68.8	39.4	1.0
Queue Length 50th (m)	10.3	64.8	36.6	~172.1	36.1	151.9	5.5	27.1	115.7	0.0
Queue Length 95th (m)	16.8	89.8	55.9	#195.2	#80.5	#187.4	20.6	#70.0	135.4	0.0
Internal Link Dist (m)		725.3		666.6		704.6			864.2	
Turn Bay Length (m)	45.0		110.0		90.0		90.0	90.0		90.0
Base Capacity (vph)	149	536	416	649	250	1818	783	199	1760	648
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	0.50	0.59	0.57	1.03	0.88	0.95	0.45	0.89	0.80	0.13

Intersection Summary

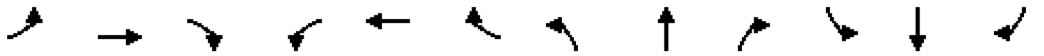
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	205	40	225	260	279	195	1652	299	158	1279	53
Future Volume (vph)	57	205	40	225	260	279	195	1652	299	158	1279	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.2		4.0	6.2		4.0	6.6	6.6	4.0	5.6	5.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.97		1.00	0.92		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1834		1770	1738		1805	5036	1599	1752	5085	1615
Flt Permitted	0.12	1.00		0.33	1.00		0.09	1.00	1.00	0.10	1.00	1.00
Satd. Flow (perm)	218	1834		615	1738		178	5036	1599	180	5085	1615
Peak-hour factor, PHF	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Adj. Flow (vph)	74	244	74	237	329	340	219	1721	356	178	1405	84
RTOR Reduction (vph)	0	9	0	0	31	0	0	0	206	0	0	55
Lane Group Flow (vph)	74	309	0	237	638	0	219	1721	150	178	1405	29
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	38.6	34.2		50.4	42.0		54.5	42.7	42.7	49.9	40.9	40.9
Effective Green, g (s)	38.6	34.2		50.4	42.0		54.5	42.7	42.7	49.9	40.9	40.9
Actuated g/C Ratio	0.32	0.29		0.42	0.35		0.46	0.36	0.36	0.42	0.34	0.34
Clearance Time (s)	4.0	6.2		4.0	6.2		4.0	6.6	6.6	4.0	5.6	5.6
Vehicle Extension (s)	3.0	5.0		0.2	5.0		3.0	5.0	5.0	0.2	5.0	5.0
Lane Grp Cap (vph)	128	527		379	613		243	1808	574	194	1749	555
v/s Ratio Prot	0.02	0.17		c0.06	c0.37		c0.09	c0.34		0.07	0.28	
v/s Ratio Perm	0.17			0.20			0.32		0.09	0.31		0.02
v/c Ratio	0.58	0.59		0.63	1.04		0.90	0.95	0.26	0.92	0.80	0.05
Uniform Delay, d1	32.3	36.3		24.2	38.5		30.4	37.1	26.9	27.7	35.4	26.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.2	2.6		2.3	47.4		32.7	12.5	1.1	46.1	4.0	0.2
Delay (s)	38.5	38.9		26.5	85.8		63.1	49.6	28.0	73.8	39.4	26.2
Level of Service	D	D		C	F		E	D	C	E	D	C
Approach Delay (s/veh)		38.8			70.3			47.5			42.4	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	49.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	118.9	Sum of lost time (s)	20.8
Intersection Capacity Utilization	92.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



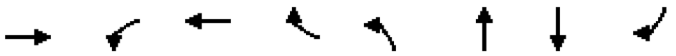
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	18	414	3	27	11	2116	0	0	1539	5
Future Volume (vph)	3	0	18	414	3	27	11	2116	0	0	1539	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.894			0.998	0.850						0.850
Flt Protected		0.989		0.950	0.954		0.950					
Satd. Flow (prot)	0	1525	0	1681	1596	1408	1641	5085	0	0	5085	1615
Flt Permitted		0.919		0.733	0.709		0.084					
Satd. Flow (perm)	0	1417	0	1297	1186	1408	145	5085	0	0	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		97			1	97						85
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			728.6	
Travel Time (s)		9.6			41.3			26.2			52.5	
Peak Hour Factor	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Adj. Flow (vph)	8	0	29	465	8	33	22	2251	0	0	1691	10
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	0	37	0	237	239	30	22	2251	0	0	1691	10
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	4.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	27.0			27.0	27.0
Total Split (s)	34.0	34.0		34.0	34.0	34.0	9.5	56.0			46.5	46.5
Total Split (%)	37.8%	37.8%		37.8%	37.8%	37.8%	10.6%	62.2%			51.7%	51.7%
Maximum Green (s)	28.0	28.0		28.0	28.0	28.0	5.5	49.0			39.5	39.5
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0			2.0	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	4.0	7.0			7.0	7.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	None	Max			Max	Max
Act Effct Green (s)		21.4		21.4	21.4	21.4	52.2	49.2			45.7	45.7
Actuated g/C Ratio		0.26		0.26	0.26	0.26	0.62	0.59			0.55	0.55
v/c Ratio		0.09		0.72	0.79	0.07	0.12	0.75			0.61	0.01
Control Delay (s/veh)		0.4		40.8	47.4	0.3	9.1	15.8			16.2	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		0.4		40.8	47.4	0.3	9.1	15.8			16.2	0.0
LOS		A		D	D	A	A	B			B	A
Approach Delay (s/veh)		0.4			41.5			15.7			16.1	
Approach LOS		A			D			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 83.7			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay (s/veh): 18.6		Intersection LOS: B	
Intersection Capacity Utilization 70.2%		ICU Level of Service C	
Analysis Period (min) 15			

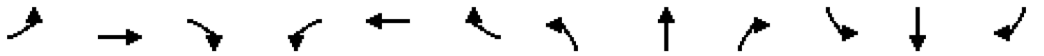
Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off





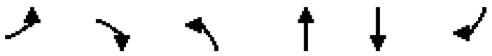
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	37	237	239	30	22	2251	1691	10
v/c Ratio	0.09	0.72	0.79	0.07	0.12	0.75	0.61	0.01
Control Delay (s/veh)	0.4	40.8	47.4	0.3	9.1	15.8	16.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	0.4	40.8	47.4	0.3	9.1	15.8	16.2	0.0
Queue Length 50th (m)	0.0	38.0	40.7	0.0	1.3	96.1	60.3	0.0
Queue Length 95th (m)	0.0	63.5	23.6	0.0	2.6	137.0	110.5	0.0
Internal Link Dist (m)	110.0		550.1			339.6	704.6	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	540	435	399	537	189	2990	2775	920
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	0.54	0.60	0.06	0.12	0.75	0.61	0.01

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	18	414	3	27	11	2116	0	0	1539	5
Future Volume (vph)	3	0	18	414	3	27	11	2116	0	0	1539	5
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	4.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.91			0.91	1.00
Frt		0.89		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1525		1681	1597	1408	1641	5085			5085	1615
Flt Permitted		0.92		0.73	0.71	1.00	0.08	1.00			1.00	1.00
Satd. Flow (perm)		1417		1297	1186	1408	145	5085			5085	1615
Peak-hour factor, PHF	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Adj. Flow (vph)	8	0	29	465	8	33	22	2251	0	0	1691	10
RTOR Reduction (vph)	0	28	0	0	1	23	0	0	0	0	0	5
Lane Group Flow (vph)	0	9	0	237	238	7	22	2251	0	0	1691	5
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		21.4		21.4	21.4	21.4	51.7	51.7			45.7	45.7
Effective Green, g (s)		21.4		21.4	21.4	21.4	51.7	51.7			45.7	45.7
Actuated g/C Ratio		0.25		0.25	0.25	0.25	0.60	0.60			0.53	0.53
Clearance Time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Lane Grp Cap (vph)		352		322	294	349	121	3053			2699	857
v/s Ratio Prot							0.00	c0.44			0.33	
v/s Ratio Perm		0.01		0.18	c0.20	0.01	0.10					0.00
v/c Ratio		0.03		0.74	0.81	0.02	0.18	0.74			0.63	0.01
Uniform Delay, d1		24.5		29.8	30.4	24.4	9.1	12.3			14.2	9.5
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2		0.0		8.7	15.8	0.0	0.5	1.6			1.1	0.0
Delay (s)		24.5		38.5	46.2	24.5	9.6	14.0			15.3	9.5
Level of Service		C		D	D	C	A	B			B	A
Approach Delay (s/veh)		24.5			41.3			13.9			15.3	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	86.1	Sum of lost time (s)	17.0
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

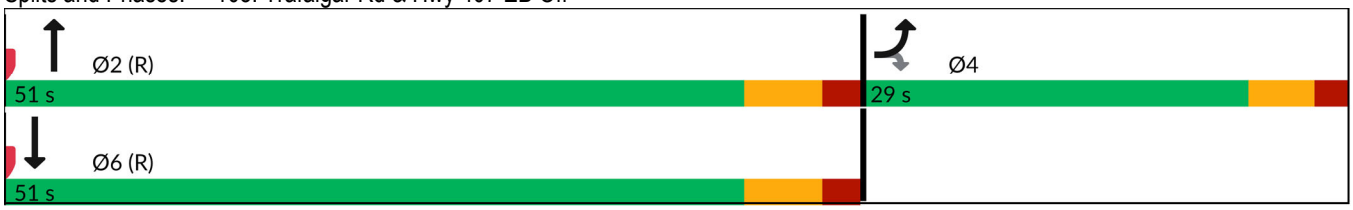


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	38	149	0	2361	1806	0
Future Volume (vph)	38	149	0	2361	1806	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1703	1429	0	5085	5085	0
Flt Permitted	0.950					
Satd. Flow (perm)	1703	1429	0	5085	5085	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		8				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			479.2	363.6	
Travel Time (s)	39.9			34.5	26.2	
Peak Hour Factor	0.75	0.94	0.25	0.94	0.92	0.25
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Adj. Flow (vph)	51	159	0	2512	1963	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	51	159	0	2512	1963	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			7.2	7.2	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	29.0	29.0		24.9	24.9	
Total Split (s)	29.0	29.0		51.0	51.0	
Total Split (%)	36.3%	36.3%		63.8%	63.8%	
Maximum Green (s)	23.0	23.0		44.1	44.1	
Yellow Time (s)	4.0	4.0		4.6	4.6	
All-Red Time (s)	2.0	2.0		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.9	6.9	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	23.0	23.0		44.1	44.1	
Actuated g/C Ratio	0.29	0.29		0.55	0.55	
v/c Ratio	0.10	0.38		0.90	0.70	
Control Delay (s/veh)	21.7	24.9		21.5	14.8	
Queue Delay	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay (s/veh)	21.7	24.9		21.5	14.8	
LOS	C	C		C	B	
Approach Delay (s/veh)	24.1			21.5	14.8	
Approach LOS	C			C	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 75			
Control Type: Pretimed			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay (s/veh): 18.8		Intersection LOS: B	
Intersection Capacity Utilization 60.5%		ICU Level of Service B	
Analysis Period (min) 15			

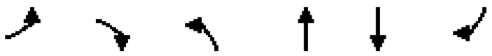
Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off





Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	51	159	2512	1963
v/c Ratio	0.10	0.38	0.90	0.70
Control Delay (s/veh)	21.7	24.9	21.5	14.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	21.7	24.9	21.5	14.8
Queue Length 50th (m)	6.0	19.2	120.9	77.9
Queue Length 95th (m)	11.8	36.1	146.9	94.9
Internal Link Dist (m)	530.6		455.2	339.6
Turn Bay Length (m)				
Base Capacity (vph)	489	416	2803	2803
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.10	0.38	0.90	0.70

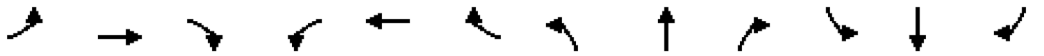
Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	38	149	0	2361	1806	0
Future Volume (vph)	38	149	0	2361	1806	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.9	6.9	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1703	1429		5085	5085	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1703	1429		5085	5085	
Peak-hour factor, PHF	0.75	0.94	0.25	0.94	0.92	0.25
Adj. Flow (vph)	51	159	0	2512	1963	0
RTOR Reduction (vph)	0	6	0	0	0	0
Lane Group Flow (vph)	51	153	0	2512	1963	0
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	23.0	23.0		44.1	44.1	
Effective Green, g (s)	23.0	23.0		44.1	44.1	
Actuated g/C Ratio	0.29	0.29		0.55	0.55	
Clearance Time (s)	6.0	6.0		6.9	6.9	
Lane Grp Cap (vph)	489	410		2803	2803	
v/s Ratio Prot	0.03			c0.49	0.39	
v/s Ratio Perm		c0.11				
v/c Ratio	0.10	0.37		0.90	0.70	
Uniform Delay, d1	20.9	22.8		15.9	13.1	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	2.6		5.0	1.5	
Delay (s)	21.4	25.3		20.9	14.6	
Level of Service	C	C		C	B	
Approach Delay (s/veh)	24.4			20.9	14.6	
Approach LOS	C			C	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

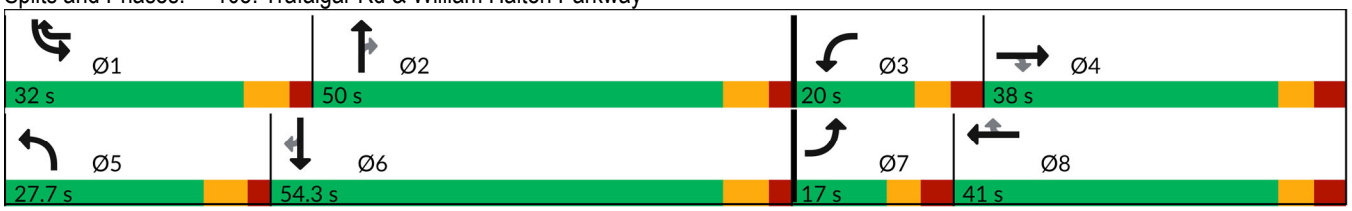


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	299	763	236	352	880	917	284	1535	221	529	1120	306
Future Volume (vph)	299	763	236	352	880	917	284	1535	221	529	1120	306
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		100.0	150.0		150.0	150.0		75.0	150.0		150.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			259			85			185			193
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		1213.9			161.0			461.4			479.2	
Travel Time (s)		87.4			11.6			33.2			34.5	
Peak Hour Factor	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
Adj. Flow (vph)	332	787	259	496	1023	1079	351	1706	351	575	1302	333
Shared Lane Traffic (%)												
Lane Group Flow (vph)	332	787	259	496	1023	1079	351	1706	351	575	1302	333
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	1	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	1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	7.0	7.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	14.0	38.0	38.0	14.0	38.0	13.9	13.9	42.9	42.9	13.9	42.9	42.9
Total Split (s)	17.0	38.0	38.0	20.0	41.0	32.0	27.7	50.0	50.0	32.0	54.3	54.3
Total Split (%)	12.1%	27.1%	27.1%	14.3%	29.3%	22.9%	19.8%	35.7%	35.7%	22.9%	38.8%	38.8%
Maximum Green (s)	10.0	31.0	31.0	13.0	34.0	25.1	20.8	43.1	43.1	25.1	47.4	47.4
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	4.6	4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	3.3	3.3	3.3	3.3	3.3	2.3	2.3	2.3	2.3	2.3	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)	7.0	7.0	7.0	7.0	7.0	6.9	6.9	6.9	6.9	6.9	6.9	6.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	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	3.0	3.0	5.0	5.0	3.0	5.0	5.0
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
Flash Don't Walk (s)		24.0	24.0		24.0			29.0	29.0		29.0	29.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effct Green (s)	10.0	31.0	31.0	13.0	34.0	66.1	18.6	43.1	43.1	25.1	49.6	49.6
Actuated g/C Ratio	0.07	0.22	0.22	0.09	0.24	0.47	0.13	0.31	0.31	0.18	0.35	0.35
v/c Ratio	1.36	1.01	0.47	1.53	1.17	1.36	0.76	1.09	0.56	0.96	0.72	0.48
Control Delay (s/veh)	231.0	87.2	8.0	292.7	133.9	200.7	69.9	96.7	22.2	85.5	42.4	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 (s/veh)	231.0	87.2	8.0	292.7	133.9	200.7	69.9	96.7	22.2	85.5	42.4	17.0
LOS	F	F	A	F	F	F	E	F	C	F	D	B
Approach Delay (s/veh)		107.0			192.0			81.9			49.8	
Approach LOS		F			F			F			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Natural Cycle: 130			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.53			
Intersection Signal Delay (s/veh): 110.9		Intersection LOS: F	
Intersection Capacity Utilization 112.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway



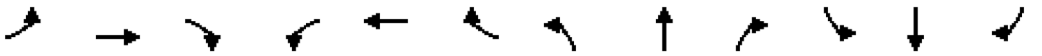


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	332	787	259	496	1023	1079	351	1706	351	575	1302	333
v/c Ratio	1.36	1.01	0.47	1.53	1.17	1.36	0.76	1.09	0.56	0.96	0.72	0.48
Control Delay (s/veh)	231.0	87.2	8.0	292.7	133.9	200.7	69.9	96.7	22.2	85.5	42.4	17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	231.0	87.2	8.0	292.7	133.9	200.7	69.9	96.7	22.2	85.5	42.4	17.0
Queue Length 50th (m)	~65.2	~122.6	0.0	~103.9	~186.0	~401.5	51.2	~204.5	39.8	86.7	121.2	30.2
Queue Length 95th (m)	#97.6	#167.7	23.5	#100.2	#213.4	#445.0	60.4	#235.4	30.7	#124.3	133.4	61.1
Internal Link Dist (m)		1189.9			137.0			437.4			455.2	
Turn Bay Length (m)	150.0		100.0	150.0		150.0	150.0		75.0	150.0		150.0
Base Capacity (vph)	245	783	555	325	876	792	515	1565	625	597	1803	691
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	1.36	1.01	0.47	1.53	1.17	1.36	0.68	1.09	0.56	0.96	0.72	0.48

Intersection Summary

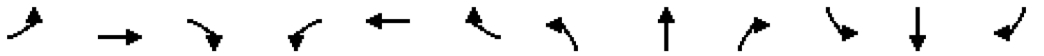
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	299	763	236	352	880	917	284	1535	221	529	1120	306
Future Volume (vph)	299	763	236	352	880	917	284	1535	221	529	1120	306
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	6.9	6.9	6.9	6.9	6.9	6.9	6.9
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
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)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
Peak-hour factor, PHF	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Adj. Flow (vph)	332	787	259	496	1023	1079	351	1706	351	575	1302	333
RTOR Reduction (vph)	0	0	202	0	0	49	0	0	128	0	0	125
Lane Group Flow (vph)	332	787	57	496	1023	1030	351	1706	223	575	1302	208
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	10.0	31.0	31.0	13.0	34.0	59.1	18.6	43.1	43.1	25.1	49.6	49.6
Effective Green, g (s)	10.0	31.0	31.0	13.0	34.0	59.1	18.6	43.1	43.1	25.1	49.6	49.6
Actuated g/C Ratio	0.07	0.22	0.22	0.09	0.24	0.42	0.13	0.31	0.31	0.18	0.35	0.35
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	6.9	6.9	6.9	6.9	6.9	6.9	6.9
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	245	783	354	325	876	668	460	1565	497	597	1801	566
v/s Ratio Prot	0.10	0.22		c0.14	0.28	c0.28	0.10	c0.34		0.17	c0.26	
v/s Ratio Perm			0.04			0.37			0.14			0.13
v/c Ratio	1.36	1.01	0.16	1.53	1.17	1.54	0.76	1.09	0.45	0.96	0.72	0.37
Uniform Delay, d1	65.0	54.5	44.0	63.5	53.0	40.5	58.6	48.5	38.9	57.0	39.2	33.6
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	184.1	33.4	0.5	251.9	87.8	251.2	7.4	51.5	2.9	27.7	2.6	1.8
Delay (s)	249.1	87.9	44.5	315.4	140.8	291.7	65.9	99.9	41.8	84.6	41.8	35.4
Level of Service	F	F	D	F	F	F	E	F	D	F	D	D
Approach Delay (s/veh)		118.6			236.8			86.5			52.0	
Approach LOS		F			F			F			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	128.2	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)	27.8
Intersection Capacity Utilization	112.3%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

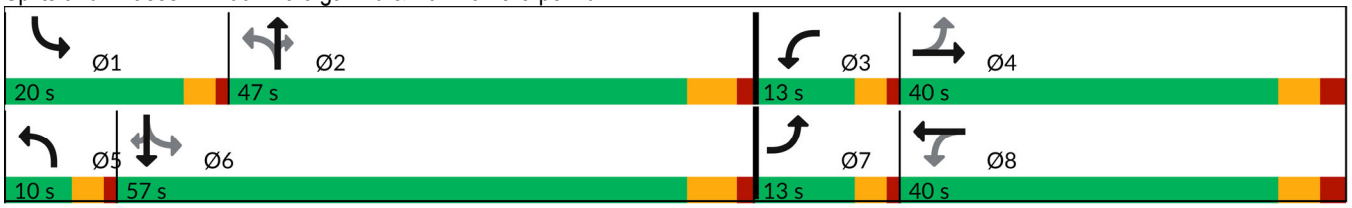


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	403	22	222	357	310	89	1721	131	228	1307	173
Future Volume (vph)	135	403	22	222	357	310	89	1721	131	228	1307	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		60.0	60.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	70.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.993			0.934				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1887	0	1805	1775	0	1805	5036	1615	1480	5085	1599
Flt Permitted	0.118			0.118			0.109			0.089		
Satd. Flow (perm)	220	1887	0	224	1775	0	207	5036	1615	139	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			33				136			169
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		828.7			989.6			1941.0			461.4	
Travel Time (s)		49.7			59.4			87.3			20.8	
Peak Hour Factor	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	1%
Adj. Flow (vph)	161	576	27	281	496	388	114	2025	193	356	1485	201
Shared Lane Traffic (%)												
Lane Group Flow (vph)	161	603	0	281	884	0	114	2025	193	356	1485	201
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	pm+pt	NA		pm+pt	NA		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			8			2		2	6		6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	9.5	24.0		9.5	24.0		9.5	26.0	26.0	11.5	26.0	26.0
Total Split (s)	13.0	40.0		13.0	40.0		10.0	47.0	47.0	20.0	57.0	57.0
Total Split (%)	10.8%	33.3%		10.8%	33.3%		8.3%	39.2%	39.2%	16.7%	47.5%	47.5%
Maximum Green (s)	9.0	34.0		9.0	34.0		6.0	41.0	41.0	16.0	51.0	51.0
Yellow Time (s)	3.0	3.7		3.0	3.7		3.0	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	1.0	2.3		1.0	2.3		1.0	1.4	1.4	1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		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
Recall Mode	None	None		None	None		None	Max	Max	None	Max	Max
Act Effct Green (s)	45.0	34.0		45.0	34.0		49.0	41.0	43.0	63.0	51.0	53.0
Actuated g/C Ratio	0.38	0.28		0.38	0.28		0.41	0.34	0.36	0.53	0.43	0.44
v/c Ratio	0.81	1.13		1.39	1.68		0.70	1.18	0.29	1.42	0.69	0.25
Control Delay (s/veh)	55.3	117.9		228.8	343.2		41.0	122.4	10.1	238.8	30.1	5.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	55.3	117.9		228.8	343.2		41.0	122.4	10.1	238.8	30.1	5.5
LOS	E	F		F	F		D	F	B	F	C	A
Approach Delay (s/veh)		104.7			315.6			109.1			64.0	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.68			
Intersection Signal Delay (s/veh): 132.1		Intersection LOS: F	
Intersection Capacity Utilization 107.8%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burnhamthorpe Rd



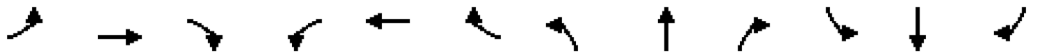


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	161	603	281	884	114	2025	193	356	1485	201
v/c Ratio	0.81	1.13	1.39	1.68	0.70	1.18	0.29	1.42	0.69	0.25
Control Delay (s/veh)	55.3	117.9	228.8	343.2	41.0	122.4	10.1	238.8	30.1	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	55.3	117.9	228.8	343.2	41.0	122.4	10.1	238.8	30.1	5.5
Queue Length 50th (m)	25.6	~173.0	~75.5	~317.0	13.8	~220.0	9.3	~105.1	107.6	4.4
Queue Length 95th (m)	#50.6	#159.4	#106.9	#288.1	21.4	#227.8	13.3	#95.1	121.0	16.7
Internal Link Dist (m)		804.7		965.6		1917.0			437.4	
Turn Bay Length (m)	30.0		15.0		60.0		60.0	60.0		60.0
Base Capacity (vph)	198	536	202	526	164	1720	665	251	2161	800
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	0.81	1.13	1.39	1.68	0.70	1.18	0.29	1.42	0.69	0.25

Intersection Summary

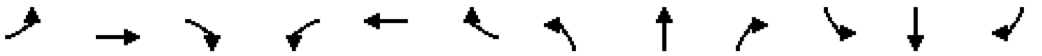
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



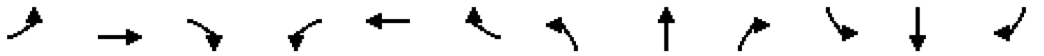
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	403	22	222	357	310	89	1721	131	228	1307	173
Future Volume (vph)	135	403	22	222	357	310	89	1721	131	228	1307	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.99		1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1887		1805	1775		1805	5036	1615	1480	5085	1599
Flt Permitted	0.12	1.00		0.12	1.00		0.11	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	219	1887		224	1775		207	5036	1615	138	5085	1599
Peak-hour factor, PHF	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Adj. Flow (vph)	161	576	27	281	496	388	114	2025	193	356	1485	201
RTOR Reduction (vph)	0	1	0	0	24	0	0	0	87	0	0	94
Lane Group Flow (vph)	161	602	0	281	860	0	114	2025	106	356	1485	107
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	43.0	34.0		43.0	34.0		47.0	41.0	41.0	61.0	51.0	51.0
Effective Green, g (s)	43.0	34.0		43.0	34.0		47.0	41.0	43.0	61.0	51.0	53.0
Actuated g/C Ratio	0.36	0.28		0.36	0.28		0.39	0.34	0.36	0.51	0.43	0.44
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	194	534		198	502		160	1720	578	249	2161	706
v/s Ratio Prot	0.06	0.32		c0.11	c0.48		0.04	0.40		c0.19	0.29	
v/s Ratio Perm	0.23			0.40			0.24		0.07	c0.53		0.07
v/c Ratio	0.83	1.13		1.42	1.71		0.71	1.18	0.18	1.43	0.69	0.15
Uniform Delay, d1	31.3	43.0		33.0	43.0		25.0	39.5	26.4	37.6	28.0	20.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	24.4	78.7		215.6	329.6		13.9	86.2	0.7	215.0	1.8	0.5
Delay (s)	55.7	121.7		248.6	372.6		38.9	125.7	27.1	252.6	29.8	20.5
Level of Service	E	F		F	F		D	F	C	F	C	C
Approach Delay (s/veh)		107.8			342.7			113.3			67.7	
Approach LOS		F			F			F			E	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	140.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.56		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	107.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1414	99	0	1778	13	0	0	37	0	0	371
Future Volume (vph)	0	1414	99	0	1778	13	0	0	37	0	0	371
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
Frt		0.990			0.999				0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3504	0	0	3536	0	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3504	0	0	3536	0	0	0	1611	0	0	1611
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		161.0			234.1			145.8			194.6	
Travel Time (s)		11.6			16.9			10.5			14.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1537	108	0	1933	14	0	0	40	0	0	403
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1645	0	0	1947	0	0	0	40	0	0	403
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

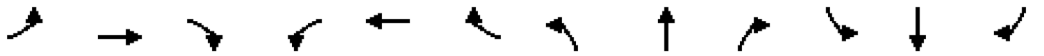
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 79.2%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1414	99	0	1778	13	0	0	37	0	0	371
Future Volume (Veh/h)	0	1414	99	0	1778	13	0	0	37	0	0	371
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1537	108	0	1933	14	0	0	40	0	0	403
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		161			234							
pX, platoon unblocked	0.59			0.79			0.70	0.70	0.79	0.70	0.70	0.59
vC, conflicting volume	1947			1645			2961	3538	823	2749	3585	974
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1215			1279			1568	2398	234	1264	2465	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	93	100	100	37
cM capacity (veh/h)	336			424			19	23	605	82	21	640

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	1025	620	1289	658	40	403
Volume Left	0	0	0	0	0	0
Volume Right	0	108	0	14	40	403
cSH	1700	1700	1700	1700	605	640
Volume to Capacity	0.60	0.36	0.76	0.39	0.07	0.63
Queue Length 95th (m)	0.0	0.0	0.0	0.0	1.7	35.5
Control Delay (s/veh)	0.0	0.0	0.0	0.0	11.4	19.7
Lane LOS					B	C
Approach Delay (s/veh)	0.0		0.0		11.4	19.7
Approach LOS					B	C

Intersection Summary				
Average Delay	2.1			
Intersection Capacity Utilization	79.2%	ICU Level of Service		D
Analysis Period (min)	15			

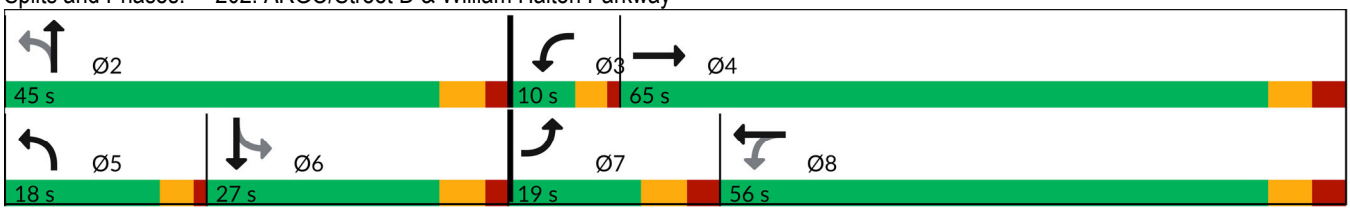


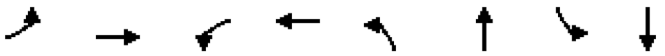
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	533	819	99	111	1350	9	248	10	37	77	10	193
Future Volume (vph)	533	819	99	111	1350	9	248	10	37	77	10	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0		0.0	55.0		0.0	115.0		0.0	0.0		0.0
Storage Lanes	2		0	1		0	1		0	1		0
Taper Length (m)	100.0			100.0			85.0			50.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.984			0.999			0.882			0.857	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3483	0	1770	3536	0	1770	1643	0	1770	1596	0
Flt Permitted	0.950			0.252			0.245			0.724		
Satd. Flow (perm)	3433	3483	0	469	3536	0	456	1643	0	1349	1596	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			1			40			156	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		234.1			1187.2			147.6			240.2	
Travel Time (s)		16.9			85.5			10.6			17.3	
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
Adj. Flow (vph)	579	890	108	121	1467	10	270	11	40	84	11	210
Shared Lane Traffic (%)												
Lane Group Flow (vph)	579	998	0	121	1477	0	270	51	0	84	221	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)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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	Prot	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases				8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	12.0	32.0		9.5	32.0		9.5	42.0		42.0	42.0	
Total Split (s)	19.0	65.0		10.0	56.0		18.0	45.0		27.0	27.0	
Total Split (%)	15.8%	54.2%		8.3%	46.7%		15.0%	37.5%		22.5%	22.5%	
Maximum Green (s)	12.0	58.0		6.0	49.0		14.0	39.0		21.0	21.0	
Yellow Time (s)	4.0	4.0		3.0	4.0		3.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		1.0	3.0		1.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		4.0	7.0		4.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	
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	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Walk Time (s)		10.0			10.0			14.0		14.0	14.0	
Flash Don't Walk (s)		15.0			15.0			22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0			0			0		0	0	
Act Effct Green (s)	12.0	58.1		58.1	49.1		32.3	30.3		12.3	12.3	
Actuated g/C Ratio	0.11	0.52		0.52	0.44		0.29	0.27		0.11	0.11	
v/c Ratio	1.57	0.55		0.39	0.95		0.91	0.11		0.56	0.70	
Control Delay (s/veh)	302.2	19.5		13.3	44.4		68.5	12.6		61.6	28.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	302.2	19.5		13.3	44.4		68.5	12.6		61.6	28.0	
LOS	F	B		B	D		E	B		E	C	
Approach Delay (s/veh)		123.3			42.0			59.6			37.2	
Approach LOS		F			D			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 111.4			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.57			
Intersection Signal Delay (s/veh): 76.8		Intersection LOS: E	
Intersection Capacity Utilization 99.0%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 202: ARGO/Street D & William Halton Parkway





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	579	998	121	1477	270	51	84	221
v/c Ratio	1.57	0.55	0.39	0.95	0.91	0.11	0.56	0.70
Control Delay (s/veh)	302.2	19.5	13.3	44.4	68.5	12.6	61.6	28.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	302.2	19.5	13.3	44.4	68.5	12.6	61.6	28.0
Queue Length 50th (m)	~96.7	75.9	9.9	166.7	51.7	1.9	18.5	14.0
Queue Length 95th (m)	#141.0	106.7	20.1	#241.0	#88.8	11.1	34.9	39.8
Internal Link Dist (m)		210.1		1163.2		123.6		216.2
Turn Bay Length (m)	120.0		55.0		115.0			
Base Capacity (vph)	369	1822	314	1557	297	601	254	427
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	1.57	0.55	0.39	0.95	0.91	0.08	0.33	0.52

Intersection Summary

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	533	819	99	111	1350	9	248	10	37	77	10	193
Future Volume (vph)	533	819	99	111	1350	9	248	10	37	77	10	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		4.0	7.0		4.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00		1.00	0.88		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3482		1770	3536		1770	1644		1770	1597	
Flt Permitted	0.95	1.00		0.25	1.00		0.25	1.00		0.72	1.00	
Satd. Flow (perm)	3433	3482		470	3536		457	1644		1348	1597	
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)	579	890	108	121	1467	10	270	11	40	84	11	210
RTOR Reduction (vph)	0	7	0	0	1	0	0	29	0	0	139	0
Lane Group Flow (vph)	579	991	0	121	1476	0	270	22	0	84	82	0
Turn Type	Prot	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases				8			2			6		
Actuated Green, G (s)	12.0	58.1		55.1	49.1		30.3	30.3		12.3	12.3	
Effective Green, g (s)	12.0	58.1		55.1	49.1		30.3	30.3		12.3	12.3	
Actuated g/C Ratio	0.11	0.52		0.49	0.44		0.27	0.27		0.11	0.11	
Clearance Time (s)	7.0	7.0		4.0	7.0		4.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	369	1816		302	1558		289	447		148	176	
v/s Ratio Prot	c0.17	0.28		0.02	c0.42		c0.12	0.01			0.05	
v/s Ratio Perm				0.18			c0.14			0.06		
v/c Ratio	1.57	0.55		0.40	0.95		0.93	0.05		0.57	0.47	
Uniform Delay, d1	49.7	17.8		15.5	29.9		36.0	29.9		47.0	46.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	268.9	0.3		0.9	12.4		35.6	0.0		4.9	2.0	
Delay (s)	318.6	18.2		16.4	42.3		71.7	30.0		51.9	48.4	
Level of Service	F	B		B	D		E	C		D	D	
Approach Delay (s/veh)		128.5			40.3			65.0			49.4	
Approach LOS		F			D			E			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	79.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	111.4	Sum of lost time (s)	24.0
Intersection Capacity Utilization	99.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Appendix G4

2036 Total Operation Synchro Reports

Signal Justification Calculation for Forecast Volumes
(OTM Book 12 - Justification 7)

Horizon Year:	Total - 2036	Project number:	210156
Municipality:	Oakville, Halton Region		
Major Street:	William Halton Parkway	North/South?:	N
Minor Street:	West Drive		

Number of Approach Lanes:	2 or more
Tee Intersection?	N
Flow Conditions:	Restricted
PM Forecast Only?	N

Justification Result		
200% Satisfied	No	Case 1: Signal is undoubtedly warranted
100% Satisfied	Yes	Case 2: Signal might be warranted
< 100 % Satisfied		Case 3: Signal warrant is unlikely

	Major Street						Minor Street						
	William Halton Parkway						West Drive						
	Eastbound			Westbound			Northbound			Southbound			Peds
Time Period	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	Crossing
AM Peak Hour	11	1354	45	231	1449	51	29	31	317	97	3	5	0
PM Peak Hour	16	1410	56	164	1626	71	32	40	352	110	1	6	0
verage Hourly Volum	7	691	25	99	769	31	15	18	167	52	1	3	0

Warrant	AHV
1A - All	1877
1B - Minor	256
2A - Major	1621
2B - Cross	85

Warrant 1 - Minimum Vehicular Volume

	Approach Lanes	1		2 or more		Average
1A	Flow Conditions	Free	Restricted	Free	Restricted	Hourly Volume
					X	
	All Approaches	480	720	600	900	1877
					% Fulfilled	208.5%

	Approach Lanes	1		2 or more		Average
1B	Flow Conditions	Free	Restricted	Free	Restricted	Hourly Volume
					X	
	Minor Street Approaches	120	170	120	170	256
					% Fulfilled	150.4%

Warrant 2 - Delay To Cross Traffic

	Approach Lanes	1		2 or more		Average
2A	Flow Conditions	Free	Restricted	Free	Restricted	Hourly Volume
					X	
	Major Street Approaches	480	720	600	900	1621
					% Fulfilled	180.1%

	Approach Lanes	1		2 or more		Average
2B	Flow Conditions	Free	Restricted	Free	Restricted	Hourly Volume
					X	
	Traffic Crossing Major Street	50	75	50	75	85
					% Fulfilled	113.0%

Signal Justification Calculation for Forecast Volumes
(OTM Book 12 - Justification 7)

Horizon Year: Total - 2036
Municipality: Oakville, Halton Region

Project number: 210156

Major Street: Loyalist Trail
Minor Street: West Drive

North/South?: N

Number of Approach Lanes: 1
Tee Intersection? N
Flow Conditions: Restricted

PM Forecast Only? N

Justification Result		
200% Satisfied	No	Case 1: Signal is undoubtedly warranted
100% Satisfied	No	Case 2: Signal might be warranted
< 100 % Satisfied		Case 3: Signal warrant is unlikely

	Major Street						Minor Street						
	Loyalist Trail						West Drive						
	Eastbound			Westbound			Northbound			Southbound			Peds
Time Period	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	Crossing
AM Peak Hour	31	9	3	6	73	281	45	49	77	76	178	22	15
PM Peak Hour	95	30	10	3	36	250	23	62	167	52	150	12	15
verage Hourly Volum	32	10	3	2	27	133	17	28	61	32	82	9	8

Warrant	AHV
1A - All	435
1B - Minor	228
2A - Major	207
2B - Cross	139

Warrant 1 - Minimum Vehicular Volume

	Approach Lanes	1		2 or more		Average
1A	Flow Conditions	Free	Restricted	Free	Restricted	Hourly Volume
			X			
	All Approaches	480	720	600	900	435
					% Fulfilled	60.4%

	Approach Lanes	1		2 or more		Average
1B	Flow Conditions	Free	Restricted	Free	Restricted	Hourly Volume
			X			
	Minor Street Approaches	120	170	120	170	228
					% Fulfilled	134.3%

Warrant 2 - Delay To Cross Traffic

	Approach Lanes	1		2 or more		Average
2A	Flow Conditions	Free	Restricted	Free	Restricted	Hourly Volume
			X			
	Major Street Approaches	480	720	600	900	207
					% Fulfilled	28.7%

	Approach Lanes	1		2 or more		Average
2B	Flow Conditions	Free	Restricted	Free	Restricted	Hourly Volume
			X			
	Traffic Crossing Major Street	50	75	50	75	139
					% Fulfilled	184.7%

Signal Justification Calculation for Forecast Volumes
(OTM Book 12 - Justification 7)

Horizon Year:	Total - 2036	Project number:	210156
Municipality:	Oakville, Halton Region		
Major Street:	Loyalist Trail	North/South?:	N
Minor Street:	Street F		

Number of Approach Lanes:	1
Tee Intersection?	Y
Flow Conditions:	Restricted
PM Forecast Only?	N

Justification Result		
200% Satisfied	No	Case 1: Signal is undoubtedly warranted
100% Satisfied	No	Case 2: Signal might be warranted
< 100 % Satisfied		Case 3: Signal warrant is unlikely

	Major Street						Minor Street						
	Loyalist Trail						Street F						
	Eastbound			Westbound			Northbound			Southbound			Peds
Time Period	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	Crossing
AM Peak Hour	33	122			203	97				96		191	15
PM Peak Hour	114	149			119	238				87		147	15
verage Hourly Volum	37	68	0	0	81	84	0	0	0	46	0	85	8

Warrant	AHV
1A - All	399
1B - Minor	130
2A - Major	269
2B - Cross	53

Warrant 1 - Minimum Vehicular Volume

	Approach Lanes	1		2 or more		Average
1A	Flow Conditions	Free	Restricted	Free	Restricted	Hourly Volume
			X			
	All Approaches	480	720	600	900	399
					% Fulfilled	55.4%

	Approach Lanes	1		2 or more		Average
1B	Flow Conditions	Free	Restricted	Free	Restricted	Hourly Volume
			X			
	Minor Street Approaches	180	255	180	255	130
					% Fulfilled	51.1%

Warrant 2 - Delay To Cross Traffic

	Approach Lanes	1		2 or more		Average
2A	Flow Conditions	Free	Restricted	Free	Restricted	Hourly Volume
			X			
	Major Street Approaches	480	720	600	900	269
					% Fulfilled	37.3%

	Approach Lanes	1		2 or more		Average
2B	Flow Conditions	Free	Restricted	Free	Restricted	Hourly Volume
			X			
	Traffic Crossing Major Street	50	75	50	75	53
					% Fulfilled	71.0%

Signal Justification Calculation for Forecast Volumes
(OTM Book 12 - Justification 7)

Horizon Year: Total - 2036
Municipality: Oakville, Halton Region
Project number: 210156

Major Street: Burnhamthorpe Road
Minor Street: West Drive
North/South?: N

Number of Approach Lanes: 1
Tee Intersection? Y
Flow Conditions: Restricted

PM Forecast Only? N

Justification Result		
200% Satisfied	No	Case 1: Signal is undoubtedly warranted
100% Satisfied	No	Case 2: Signal might be warranted
< 100 % Satisfied		Case 3: Signal warrant is unlikely

	Major Street						Minor Street						
	Burnhamthorpe Road						West Drive						
	Eastbound			Westbound			Northbound			Southbound			Peds
Time Period	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	Crossing
AM Peak Hour	12	686			238	157				171		16	10
PM Peak Hour	7	605			666	240				151		12	10
verage Hourly Volum	5	323	0	0	226	99	0	0	0	81	0	7	5

Warrant	AHV
1A - All	740
1B - Minor	88
2A - Major	653
2B - Cross	86

Warrant 1 - Minimum Vehicular Volume

	Approach Lanes	1		2 or more		Average
1A	Flow Conditions	Free	Restricted	Free	Restricted	Hourly Volume
			X			
	All Approaches	480	720	600	900	740
					% Fulfilled	102.8%

	Approach Lanes	1		2 or more		Average
1B	Flow Conditions	Free	Restricted	Free	Restricted	Hourly Volume
			X			
	Minor Street Approaches	180	255	180	255	88
					% Fulfilled	34.3%

Warrant 2 - Delay To Cross Traffic

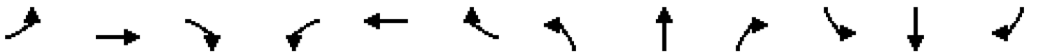
	Approach Lanes	1		2 or more		Average
2A	Flow Conditions	Free	Restricted	Free	Restricted	Hourly Volume
			X			
	Major Street Approaches	480	720	600	900	653
					% Fulfilled	90.7%

	Approach Lanes	1		2 or more		Average
2B	Flow Conditions	Free	Restricted	Free	Restricted	Hourly Volume
			X			
	Traffic Crossing Major Street	50	75	50	75	86
					% Fulfilled	114.0%

Appendix G5

Mitigation Analysis – 2036



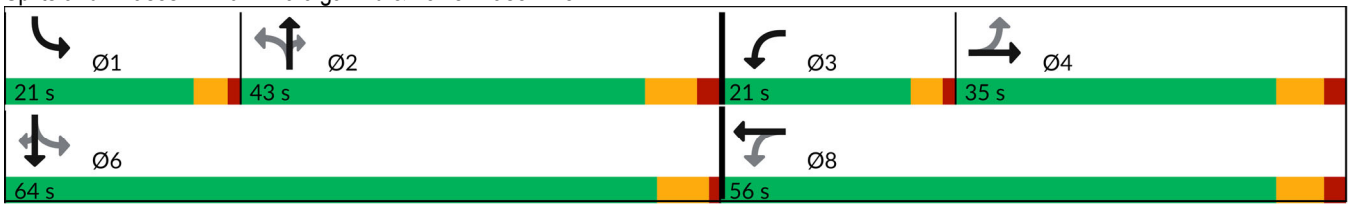


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	301	88	291	103	133	32	1456	324	315	1720	60
Future Volume (vph)	104	301	88	291	103	133	32	1456	324	315	1720	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		90.0	90.0		90.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.963			0.912				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1816	0	1736	1666	0	1597	4848	1568	1752	4988	1553
Flt Permitted	0.578			0.122			0.110			0.097		
Satd. Flow (perm)	1056	1816	0	223	1666	0	185	4848	1568	179	4988	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			72				295			82
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			728.7			434.3	
Travel Time (s)		38.5			41.4			32.8			19.5	
Peak Hour Factor	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Adj. Flow (vph)	124	391	129	399	124	175	44	1776	364	358	2024	85
Shared Lane Traffic (%)												
Lane Group Flow (vph)	124	520	0	399	299	0	44	1776	364	358	2024	85
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		25.0	25.0	25.0	7.0	25.0	25.0
Minimum Split (s)	22.5	22.5		11.5	22.5		31.6	31.6	31.6	11.5	30.6	30.6
Total Split (s)	35.0	35.0		21.0	56.0		43.0	43.0	43.0	21.0	64.0	64.0
Total Split (%)	29.2%	29.2%		17.5%	46.7%		35.8%	35.8%	35.8%	17.5%	53.3%	53.3%
Maximum Green (s)	28.8	28.8		17.0	49.8		36.4	36.4	36.4	17.0	58.4	58.4
Yellow Time (s)	4.2	4.2		3.0	4.2		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	Max
Act Effct Green (s)	28.8	28.8		52.0	49.8		36.4	36.4	36.4	60.0	58.4	58.4
Actuated g/C Ratio	0.24	0.24		0.43	0.42		0.30	0.30	0.30	0.50	0.49	0.49
v/c Ratio	0.49	1.17		1.29	0.41		0.79	1.21	0.53	1.15	0.83	0.11
Control Delay (s/veh)	47.0	137.5		181.0	20.3		112.3	137.5	10.4	129.0	30.5	4.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	47.0	137.5		181.0	20.3		112.3	137.5	10.4	129.0	30.5	4.2
LOS	D	F		F	C		F	F	B	F	C	A
Approach Delay (s/veh)		120.1			112.2			115.8			43.9	
Approach LOS		F			F			F			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.29			
Intersection Signal Delay (s/veh): 86.2		Intersection LOS: F	
Intersection Capacity Utilization 110.0%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line



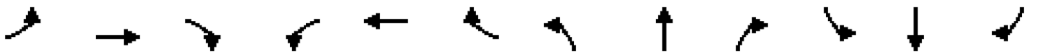


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	124	520	399	299	44	1776	364	358	2024	85
v/c Ratio	0.49	1.17	1.29	0.41	0.79	1.21	0.53	1.15	0.83	0.11
Control Delay (s/veh)	47.0	137.5	181.0	20.3	112.3	137.5	10.4	129.0	30.5	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	47.0	137.5	181.0	20.3	112.3	137.5	10.4	129.0	30.5	4.2
Queue Length 50th (m)	26.6	~151.3	~109.0	38.3	10.0	~196.6	12.5	~87.4	154.2	0.4
Queue Length 95th (m)	43.3	#171.2	#121.6	55.3	#24.2	#195.1	39.5	#143.5	159.5	4.7
Internal Link Dist (m)		725.3		666.6		704.7			410.3	
Turn Bay Length (m)	45.0		110.0		90.0		90.0	90.0		90.0
Base Capacity (vph)	253	445	310	733	56	1470	681	312	2427	797
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	0.49	1.17	1.29	0.41	0.79	1.21	0.53	1.15	0.83	0.11

Intersection Summary

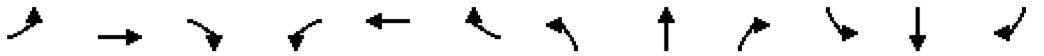
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	301	88	291	103	133	32	1456	324	315	1720	60
Future Volume (vph)	104	301	88	291	103	133	32	1456	324	315	1720	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	1816		1736	1667		1597	4848	1568	1752	4988	1553
Flt Permitted	0.58	1.00		0.12	1.00		0.11	1.00	1.00	0.10	1.00	1.00
Satd. Flow (perm)	1055	1816		223	1667		185	4848	1568	178	4988	1553
Peak-hour factor, PHF	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Adj. Flow (vph)	124	391	129	399	124	175	44	1776	364	358	2024	85
RTOR Reduction (vph)	0	10	0	0	42	0	0	0	206	0	0	42
Lane Group Flow (vph)	124	510	0	399	257	0	44	1776	158	358	2024	43
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	28.8	28.8		49.8	49.8		36.4	36.4	36.4	58.4	58.4	58.4
Effective Green, g (s)	28.8	28.8		49.8	49.8		36.4	36.4	36.4	58.4	58.4	58.4
Actuated g/C Ratio	0.24	0.24		0.42	0.42		0.30	0.30	0.30	0.49	0.49	0.49
Clearance Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Lane Grp Cap (vph)	253	435		306	691		56	1470	475	309	2427	755
v/s Ratio Prot		0.28		c0.18	0.15			0.37		c0.16	0.41	
v/s Ratio Perm	0.12			c0.36			0.24		0.10	c0.40		0.03
v/c Ratio	0.49	1.17		1.30	0.37		0.79	1.21	0.33	1.16	0.83	0.06
Uniform Delay, d1	39.3	45.6		35.4	24.3		38.2	41.8	32.4	37.1	26.6	16.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.1	99.6		158.5	0.7		68.8	100.3	1.9	101.3	3.6	0.1
Delay (s)	42.4	145.2		194.0	25.0		107.0	142.1	34.3	138.5	30.2	16.4
Level of Service	D	F		F	C		F	F	C	F	C	B
Approach Delay (s/veh)		125.4			121.6			123.4			45.4	
Approach LOS		F			F			F			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	91.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.30		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	110.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

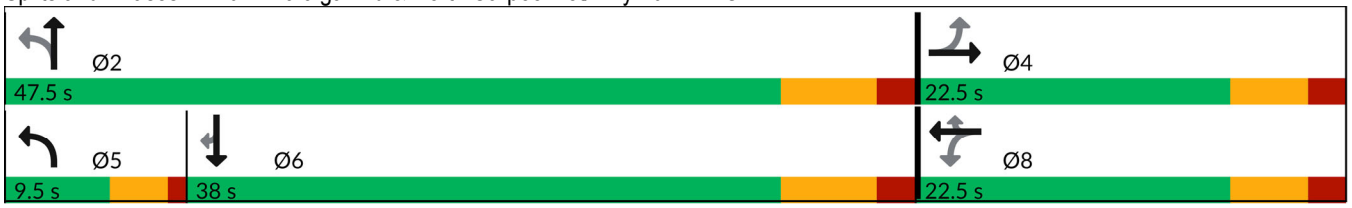


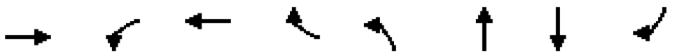
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	9	307	2	6	7	1802	0	0	2097	2
Future Volume (vph)	4	0	9	307	2	6	7	1802	0	0	2097	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.901			0.999	0.850						0.850
Flt Protected		0.987		0.950	0.954		0.950					
Satd. Flow (prot)	0	1503	0	1545	1475	1534	1543	4893	0	0	4988	1615
Flt Permitted		0.890		0.730	0.701		0.098					
Satd. Flow (perm)	0	1355	0	1187	1084	1534	159	4893	0	0	4988	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		125				125						109
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			728.7	
Travel Time (s)		9.6			41.3			26.2			52.5	
Peak Hour Factor	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Adj. Flow (vph)	11	0	30	399	4	14	23	1959	0	0	2410	8
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	0	41	0	203	201	13	23	1959	0	0	2410	8
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	4.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	27.0			27.0	27.0
Total Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	47.5			38.0	38.0
Total Split (%)	32.1%	32.1%		32.1%	32.1%	32.1%	13.6%	67.9%			54.3%	54.3%
Maximum Green (s)	16.5	16.5		16.5	16.5	16.5	5.5	40.5			31.0	31.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0			2.0	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	4.0	7.0			7.0	7.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	None	Max			Max	Max
Act Effct Green (s)		15.5		15.5	15.5	15.5	43.5	40.5			36.8	36.8
Actuated g/C Ratio		0.22		0.22	0.22	0.22	0.63	0.59			0.53	0.53
v/c Ratio		0.10		0.77	0.83	0.03	0.11	0.68			0.91	0.01
Control Delay (s/veh)		0.5		46.0	54.9	0.2	6.3	11.6			23.8	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		0.5		46.0	54.9	0.2	6.3	11.6			23.8	0.0
LOS		A		D	D	A	A	B			C	A
Approach Delay (s/veh)		0.5			48.8			11.5			23.7	
Approach LOS		A			D			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 69			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay (s/veh): 20.7		Intersection LOS: C	
Intersection Capacity Utilization 66.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off

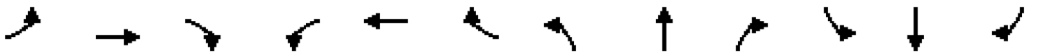




Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	41	203	201	13	23	1959	2410	8
v/c Ratio	0.10	0.77	0.83	0.03	0.11	0.68	0.91	0.01
Control Delay (s/veh)	0.5	46.0	54.9	0.2	6.3	11.6	23.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	0.5	46.0	54.9	0.2	6.3	11.6	23.8	0.0
Queue Length 50th (m)	0.0	27.2	28.6	0.0	1.1	62.4	89.3	0.0
Queue Length 95th (m)	0.0	#43.0	25.7	0.0	1.1	78.6	#160.8	0.0
Internal Link Dist (m)	110.0		550.1			339.6	704.7	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	418	283	259	462	210	2873	2658	911
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.72	0.78	0.03	0.11	0.68	0.91	0.01

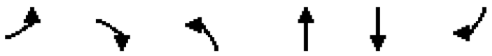
Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	9	307	2	6	7	1802	0	0	2097	2
Future Volume (vph)	4	0	9	307	2	6	7	1802	0	0	2097	2
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	4.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.91			0.91	1.00
Frt		0.90		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1503		1545	1475	1534	1543	4893			4988	1615
Flt Permitted		0.89		0.73	0.70	1.00	0.10	1.00			1.00	1.00
Satd. Flow (perm)		1355		1188	1084	1534	159	4893			4988	1615
Peak-hour factor, PHF	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Adj. Flow (vph)	11	0	30	399	4	14	23	1959	0	0	2410	8
RTOR Reduction (vph)	0	32	0	0	0	10	0	0	0	0	0	4
Lane Group Flow (vph)	0	9	0	203	201	3	23	1959	0	0	2410	4
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		15.5		15.5	15.5	15.5	43.0	43.0			36.8	36.8
Effective Green, g (s)		15.5		15.5	15.5	15.5	43.0	43.0			36.8	36.8
Actuated g/C Ratio		0.22		0.22	0.22	0.22	0.60	0.60			0.51	0.51
Clearance Time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Lane Grp Cap (vph)		293		257	234	332	138	2942			2567	831
v/s Ratio Prot							0.01	c0.40			c0.48	
v/s Ratio Perm		0.01		0.17	c0.19	0.00	0.09					0.00
v/c Ratio		0.03		0.79	0.86	0.01	0.17	0.67			0.94	0.00
Uniform Delay, d1		22.1		26.5	26.9	22.0	12.5	9.5			16.3	8.4
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2		0.0		15.2	25.9	0.0	0.4	1.2			8.3	0.0
Delay (s)		22.1		41.7	52.9	22.0	12.9	10.7			24.6	8.5
Level of Service		C		D	D	C	B	B			C	A
Approach Delay (s/veh)		22.1			46.5			10.7			24.5	
Approach LOS		C			D			B			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	20.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	71.5	Sum of lost time (s)	17.0
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

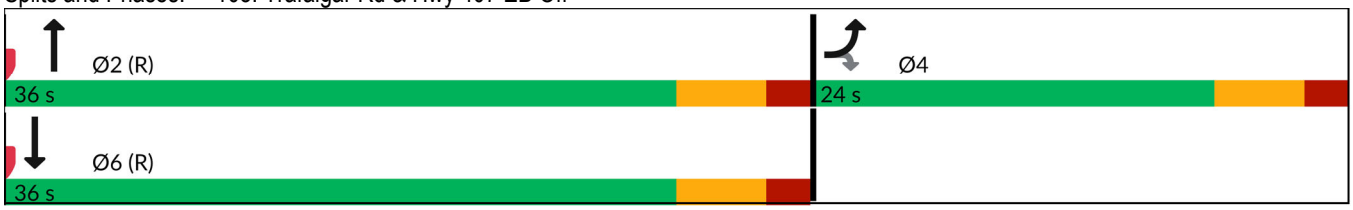


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	75	267	0	1931	2315	0
Future Volume (vph)	75	267	0	1931	2315	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1671	1392	0	4848	4940	0
Flt Permitted	0.950					
Satd. Flow (perm)	1671	1392	0	4848	4940	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		1				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			485.1	363.6	
Travel Time (s)	39.9			34.9	26.2	
Peak Hour Factor	0.79	0.78	0.25	0.85	0.86	0.25
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Adj. Flow (vph)	95	342	0	2272	2692	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	95	342	0	2272	2692	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			7.2	7.2	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	24.0	24.0		24.0	24.0	
Total Split (s)	24.0	24.0		36.0	36.0	
Total Split (%)	40.0%	40.0%		60.0%	60.0%	
Maximum Green (s)	18.0	18.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	18.0	18.0		30.0	30.0	
Actuated g/C Ratio	0.30	0.30		0.50	0.50	
v/c Ratio	0.19	0.82		0.94	1.09	
Control Delay (s/veh)	16.9	38.4		24.0	65.7	
Queue Delay	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay (s/veh)	16.9	38.4		24.0	65.7	
LOS	B	D		C	E	
Approach Delay (s/veh)	33.7			24.0	65.7	
Approach LOS	C			C	E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 75			
Control Type: Pretimed			
Maximum v/c Ratio: 1.09			
Intersection Signal Delay (s/veh): 45.6		Intersection LOS: D	
Intersection Capacity Utilization 71.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off



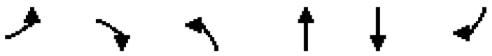


Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	95	342	2272	2692
v/c Ratio	0.19	0.82	0.94	1.09
Control Delay (s/veh)	16.9	38.4	24.0	65.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.9	38.4	24.0	65.7
Queue Length 50th (m)	8.1	36.2	83.6	~132.9
Queue Length 95th (m)	15.4	#60.4	#98.6	#150.4
Internal Link Dist (m)	530.6		461.1	339.6
Turn Bay Length (m)				
Base Capacity (vph)	501	418	2424	2470
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.19	0.82	0.94	1.09

Intersection Summary

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

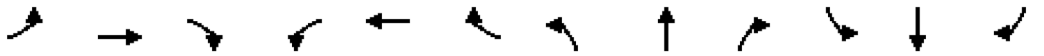
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	75	267	0	1931	2315	0
Future Volume (vph)	75	267	0	1931	2315	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1671	1392		4848	4940	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1671	1392		4848	4940	
Peak-hour factor, PHF	0.79	0.78	0.25	0.85	0.86	0.25
Adj. Flow (vph)	95	342	0	2272	2692	0
RTOR Reduction (vph)	0	1	0	0	0	0
Lane Group Flow (vph)	95	341	0	2272	2692	0
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	18.0	18.0		30.0	30.0	
Effective Green, g (s)	18.0	18.0		30.0	30.0	
Actuated g/C Ratio	0.30	0.30		0.50	0.50	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	501	417		2424	2470	
v/s Ratio Prot	0.06			0.47	c0.54	
v/s Ratio Perm		c0.25				
v/c Ratio	0.19	0.82		0.94	1.09	
Uniform Delay, d1	15.6	19.5		14.1	15.0	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	16.2		8.5	47.9	
Delay (s)	16.4	35.7		22.6	62.9	
Level of Service	B	D		C	E	
Approach Delay (s/veh)	31.5			22.6	62.9	
Approach LOS	C			C	E	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	43.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

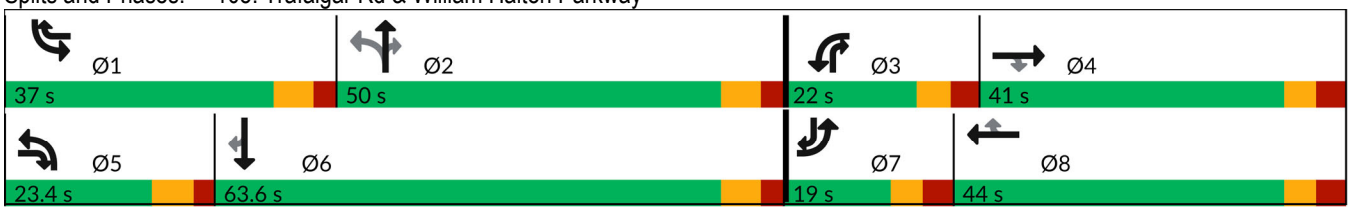


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	588	977	267	305	714	477	389	1415	251	651	1424	507
Future Volume (vph)	588	977	267	305	714	477	389	1415	251	651	1424	507
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	150.0		150.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3467	3574	1599	3273	3574	1429	3303	4988	1615	3433	4893	1538
Flt Permitted	0.950			0.950			0.093			0.950		
Satd. Flow (perm)	3467	3574	1599	3273	3574	1429	323	4988	1615	3433	4893	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			129			79			129			79
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		148.9			165.2			209.3			485.1	
Travel Time (s)		10.7			11.9			15.1			34.9	
Peak Hour Factor	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
Adj. Flow (vph)	692	1074	322	407	915	636	452	1572	299	794	1582	590
Shared Lane Traffic (%)												
Lane Group Flow (vph)	692	1074	322	407	915	636	452	1572	299	794	1582	590
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8	2		2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	20.0	7.0	7.0	20.0	7.0	7.0	20.0	7.0	7.0	20.0	7.0
Minimum Split (s)	14.0	38.0	13.9	14.0	38.0	13.9	13.9	42.9	14.0	13.9	42.9	14.0
Total Split (s)	19.0	41.0	23.4	22.0	44.0	37.0	23.4	50.0	22.0	37.0	63.6	19.0
Total Split (%)	12.7%	27.3%	15.6%	14.7%	29.3%	24.7%	15.6%	33.3%	14.7%	24.7%	42.4%	12.7%
Maximum Green (s)	12.0	34.0	16.5	15.0	37.0	30.1	16.5	43.1	15.0	30.1	56.7	12.0
Yellow Time (s)	3.7	3.7	4.6	3.7	3.7	4.6	4.6	4.6	3.7	4.6	4.6	3.7
All-Red Time (s)	3.3	3.3	2.3	3.3	3.3	2.3	2.3	2.3	3.3	2.3	2.3	3.3
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)	7.0	7.0	6.9	7.0	7.0	6.9	6.9	6.9	7.0	6.9	6.9	7.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0
Recall Mode	None	None	None	None	None	None	None	Max	None	None	Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		24.0			24.0			29.0			29.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	12.0	34.0	57.5	15.0	37.0	74.1	59.6	43.1	65.0	30.1	56.7	75.6
Actuated g/C Ratio	0.08	0.23	0.38	0.10	0.25	0.49	0.40	0.29	0.43	0.20	0.38	0.50
v/c Ratio	2.50	1.33	0.47	1.24	1.04	0.85	0.99	1.10	0.39	1.15	0.86	0.72
Control Delay (s/veh)	710.3	199.3	22.5	186.0	94.8	41.6	85.3	104.0	17.4	137.0	48.5	31.0
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 (s/veh)	710.3	199.3	22.5	186.0	94.8	41.6	85.3	104.0	17.4	137.0	48.5	31.0
LOS	F	F	C	F	F	D	F	F	B	F	D	C
Approach Delay (s/veh)		341.4			96.5			89.2			68.7	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 2.50			
Intersection Signal Delay (s/veh): 140.6		Intersection LOS: F	
Intersection Capacity Utilization 105.6%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway



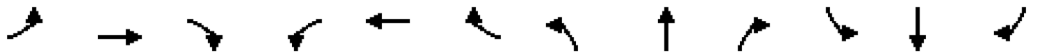


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	692	1074	322	407	915	636	452	1572	299	794	1582	590
v/c Ratio	2.50	1.33	0.47	1.24	1.04	0.85	0.99	1.10	0.39	1.15	0.86	0.72
Control Delay (s/veh)	710.3	199.3	22.5	186.0	94.8	41.6	85.3	104.0	17.4	137.0	48.5	31.0
Queue Delay	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 (s/veh)	710.3	199.3	22.5	186.0	94.8	41.6	85.3	104.0	17.4	137.0	48.5	31.0
Queue Length 50th (m)	~185.1	~228.5	44.3	~81.4	~162.0	154.1	58.0	~203.4	34.6	~150.4	166.0	124.4
Queue Length 95th (m)	#210.5	#272.9	63.5	#88.4	#158.2	150.9	#87.4	#234.5	52.1	#164.7	187.3	160.2
Internal Link Dist (m)		124.9			141.2			185.3			461.1	
Turn Bay Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	150.0		150.0
Base Capacity (vph)	277	810	692	327	881	745	456	1433	772	688	1849	814
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	2.50	1.33	0.47	1.24	1.04	0.85	0.99	1.10	0.39	1.15	0.86	0.72

Intersection Summary

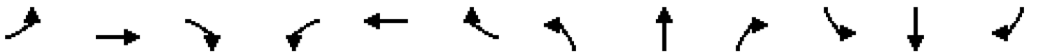
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	588	977	267	305	714	477	389	1415	251	651	1424	507
Future Volume (vph)	588	977	267	305	714	477	389	1415	251	651	1424	507
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	6.9	7.0	7.0	6.9	6.9	6.9	7.0	6.9	6.9	7.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3467	3574	1599	3273	3574	1429	3303	4988	1615	3433	4893	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.09	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3273	3574	1429	323	4988	1615	3433	4893	1538
Peak-hour factor, PHF	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Adj. Flow (vph)	692	1074	322	407	915	636	452	1572	299	794	1582	590
RTOR Reduction (vph)	0	0	86	0	0	44	0	0	79	0	0	43
Lane Group Flow (vph)	692	1074	236	407	915	592	452	1572	220	794	1582	547
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8	2		2			6
Actuated Green, G (s)	12.0	34.0	50.5	15.0	37.0	67.1	59.6	43.1	58.1	30.1	56.7	68.7
Effective Green, g (s)	12.0	34.0	50.5	15.0	37.0	67.1	59.6	43.1	58.1	30.1	56.7	68.7
Actuated g/C Ratio	0.08	0.23	0.34	0.10	0.25	0.45	0.40	0.29	0.39	0.20	0.38	0.46
Clearance Time (s)	7.0	7.0	6.9	7.0	7.0	6.9	6.9	6.9	7.0	6.9	6.9	7.0
Vehicle Extension (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0
Lane Grp Cap (vph)	277	810	538	327	881	639	456	1433	625	688	1849	704
v/s Ratio Prot	c0.20	c0.30	0.05	0.12	c0.26	0.19	0.11	c0.32	0.04	c0.23	0.32	0.06
v/s Ratio Perm			0.10			0.23	0.28		0.10			0.29
v/c Ratio	2.50	1.33	0.44	1.24	1.04	0.93	0.99	1.10	0.35	1.15	0.86	0.78
Uniform Delay, d1	69.0	58.0	38.7	67.5	56.5	39.1	44.5	53.5	32.6	60.0	42.9	34.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	684.9	155.2	0.6	133.2	40.8	19.6	39.7	54.9	0.3	85.3	5.3	5.4
Delay (s)	753.9	213.2	39.3	200.7	97.3	58.7	84.2	108.4	32.9	145.2	48.2	39.6
Level of Service	F	F	D	F	F	E	F	F	C	F	D	D
Approach Delay (s/veh)		365.6			106.2			94.0			72.5	
Approach LOS		F			F			F			E	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	150.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	27.8
Intersection Capacity Utilization	105.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

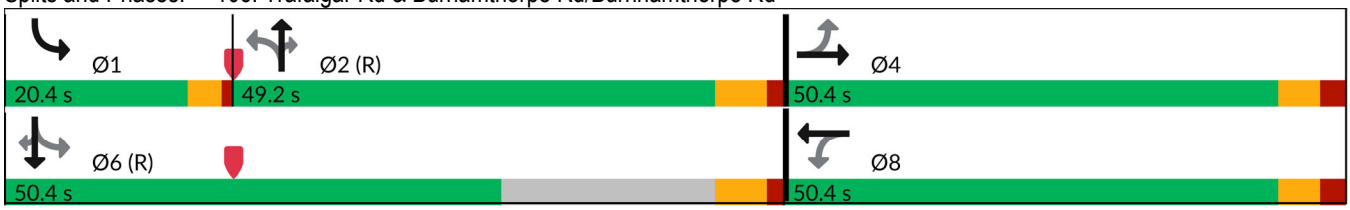


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	393	329	133	205	142	58	194	1664	114	127	1786	59
Future Volume (vph)	393	329	133	205	142	58	194	1664	114	127	1786	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		60.0	60.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	70.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.957			0.939				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1803	0	1770	1784	0	1703	4988	1615	1752	4940	1495
Flt Permitted	0.394			0.141			0.093			0.085		
Satd. Flow (perm)	727	1803	0	263	1784	0	167	4988	1615	157	4940	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			33				82			56
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		258.9			989.6			1077.8			246.4	
Travel Time (s)		15.5			59.4			48.5			11.1	
Peak Hour Factor	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
Adj. Flow (vph)	468	416	168	336	209	145	281	1809	133	195	1920	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	468	584	0	336	354	0	281	1809	133	195	1920	70
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Minimum Split (s)	24.0	24.0		24.0	24.0		26.0	26.0	26.0	11.5	26.0	26.0
Total Split (s)	50.4	50.4		50.4	50.4		49.2	49.2	49.2	20.4	50.4	50.4
Total Split (%)	42.0%	42.0%		42.0%	42.0%		41.0%	41.0%	41.0%	17.0%	42.0%	42.0%
Maximum Green (s)	44.4	44.4		44.4	44.4		43.2	43.2	43.2	16.4	44.4	44.4
Yellow Time (s)	3.7	3.7		3.7	3.7		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.3	2.3		2.3	2.3		1.4	1.4	1.4	1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Act Effct Green (s)	44.4	44.4		44.4	44.4		43.2	43.2	45.2	65.6	63.6	65.6
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.36	0.36	0.38	0.55	0.53	0.55
v/c Ratio	1.75	0.87		3.46	0.52		4.68	1.01	0.20	0.64	0.73	0.08
Control Delay (s/veh)	377.9	49.9		Error	29.8		Error	61.6	11.4	33.7	23.8	4.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (s/veh)	377.9	49.9		Error	29.8		Error	61.6	11.4	33.7	23.8	4.8
LOS	F	D		F	C		F	E	B	C	C	A
Approach Delay (s/veh)		195.8			575.2			266.5			24.1	
Approach LOS		F			F			F			C	

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: 70			
Control Type: Pretimed			
Maximum v/c Ratio: 4.68			
Intersection Signal Delay (s/veh): 202.9		Intersection LOS: F	
Intersection Capacity Utilization 107.9%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burhamthorpe Rd/Burnhamthorpe Rd



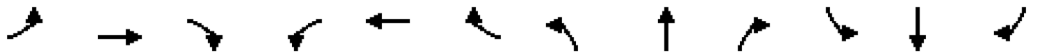


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	468	584	336	354	281	1809	133	195	1920	70
v/c Ratio	1.75	0.87	3.46	0.52	4.68	1.01	0.20	0.64	0.73	0.08
Control Delay (s/veh)	377.9	49.9	Error	29.8	Error	61.6	11.4	33.7	23.8	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	377.9	49.9	Error	29.8	Error	61.6	11.4	33.7	23.8	4.8
Queue Length 50th (m)	~172.0	131.8	~126.7	61.4	~116.8	~165.6	8.1	28.3	128.8	1.5
Queue Length 95th (m)	#217.9	149.5	#110.9	61.8	#125.7	#203.1	20.2	32.0	148.0	7.4
Internal Link Dist (m)		234.9		965.6		1053.8			222.4	
Turn Bay Length (m)	30.0		15.0		60.0		60.0	60.0		60.0
Base Capacity (vph)	268	671	97	680	60	1795	659	303	2618	842
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.75	0.87	3.46	0.52	4.68	1.01	0.20	0.64	0.73	0.08

Intersection Summary

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

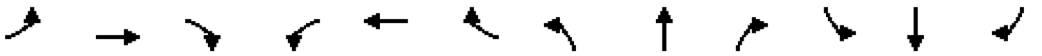
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	393	329	133	205	142	58	194	1664	114	127	1786	59
Future Volume (vph)	393	329	133	205	142	58	194	1664	114	127	1786	59
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	4.0	6.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	1802		1770	1783		1703	4988	1615	1752	4940	1495
Flt Permitted	0.39	1.00		0.14	1.00		0.09	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	728	1802		263	1783		166	4988	1615	156	4940	1495
Peak-hour factor, PHF	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Adj. Flow (vph)	468	416	168	336	209	145	281	1809	133	195	1920	70
RTOR Reduction (vph)	0	4	0	0	21	0	0	0	51	0	0	25
Lane Group Flow (vph)	468	580	0	336	333	0	281	1809	82	195	1920	45
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	44.4	44.4		44.4	44.4		43.2	43.2	43.2	63.6	63.6	63.6
Effective Green, g (s)	44.4	44.4		44.4	44.4		43.2	43.2	45.2	63.6	63.6	65.6
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.36	0.36	0.38	0.53	0.53	0.55
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	4.0	6.0	6.0
Lane Grp Cap (vph)	269	666		97	659		59	1795	608	300	2618	817
v/s Ratio Prot		0.32			0.19			0.36		0.09	c0.39	
v/s Ratio Perm	0.64			c1.28			c1.69		0.05	0.25		0.03
v/c Ratio	1.74	0.87		3.46	0.51		4.76	1.01	0.13	0.65	0.73	0.05
Uniform Delay, d1	37.8	35.1		37.8	29.3		38.4	38.4	24.6	28.5	21.7	12.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	348.0	14.5		1134.3	2.8		1731.0	23.2	0.5	10.4	1.9	0.1
Delay (s)	385.8	49.6		1172.1	32.1		1769.4	61.6	25.0	38.9	23.5	12.8
Level of Service	F	D		F	C		F	E	C	D	C	B
Approach Delay (s/veh)		199.2			587.2			275.2			24.6	
Approach LOS		F			F			F			C	

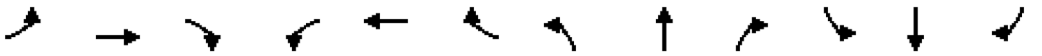
Intersection Summary			
HCM 2000 Control Delay (s/veh)	208.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	3.55		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	107.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1802	77	0	1255	6	0	0	89	0	0	241
Future Volume (vph)	0	1802	77	0	1255	6	0	0	89	0	0	241
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
Frt		0.994			0.999				0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3518	0	0	3536	0	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3518	0	0	3536	0	0	0	1611	0	0	1611
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		165.2			220.0			185.6			207.5	
Travel Time (s)		11.9			15.8			13.4			14.9	
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
Adj. Flow (vph)	0	1959	84	0	1364	7	0	0	97	0	0	262
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2043	0	0	1371	0	0	0	97	0	0	262
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

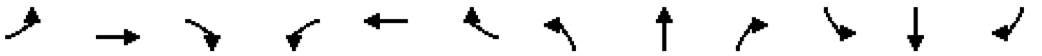
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 64.4%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1802	77	0	1255	6	0	0	89	0	0	241
Future Volume (Veh/h)	0	1802	77	0	1255	6	0	0	89	0	0	241
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1959	84	0	1364	7	0	0	97	0	0	262
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		165			220							
pX, platoon unblocked	0.75			0.78			0.87	0.87	0.78	0.87	0.87	0.75
vC, conflicting volume	1371			2043			2945	3372	1022	2444	3411	686
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	841			1772			1787	2280	460	1208	2325	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	77	100	100	68
cM capacity (veh/h)	596			271			30	34	427	93	32	818

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	1306	737	909	462	97	262
Volume Left	0	0	0	0	0	0
Volume Right	0	84	0	7	97	262
cSH	1700	1700	1700	1700	427	818
Volume to Capacity	0.77	0.43	0.53	0.27	0.23	0.32
Queue Length 95th (m)	0.0	0.0	0.0	0.0	6.9	11.1
Control Delay (s/veh)	0.0	0.0	0.0	0.0	15.9	11.5
Lane LOS					C	B
Approach Delay (s/veh)	0.0		0.0		15.9	11.5
Approach LOS					C	B

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	64.4%	ICU Level of Service		C
Analysis Period (min)	15			

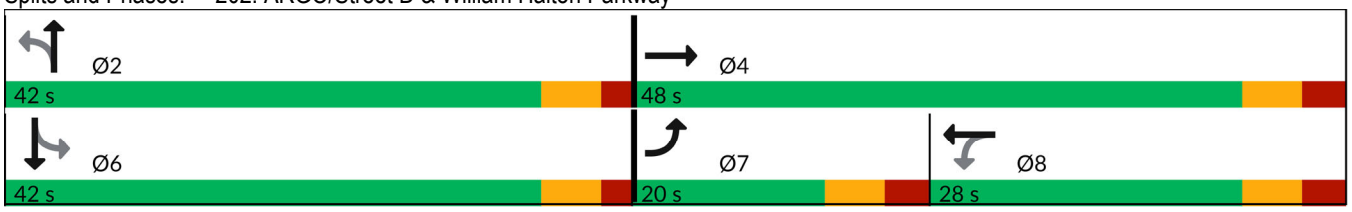


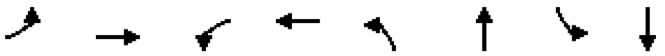
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	482	1332	77	54	843	14	293	10	89	49	10	125
Future Volume (vph)	482	1332	77	54	843	14	293	10	89	49	10	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	50.0		0.0	0.0		0.0
Storage Lanes	2		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.998			0.865			0.861	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3511	0	1770	3532	0	1770	1611	0	1770	1604	0
Flt Permitted	0.950			0.188			0.663			0.687		
Satd. Flow (perm)	3433	3511	0	350	3532	0	1235	1611	0	1280	1604	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			2			14			136	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		220.0			1108.5			243.0			268.9	
Travel Time (s)		15.8			79.8			17.5			19.4	
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
Adj. Flow (vph)	524	1448	84	59	916	15	318	11	97	53	11	136
Shared Lane Traffic (%)												
Lane Group Flow (vph)	524	1532	0	59	931	0	318	108	0	53	147	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)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases				8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	15.0		15.0	15.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	12.0	25.0		25.0	25.0		42.0	42.0		42.0	42.0	
Total Split (s)	20.0	48.0		28.0	28.0		42.0	42.0		42.0	42.0	
Total Split (%)	22.2%	53.3%		31.1%	31.1%		46.7%	46.7%		46.7%	46.7%	
Maximum Green (s)	13.0	41.0		21.0	21.0		36.0	36.0		36.0	36.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	0.2		0.2	0.2		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		Max	Max		None	None		None	None	
Walk Time (s)		7.0		7.0	7.0		14.0	14.0		14.0	14.0	
Flash Don't Walk (s)		11.0		11.0	11.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	13.1	41.4		21.2	21.2		24.8	24.8		24.8	24.8	
Actuated g/C Ratio	0.17	0.52		0.27	0.27		0.31	0.31		0.31	0.31	
v/c Ratio	0.92	0.83		0.63	0.99		0.82	0.21		0.13	0.25	
Control Delay (s/veh)	58.9	23.1		62.4	57.8		42.9	17.4		19.1	5.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	58.9	23.1		62.4	57.8		42.9	17.4		19.1	5.3	
LOS	E	C		E	E		D	B		B	A	
Approach Delay (s/veh)		32.2			58.0			36.5			8.9	
Approach LOS		C			E			D			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 79.3			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay (s/veh): 38.4		Intersection LOS: D	
Intersection Capacity Utilization 98.0%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 202: ARGO/Street D & William Halton Parkway





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	524	1532	59	931	318	108	53	147
v/c Ratio	0.92	0.83	0.63	0.99	0.82	0.21	0.13	0.25
Control Delay (s/veh)	58.9	23.1	62.4	57.8	42.9	17.4	19.1	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	58.9	23.1	62.4	57.8	42.9	17.4	19.1	5.3
Queue Length 50th (m)	42.4	101.1	8.2	76.7	45.7	10.6	5.9	1.2
Queue Length 95th (m)	#86.3	#189.8	#32.2	#144.1	76.6	21.6	13.6	12.6
Internal Link Dist (m)		196.0		1084.5		219.0		244.9
Turn Bay Length (m)					50.0			
Base Capacity (vph)	567	1836	93	945	565	745	586	808
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.83	0.63	0.99	0.56	0.14	0.09	0.18

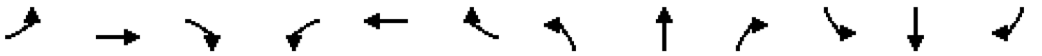
Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	482	1332	77	54	843	14	293	10	89	49	10	125
Future Volume (vph)	482	1332	77	54	843	14	293	10	89	49	10	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.87		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3510		1770	3531		1770	1612		1770	1604	
Flt Permitted	0.95	1.00		0.19	1.00		0.66	1.00		0.69	1.00	
Satd. Flow (perm)	3433	3510		350	3531		1236	1612		1280	1604	
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)	524	1448	84	59	916	15	318	11	97	53	11	136
RTOR Reduction (vph)	0	4	0	0	1	0	0	10	0	0	93	0
Lane Group Flow (vph)	524	1528	0	59	930	0	318	98	0	53	54	0
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases				8			2			6		
Actuated Green, G (s)	13.1	41.4		21.3	21.3		24.8	24.8		24.8	24.8	
Effective Green, g (s)	13.1	41.4		21.3	21.3		24.8	24.8		24.8	24.8	
Actuated g/C Ratio	0.17	0.52		0.27	0.27		0.31	0.31		0.31	0.31	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	0.2		0.2	0.2		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	567	1834		94	949		387	504		400	502	
v/s Ratio Prot	0.15	c0.44			c0.26			0.06			0.03	
v/s Ratio Perm				0.17			c0.26			0.04		
v/c Ratio	0.92	0.83		0.63	0.98		0.82	0.20		0.13	0.11	
Uniform Delay, d1	32.6	16.0		25.5	28.7		25.2	19.9		19.5	19.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	20.9	3.3		27.7	24.7		13.1	0.2		0.2	0.1	
Delay (s)	53.5	19.2		53.2	53.4		38.3	20.1		19.6	19.4	
Level of Service	D	B		D	D		D	C		B	B	
Approach Delay (s/veh)		28.0			53.4			33.7			19.5	
Approach LOS		C			D			C			B	

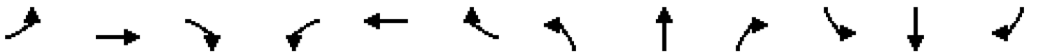
Intersection Summary			
HCM 2000 Control Delay (s/veh)	35.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	79.2	Sum of lost time (s)	20.0
Intersection Capacity Utilization	98.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1750	18	0	1353	270	0	0	82	0	0	389
Future Volume (vph)	0	1750	18	0	1353	270	0	0	82	0	0	389
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		50.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.998				0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3532	0	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3532	0	0	3539	1583	0	0	1611	0	0	1611
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		249.0			148.9			206.9			234.9	
Travel Time (s)		17.9			10.7			14.9			16.9	
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
Adj. Flow (vph)	0	1902	20	0	1471	293	0	0	89	0	0	423
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1922	0	0	1471	293	0	0	89	0	0	423
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

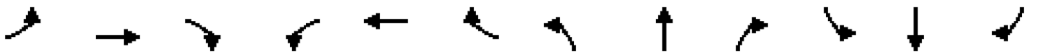
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.2%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1750	18	0	1353	270	0	0	82	0	0	389
Future Volume (Veh/h)	0	1750	18	0	1353	270	0	0	82	0	0	389
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1902	20	0	1471	293	0	0	89	0	0	423
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							
pX, platoon unblocked	0.69						0.69	0.69		0.69	0.69	0.69
vC, conflicting volume	1764			1922			3071	3676	961	2511	3393	736
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1210			1922			3102	3979	961	2292	3569	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	65	100	100	44
cM capacity (veh/h)	395			304			1	2	256	10	4	749

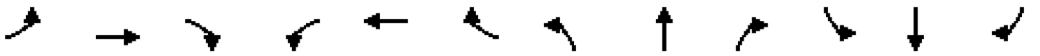
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1268	654	736	736	293	89	423
Volume Left	0	0	0	0	0	0	0
Volume Right	0	20	0	0	293	89	423
cSH	1700	1700	1700	1700	1700	256	749
Volume to Capacity	0.75	0.38	0.43	0.43	0.17	0.35	0.56
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	11.9	28.6
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	26.3	15.9
Lane LOS						D	C
Approach Delay (s/veh)	0.0		0.0			26.3	15.9
Approach LOS						D	C

Intersection Summary				
Average Delay	2.2			
Intersection Capacity Utilization	68.2%	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)	11	1354	45	231	1449	51	29	31	317	97	3	5
Future Volume (vph)	11	1354	45	231	1449	51	29	31	317	97	3	5
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	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.996			0.887			0.994	
Flt Protected					0.993			0.996			0.956	
Satd. Flow (prot)	0	3522	0	0	3500	0	0	1646	0	0	1770	0
Flt Permitted					0.993			0.996			0.956	
Satd. Flow (perm)	0	3522	0	0	3500	0	0	1646	0	0	1770	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		825.3			249.0			160.5			291.6	
Travel Time (s)		59.4			17.9			11.6			21.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	1472	49	251	1575	55	32	34	345	105	3	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1533	0	0	1881	0	0	411	0	0	113	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)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

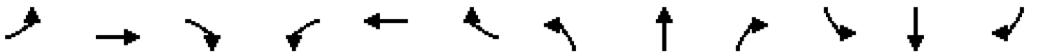
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 129.5%		ICU Level of Service H	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	1354	45	231	1449	51	29	31	317	97	3	5
Future Volume (Veh/h)	11	1354	45	231	1449	51	29	31	317	97	3	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	1472	49	251	1575	55	32	34	345	105	3	5
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					398							
pX, platoon unblocked	0.77						0.77	0.77		0.77	0.77	0.77
vC, conflicting volume	1630			1521			2817	3653	761	3227	3650	815
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1229			1521			2763	3843	761	3293	3839	176
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 %	97			42			0	0	1	0	0	99
cM capacity (veh/h)	435			435			0	1	348	0	1	647

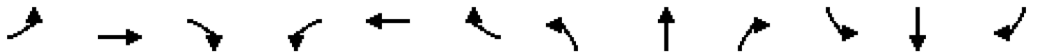
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	748	785	1039	843	411	113
Volume Left	12	0	251	0	32	105
Volume Right	0	49	0	55	345	5
cSH	435	1700	435	1700	0	0
Volume to Capacity	0.03	0.46	0.58	0.50	Err	Err
Queue Length 95th (m)	0.7	0.0	28.4	0.0	Err	Err
Control Delay (s/veh)	0.9	0.0	24.0	0.0	Err	Err
Lane LOS	A		C		F	F
Approach Delay (s/veh)	0.4		13.2		Err	Err
Approach LOS					F	F

Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	129.5%	ICU Level of Service	H	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	9	3	6	73	281	45	49	77	76	178	22
Future Volume (vph)	31	9	3	6	73	281	45	49	77	76	178	22
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		0.991			0.895			0.939			0.989	
Flt Protected		0.965			0.999			0.987			0.986	
Satd. Flow (prot)	0	1781	0	0	1665	0	0	1726	0	0	1816	0
Flt Permitted		0.965			0.999			0.987			0.986	
Satd. Flow (perm)	0	1781	0	0	1665	0	0	1726	0	0	1816	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		333.0			150.5			112.8			152.1	
Travel Time (s)		24.0			10.8			8.1			11.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	10	3	7	79	305	49	53	84	83	193	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	47	0	0	391	0	0	186	0	0	300	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)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

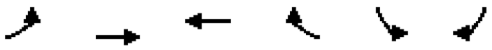
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 48.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	9	3	6	73	281	45	49	77	76	178	22
Future Volume (Veh/h)	31	9	3	6	73	281	45	49	77	76	178	22
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	10	3	7	79	305	49	53	84	83	193	24
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	384			13			446	478	12	436	327	232
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	384			13			446	478	12	436	327	232
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			87	89	92	81	66	97
cM capacity (veh/h)	1174			1606			366	471	1069	436	572	808

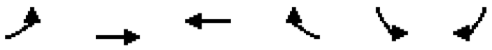
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	47	391	186	300
Volume Left	34	7	49	83
Volume Right	3	305	84	24
cSH	1174	1606	572	538
Volume to Capacity	0.03	0.00	0.33	0.56
Queue Length 95th (m)	0.7	0.1	11.2	27.1
Control Delay (s/veh)	6.0	0.2	14.3	19.8
Lane LOS	A	A	B	C
Approach Delay (s/veh)	6.0	0.2	14.3	19.8
Approach LOS			B	C

Intersection Summary				
Average Delay	9.7			
Intersection Capacity Utilization	48.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	33	122	203	97	96	191
Future Volume (vph)	33	122	203	97	96	191
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			0.957		0.910	
Flt Protected		0.989			0.984	
Satd. Flow (prot)	0	1842	1783	0	1668	0
Flt Permitted		0.989			0.984	
Satd. Flow (perm)	0	1842	1783	0	1668	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		24.2	152.6		206.9	
Travel Time (s)		1.7	11.0		14.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	133	221	105	104	208
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	169	326	0	312	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

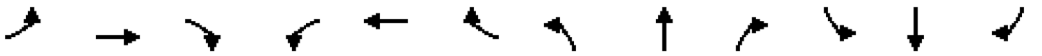
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 51.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	33	122	203	97	96	191
Future Volume (Veh/h)	33	122	203	97	96	191
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)	36	133	221	105	104	208
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	326				479	274
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	326				479	274
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				80	73
cM capacity (veh/h)	1234				530	765

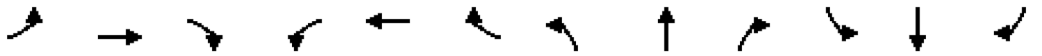
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	169	326	312
Volume Left	36	0	104
Volume Right	0	105	208
cSH	1234	1700	667
Volume to Capacity	0.03	0.19	0.47
Queue Length 95th (m)	0.7	0.0	20.0
Control Delay (s/veh)	1.9	0.0	15.1
Lane LOS	A		C
Approach Delay (s/veh)	1.9	0.0	15.1
Approach LOS			C

Intersection Summary			
Average Delay	6.2		
Intersection Capacity Utilization	51.9%	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)	0	0	210	0	0	80	0	1974	141	0	1762	233
Future Volume (vph)	0	0	210	0	0	80	0	1974	141	0	1762	233
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	0.91	1.00	1.00	0.91	1.00
Frt			0.865			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	1611	0	0	1611	0	5085	1583	0	5085	1583
Flt Permitted												
Satd. Flow (perm)	0	0	1611	0	0	1611	0	5085	1583	0	5085	1583
Link Speed (k/h)		50			50			50			80	
Link Distance (m)		152.6			80.3			246.4			209.3	
Travel Time (s)		11.0			5.8			17.7			9.4	
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
Adj. Flow (vph)	0	0	228	0	0	87	0	2146	153	0	1915	253
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	228	0	0	87	0	2146	153	0	1915	253
Enter Blocked Intersection	No	No	No	No	No	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			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

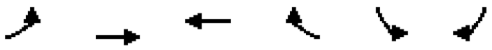
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.7%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	210	0	0	80	0	1974	141	0	1762	233
Future Volume (Veh/h)	0	0	210	0	0	80	0	1974	141	0	1762	233
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	228	0	0	87	0	2146	153	0	1915	253
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								246			209	
pX, platoon unblocked	0.81	0.81	0.72	0.81	0.81	0.67	0.72			0.67		
vC, conflicting volume	2717	4214	638	3012	4314	715	2168			2299		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	1813	0	331	1936	0	1259			1218		
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	71	100	100	88	100			100		
cM capacity (veh/h)	730	63	780	344	53	727	394			381		

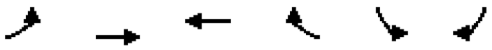
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	228	87	715	715	715	153	638	638	638	253
Volume Left	0	0	0	0	0	0	0	0	0	0
Volume Right	228	87	0	0	0	153	0	0	0	253
cSH	780	727	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.29	0.12	0.42	0.42	0.42	0.09	0.38	0.38	0.38	0.15
Queue Length 95th (m)	9.7	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s/veh)	11.5	10.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	B								
Approach Delay (s/veh)	11.5	10.6	0.0				0.0			
Approach LOS	B	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)	12	686	238	157	171	16
Future Volume (vph)	12	686	238	157	171	16
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			0.946		0.989	
Flt Protected		0.999			0.956	
Satd. Flow (prot)	0	1861	1762	0	1761	0
Flt Permitted		0.999			0.956	
Satd. Flow (perm)	0	1861	1762	0	1761	0
Link Speed (k/h)		60	50		50	
Link Distance (m)		569.8	258.9		157.5	
Travel Time (s)		34.2	18.6		11.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	746	259	171	186	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	759	430	0	203	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

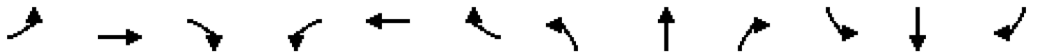
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 62.8%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	686	238	157	171	16
Future Volume (Veh/h)	12	686	238	157	171	16
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	746	259	171	186	17
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			259			
pX, platoon unblocked	0.93				0.93	0.93
vC, conflicting volume	430				1117	345
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	352				1088	260
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				15	98
cM capacity (veh/h)	1125				220	726

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	759	430	203
Volume Left	13	0	186
Volume Right	0	171	17
cSH	1125	1700	233
Volume to Capacity	0.01	0.25	0.87
Queue Length 95th (m)	0.3	0.0	56.2
Control Delay (s/veh)	0.3	0.0	74.1
Lane LOS	A		F
Approach Delay (s/veh)	0.3	0.0	74.1
Approach LOS			F

Intersection Summary			
Average Delay	11.0		
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		

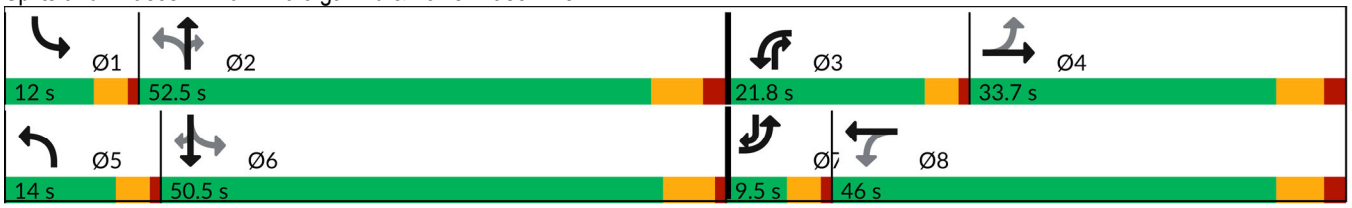


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	226	44	275	287	308	213	2027	404	174	1673	58
Future Volume (vph)	63	226	44	275	287	308	213	2027	404	174	1673	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		90.0	90.0		90.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.965			0.924				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1834	0	1770	1738	0	1805	5036	1599	1752	5085	1615
Flt Permitted	0.134			0.232			0.087			0.089		
Satd. Flow (perm)	250	1834	0	432	1738	0	165	5036	1599	164	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			46				202			102
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			728.6			888.2	
Travel Time (s)		38.5			41.4			32.8			40.0	
Peak Hour Factor	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Adj. Flow (vph)	82	269	81	289	363	376	239	2111	481	196	1838	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	82	350	0	289	739	0	239	2111	481	196	1838	92
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	7	4		3	8		5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		7.0	10.0		5.0	25.0	7.0	7.0	25.0	5.0
Minimum Split (s)	9.5	22.5		11.5	22.5		9.5	31.6	11.5	11.5	30.6	9.5
Total Split (s)	9.5	33.7		21.8	46.0		14.0	52.5	21.8	12.0	50.5	9.5
Total Split (%)	7.9%	28.1%		18.2%	38.3%		11.7%	43.8%	18.2%	10.0%	42.1%	7.9%
Maximum Green (s)	5.5	27.5		17.8	39.8		10.0	45.9	17.8	8.0	44.9	5.5
Yellow Time (s)	3.0	4.2		3.0	4.2		3.0	4.6	3.0	3.0	4.6	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.2		4.0	6.2		4.0	6.6	4.0	4.0	5.6	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0		0.2	5.0		3.0	5.0	0.2	0.2	5.0	3.0
Recall Mode	None	None		None	None		None	Max	None	Max	Max	None
Act Effct Green (s)	37.5	29.8		51.5	39.8		58.5	45.9	68.0	54.5	44.9	56.0
Actuated g/C Ratio	0.31	0.25		0.43	0.33		0.49	0.38	0.57	0.45	0.37	0.47
v/c Ratio	0.56	0.75		0.81	1.22		1.10	1.10	0.48	1.09	0.97	0.11
Control Delay (s/veh)	37.9	52.4		42.1	146.1		119.7	87.7	9.9	120.5	51.2	3.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.9	52.4		42.1	146.1		119.7	87.7	9.9	120.5	51.2	3.2
LOS	D	D		D	F		F	F	A	F	D	A
Approach Delay (s/veh)		49.7			116.9			77.2			55.5	
Approach LOS		D			F			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 140			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.22			
Intersection Signal Delay (s/veh): 74.5		Intersection LOS: E	
Intersection Capacity Utilization 104.3%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line



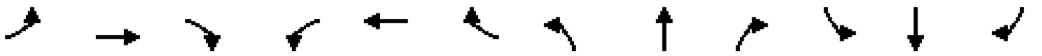


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	82	350	289	739	239	2111	481	196	1838	92
v/c Ratio	0.56	0.75	0.81	1.22	1.10	1.10	0.48	1.09	0.97	0.11
Control Delay (s/veh)	37.9	52.4	42.1	146.1	119.7	87.7	9.9	120.5	51.2	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.9	52.4	42.1	146.1	119.7	87.7	9.9	120.5	51.2	3.2
Queue Length 50th (m)	11.9	79.3	48.0	~217.6	~49.7	~216.8	35.7	~37.8	161.9	0.0
Queue Length 95th (m)	18.8	#109.1	#74.0	#237.5	#100.6	#247.4	51.4	#85.5	#198.4	1.3
Internal Link Dist (m)		725.3		666.6		704.6			864.2	
Turn Bay Length (m)	45.0		110.0		90.0		90.0	90.0		90.0
Base Capacity (vph)	147	464	383	607	217	1926	1020	180	1902	808
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	0.56	0.75	0.75	1.22	1.10	1.10	0.47	1.09	0.97	0.11

Intersection Summary

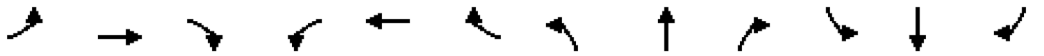
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	226	44	275	287	308	213	2027	404	174	1673	58
Future Volume (vph)	63	226	44	275	287	308	213	2027	404	174	1673	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.2		4.0	6.2		4.0	6.6	4.0	4.0	5.6	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.97		1.00	0.92		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1834		1770	1738		1805	5036	1599	1752	5085	1615
Flt Permitted	0.13	1.00		0.23	1.00		0.09	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	250	1834		432	1738		166	5036	1599	164	5085	1615
Peak-hour factor, PHF	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Adj. Flow (vph)	82	269	81	289	363	376	239	2111	481	196	1838	92
RTOR Reduction (vph)	0	9	0	0	31	0	0	0	99	0	0	53
Lane Group Flow (vph)	82	341	0	289	708	0	239	2111	382	196	1838	39
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	35.3	29.8		49.3	39.8		55.9	45.9	61.4	52.9	44.9	50.4
Effective Green, g (s)	35.3	29.8		49.3	39.8		55.9	45.9	61.4	52.9	44.9	50.4
Actuated g/C Ratio	0.29	0.25		0.41	0.33		0.47	0.38	0.51	0.44	0.37	0.42
Clearance Time (s)	4.0	6.2		4.0	6.2		4.0	6.6	4.0	4.0	5.6	4.0
Vehicle Extension (s)	3.0	5.0		0.2	5.0		3.0	5.0	0.2	0.2	5.0	3.0
Lane Grp Cap (vph)	143	455		350	576		213	1926	818	178	1902	678
v/s Ratio Prot	0.03	0.19		c0.11	c0.41		c0.09	0.42	0.06	0.07	0.36	0.00
v/s Ratio Perm	0.14			0.23			c0.43		0.18	0.41		0.02
v/c Ratio	0.57	0.75		0.83	1.23		1.12	1.10	0.47	1.10	0.97	0.06
Uniform Delay, d1	34.2	41.7		27.1	40.1		33.7	37.1	18.8	30.7	36.8	20.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.5	8.0		14.0	118.0		98.3	52.1	0.2	97.1	14.1	0.0
Delay (s)	39.7	49.6		41.1	158.1		132.1	89.1	19.0	127.8	50.9	20.7
Level of Service	D	D		D	F		F	F	B	F	D	C
Approach Delay (s/veh)		47.7			125.2			80.8			56.7	
Approach LOS		D			F			F			E	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	77.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	120.0	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			

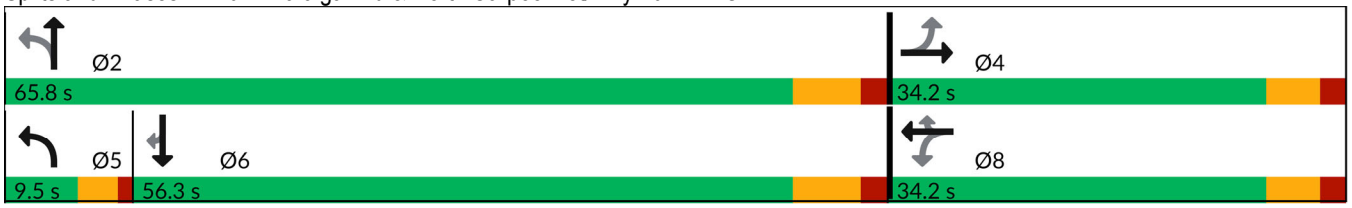


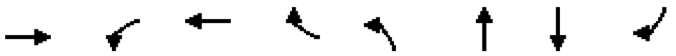
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	20	556	4	30	12	2611	0	0	1987	5
Future Volume (vph)	4	0	20	556	4	30	12	2611	0	0	1987	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.900			0.998	0.850						0.850
Flt Protected		0.987		0.950	0.955		0.950					
Satd. Flow (prot)	0	1539	0	1681	1598	1408	1641	5085	0	0	5085	1615
Flt Permitted		0.889		0.729	0.705		0.068					
Satd. Flow (perm)	0	1386	0	1290	1179	1408	117	5085	0	0	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		87			1	87						76
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			728.6	
Travel Time (s)		9.6			41.3			26.2			52.5	
Peak Hour Factor	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Adj. Flow (vph)	11	0	32	625	11	37	24	2778	0	0	2184	10
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	0	43	0	319	321	33	24	2778	0	0	2184	10
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	4.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	27.0			27.0	27.0
Total Split (s)	34.2	34.2		34.2	34.2	34.2	9.5	65.8			56.3	56.3
Total Split (%)	34.2%	34.2%		34.2%	34.2%	34.2%	9.5%	65.8%			56.3%	56.3%
Maximum Green (s)	28.2	28.2		28.2	28.2	28.2	5.5	58.8			49.3	49.3
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0			2.0	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	4.0	7.0			7.0	7.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	None	Max			Max	Max
Act Effct Green (s)		28.2		28.2	28.2	28.2	61.8	58.8			55.0	55.0
Actuated g/C Ratio		0.28		0.28	0.28	0.28	0.62	0.59			0.55	0.55
v/c Ratio		0.09		0.88	0.96	0.07	0.16	0.93			0.78	0.01
Control Delay (s/veh)		1.1		60.6	78.2	0.3	9.7	25.8			21.2	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		1.1		60.6	78.2	0.3	9.7	25.8			21.2	0.0
LOS		A		E	E	A	A	C			C	A
Approach Delay (s/veh)		1.1			66.0			25.7			21.1	
Approach LOS		A			E			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay (s/veh): 28.5		Intersection LOS: C	
Intersection Capacity Utilization 83.8%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off

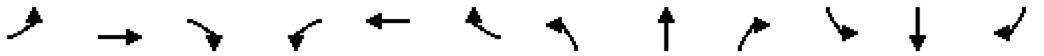




Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	43	319	321	33	24	2778	2184	10
v/c Ratio	0.09	0.88	0.96	0.07	0.16	0.93	0.78	0.01
Control Delay (s/veh)	1.1	60.6	78.2	0.3	9.7	25.8	21.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	1.1	60.6	78.2	0.3	9.7	25.8	21.2	0.0
Queue Length 50th (m)	0.0	65.2	70.6	0.0	1.8	175.6	109.7	0.0
Queue Length 95th (m)	0.0	#116.4	36.0	0.0	2.7	204.5	163.1	0.0
Internal Link Dist (m)	110.0		550.1			339.6	704.6	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	453	363	333	459	156	2989	2796	922
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	0.88	0.96	0.07	0.15	0.93	0.78	0.01

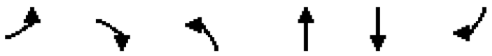
Intersection Summary

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

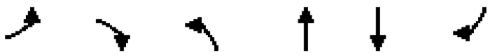


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	20	556	4	30	12	2611	0	0	1987	5
Future Volume (vph)	4	0	20	556	4	30	12	2611	0	0	1987	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.91			0.91	1.00
Frt		0.90		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1539		1681	1597	1408	1641	5085			5085	1615
Flt Permitted		0.89		0.73	0.70	1.00	0.07	1.00			1.00	1.00
Satd. Flow (perm)		1385		1290	1179	1408	117	5085			5085	1615
Peak-hour factor, PHF	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Adj. Flow (vph)	11	0	32	625	11	37	24	2778	0	0	2184	10
RTOR Reduction (vph)	0	31	0	0	1	24	0	0	0	0	0	5
Lane Group Flow (vph)	0	12	0	319	320	9	24	2778	0	0	2184	5
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		28.2		28.2	28.2	28.2	61.2	61.2			55.0	55.0
Effective Green, g (s)		28.2		28.2	28.2	28.2	61.2	61.2			55.0	55.0
Actuated g/C Ratio		0.28		0.28	0.28	0.28	0.60	0.60			0.54	0.54
Clearance Time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Lane Grp Cap (vph)		381		355	324	387	102	3039			2731	867
v/s Ratio Prot							0.01	c0.55			0.43	
v/s Ratio Perm		0.01		0.25	c0.27	0.01	0.13					0.00
v/c Ratio		0.03		0.90	0.99	0.02	0.24	0.91			0.80	0.01
Uniform Delay, d1		27.1		35.7	36.9	27.1	14.9	18.3			19.2	11.0
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2		0.0		24.6	46.5	0.0	0.9	5.5			2.6	0.0
Delay (s)		27.2		60.4	83.4	27.1	15.8	23.8			21.8	11.0
Level of Service		C		E	F	C	B	C			C	B
Approach Delay (s/veh)		27.2			69.7			23.7			21.7	
Approach LOS		C			E			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	28.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	102.4	Sum of lost time (s)	17.0
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



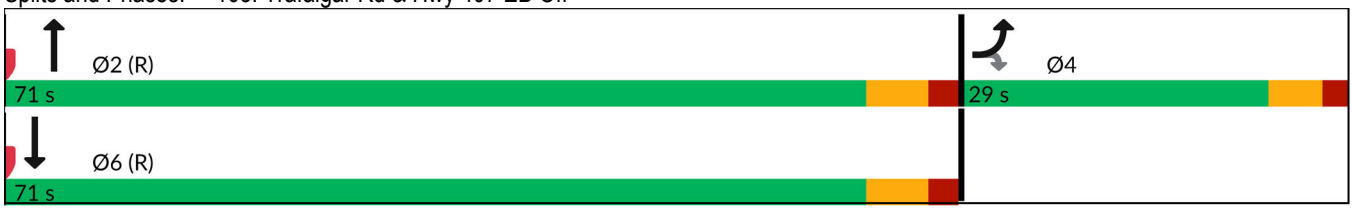
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	42	288	0	2915	2380	0
Future Volume (vph)	42	288	0	2915	2380	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1703	1429	0	5085	5085	0
Flt Permitted	0.950					
Satd. Flow (perm)	1703	1429	0	5085	5085	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		4				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			479.2	363.6	
Travel Time (s)	39.9			34.5	26.2	
Peak Hour Factor	0.75	0.94	0.25	0.94	0.92	0.25
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Adj. Flow (vph)	56	306	0	3101	2587	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	56	306	0	3101	2587	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			7.2	7.2	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	29.0	29.0		24.9	24.9	
Total Split (s)	29.0	29.0		71.0	71.0	
Total Split (%)	29.0%	29.0%		71.0%	71.0%	
Maximum Green (s)	23.0	23.0		64.1	64.1	
Yellow Time (s)	4.0	4.0		4.6	4.6	
All-Red Time (s)	2.0	2.0		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.9	6.9	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	23.0	23.0		64.1	64.1	
Actuated g/C Ratio	0.23	0.23		0.64	0.64	
v/c Ratio	0.14	0.92		0.95	0.79	
Control Delay (s/veh)	31.9	72.3		25.1	15.5	
Queue Delay	0.0	0.0		0.0	0.0	



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay (s/veh)	31.9	72.3		25.1	15.5	
LOS	C	E		C	B	
Approach Delay (s/veh)	66.1			25.1	15.5	
Approach LOS	E			C	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 90			
Control Type: Pretimed			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay (s/veh): 23.4		Intersection LOS: C	
Intersection Capacity Utilization 74.6%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off

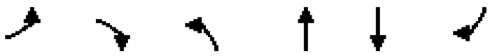




Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	56	306	3101	2587
v/c Ratio	0.14	0.92	0.95	0.79
Control Delay (s/veh)	31.9	72.3	25.1	15.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	31.9	72.3	25.1	15.5
Queue Length 50th (m)	9.1	60.6	193.9	128.3
Queue Length 95th (m)	16.4	#113.4	#231.7	149.2
Internal Link Dist (m)	530.6		455.2	339.6
Turn Bay Length (m)				
Base Capacity (vph)	391	331	3259	3259
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	0.14	0.92	0.95	0.79

Intersection Summary

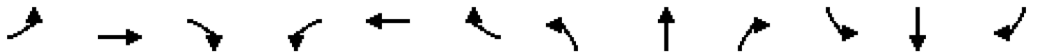
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	42	288	0	2915	2380	0
Future Volume (vph)	42	288	0	2915	2380	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.9	6.9	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1703	1429		5085	5085	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1703	1429		5085	5085	
Peak-hour factor, PHF	0.75	0.94	0.25	0.94	0.92	0.25
Adj. Flow (vph)	56	306	0	3101	2587	0
RTOR Reduction (vph)	0	3	0	0	0	0
Lane Group Flow (vph)	56	303	0	3101	2587	0
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	23.0	23.0		64.1	64.1	
Effective Green, g (s)	23.0	23.0		64.1	64.1	
Actuated g/C Ratio	0.23	0.23		0.64	0.64	
Clearance Time (s)	6.0	6.0		6.9	6.9	
Lane Grp Cap (vph)	391	328		3259	3259	
v/s Ratio Prot	0.03			c0.61	0.51	
v/s Ratio Perm		c0.21				
v/c Ratio	0.14	0.92		0.95	0.79	
Uniform Delay, d1	30.7	37.6		16.5	13.1	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	33.6		7.9	2.1	
Delay (s)	31.4	71.2		24.5	15.2	
Level of Service	C	E		C	B	
Approach Delay (s/veh)	65.0			24.5	15.2	
Approach LOS	E			C	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	22.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

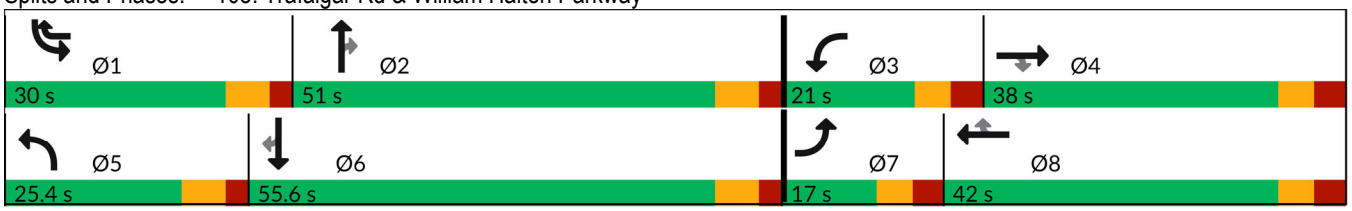


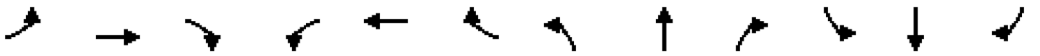
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	714	880	297	382	949	977	422	1782	243	551	1582	535
Future Volume (vph)	714	880	297	382	949	977	422	1782	243	551	1582	535
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		100.0	150.0		150.0	150.0		75.0	150.0		150.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			278			85			187			186
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		165.7			161.0			258.3			479.2	
Travel Time (s)		11.9			11.6			18.6			34.5	
Peak Hour Factor	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
Adj. Flow (vph)	793	907	326	538	1103	1149	521	1980	386	599	1840	582
Shared Lane Traffic (%)												
Lane Group Flow (vph)	793	907	326	538	1103	1149	521	1980	386	599	1840	582
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	1	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	1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	7.0	7.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	14.0	38.0	38.0	14.0	38.0	13.9	13.9	42.9	42.9	13.9	42.9	42.9
Total Split (s)	17.0	38.0	38.0	21.0	42.0	30.0	25.4	51.0	51.0	30.0	55.6	55.6
Total Split (%)	12.1%	27.1%	27.1%	15.0%	30.0%	21.4%	18.1%	36.4%	36.4%	21.4%	39.7%	39.7%
Maximum Green (s)	10.0	31.0	31.0	14.0	35.0	23.1	18.5	44.1	44.1	23.1	48.7	48.7
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	4.6	4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	3.3	3.3	3.3	3.3	3.3	2.3	2.3	2.3	2.3	2.3	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)	7.0	7.0	7.0	7.0	7.0	6.9	6.9	6.9	6.9	6.9	6.9	6.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	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	3.0	3.0	5.0	5.0	3.0	5.0	5.0
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
Flash Don't Walk (s)		24.0	24.0		24.0			29.0	29.0		29.0	29.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effct Green (s)	10.0	31.0	31.0	14.0	35.0	65.1	18.5	44.1	44.1	23.1	48.7	48.7
Actuated g/C Ratio	0.07	0.22	0.22	0.10	0.25	0.47	0.13	0.32	0.32	0.17	0.35	0.35
v/c Ratio	3.24	1.16	0.57	1.54	1.22	1.47	1.14	1.24	0.61	1.09	1.04	0.86
Control Delay (s/veh)	Error	132.9	13.0	295.9	154.2	247.5	138.5	152.7	24.7	118.3	77.1	42.4
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 (s/veh)	Error	132.9	13.0	295.9	154.2	247.5	138.5	152.7	24.7	118.3	77.1	42.4
LOS	F	F	B	F	F	F	F	F	C	F	E	D
Approach Delay (s/veh)		467.1			220.0			133.0			78.6	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 3.24			
Intersection Signal Delay (s/veh): 203.4		Intersection LOS: F	
Intersection Capacity Utilization 132.6%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway



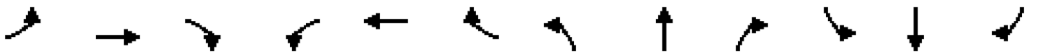


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	793	907	326	538	1103	1149	521	1980	386	599	1840	582
v/c Ratio	3.24	1.16	0.57	1.54	1.22	1.47	1.14	1.24	0.61	1.09	1.04	0.86
Control Delay (s/veh)	Error	132.9	13.0	295.9	154.2	247.5	138.5	152.7	24.7	118.3	77.1	42.4
Queue Delay	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 (s/veh)	Error	132.9	13.0	295.9	154.2	247.5	138.5	152.7	24.7	118.3	77.1	42.4
Queue Length 50th (m)	~208.9	~163.9	11.4	~113.0	~207.4	~447.6	~90.9	~261.1	49.0	~100.9	~211.6	114.2
Queue Length 95th (m)	#250.1	#206.9	42.2	#107.2	#234.1	#489.3	#108.1	#291.2	37.6	#139.5	#222.7	#184.0
Internal Link Dist (m)		141.7			137.0			234.3			455.2	
Turn Bay Length (m)	150.0		100.0	150.0		150.0	150.0		75.0	150.0		150.0
Base Capacity (vph)	245	783	570	350	902	781	458	1601	636	550	1768	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	3.24	1.16	0.57	1.54	1.22	1.47	1.14	1.24	0.61	1.09	1.04	0.86

Intersection Summary

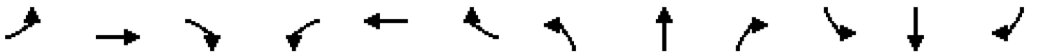
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	714	880	297	382	949	977	422	1782	243	551	1582	535
Future Volume (vph)	714	880	297	382	949	977	422	1782	243	551	1582	535
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	6.9	6.9	6.9	6.9	6.9	6.9	6.9
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
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)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
Peak-hour factor, PHF	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Adj. Flow (vph)	793	907	326	538	1103	1149	521	1980	386	599	1840	582
RTOR Reduction (vph)	0	0	216	0	0	50	0	0	128	0	0	121
Lane Group Flow (vph)	793	907	110	538	1103	1099	521	1980	258	599	1840	461
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	10.0	31.0	31.0	14.0	35.0	58.1	18.5	44.1	44.1	23.1	48.7	48.7
Effective Green, g (s)	10.0	31.0	31.0	14.0	35.0	58.1	18.5	44.1	44.1	23.1	48.7	48.7
Actuated g/C Ratio	0.07	0.22	0.22	0.10	0.25	0.42	0.13	0.32	0.32	0.17	0.35	0.35
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	6.9	6.9	6.9	6.9	6.9	6.9	6.9
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	245	783	354	350	902	656	458	1601	508	550	1768	556
v/s Ratio Prot	c0.23	0.26		0.15	0.31	c0.28	0.15	c0.39		0.18	c0.36	
v/s Ratio Perm			0.07			0.42			0.16			0.29
v/c Ratio	3.24	1.16	0.31	1.54	1.22	1.68	1.14	1.24	0.51	1.09	1.04	0.83
Uniform Delay, d1	65.0	54.5	45.6	63.0	52.5	40.9	60.8	48.0	39.1	58.5	45.7	41.8
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	1017.1	85.3	1.0	255.6	110.2	310.7	85.4	112.1	3.6	64.8	32.8	13.3
Delay (s)	1082.1	139.8	46.6	318.6	162.7	351.7	146.2	160.1	42.7	123.3	78.5	55.2
Level of Service	F	F	D	F	F	F	F	F	D	F	E	E
Approach Delay (s/veh)		493.6			270.6			141.9			82.9	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	225.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.66		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	27.8
Intersection Capacity Utilization	132.6%	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)	291	437	23	233	421	352	297	1930	143	293	1606	188
Future Volume (vph)	291	437	23	233	421	352	297	1930	143	293	1606	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		60.0	60.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	70.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.994			0.936				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1889	0	1805	1778	0	1805	5036	1615	1480	5085	1599
Flt Permitted	0.093			0.098			0.100			0.091		
Satd. Flow (perm)	173	1889	0	186	1778	0	190	5036	1615	142	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			30				126			122
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		277.8			989.6			1941.0			203.1	
Travel Time (s)		16.7			59.4			87.3			9.1	
Peak Hour Factor	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	1%
Adj. Flow (vph)	346	624	28	295	585	440	381	2271	210	458	1825	219
Shared Lane Traffic (%)												
Lane Group Flow (vph)	346	652	0	295	1025	0	381	2271	210	458	1825	219
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	pm+pt	NA		pm+pt	NA		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			8			2		2	6		6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	9.5	24.0		9.5	24.0		9.5	26.0	26.0	11.5	26.0	26.0
Total Split (s)	15.0	49.0		13.0	47.0		16.0	46.0	46.0	22.0	52.0	52.0
Total Split (%)	11.5%	37.7%		10.0%	36.2%		12.3%	35.4%	35.4%	16.9%	40.0%	40.0%
Maximum Green (s)	11.0	43.0		9.0	41.0		12.0	40.0	40.0	18.0	46.0	46.0
Yellow Time (s)	3.0	3.7		3.0	3.7		3.0	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	1.0	2.3		1.0	2.3		1.0	1.4	1.4	1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		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
Recall Mode	None	None		None	None		None	Max	Max	None	Max	Max
Act Effct Green (s)	56.0	43.0		52.0	41.0		54.0	40.0	42.0	64.0	46.0	48.0
Actuated g/C Ratio	0.43	0.33		0.40	0.32		0.42	0.31	0.32	0.49	0.35	0.37
v/c Ratio	1.66	1.04		1.59	1.76		1.67	1.47	0.35	1.80	1.01	0.33
Control Delay (s/veh)	340.9	89.5		312.8	379.2		347.1	247.3	15.1	399.7	66.5	14.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	340.9	89.5		312.8	379.2		347.1	247.3	15.1	399.7	66.5	14.1
LOS	F	F		F	F		F	F	B	F	E	B
Approach Delay (s/veh)		176.7			364.4			243.5			122.9	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Natural Cycle: 120			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.80			
Intersection Signal Delay (s/veh): 216.3		Intersection LOS: F	
Intersection Capacity Utilization 130.0%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burnhamthorpe Rd



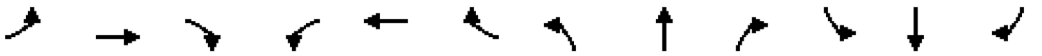


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	346	652	295	1025	381	2271	210	458	1825	219
v/c Ratio	1.66	1.04	1.59	1.76	1.67	1.47	0.35	1.80	1.01	0.33
Control Delay (s/veh)	340.9	89.5	312.8	379.2	347.1	247.3	15.1	399.7	66.5	14.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	340.9	89.5	312.8	379.2	347.1	247.3	15.1	399.7	66.5	14.1
Queue Length 50th (m)	~119.0	~189.7	~96.2	~409.4	~133.2	~307.0	16.2	~172.4	~184.7	17.5
Queue Length 95th (m)	#164.5	162.0	#128.1	#359.3	#160.5	#309.0	19.9	#146.2	#211.8	34.6
Internal Link Dist (m)		253.8		965.6		1917.0			179.1	
Turn Bay Length (m)	30.0		15.0		60.0		60.0	60.0		60.0
Base Capacity (vph)	209	626	186	581	228	1549	607	255	1799	667
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.66	1.04	1.59	1.76	1.67	1.47	0.35	1.80	1.01	0.33

Intersection Summary

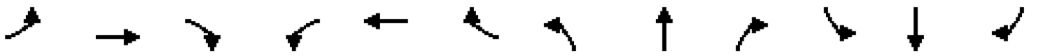
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



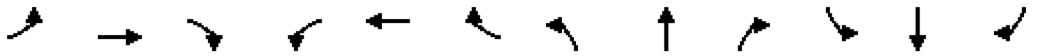
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	291	437	23	233	421	352	297	1930	143	293	1606	188
Future Volume (vph)	291	437	23	233	421	352	297	1930	143	293	1606	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.99		1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1888		1805	1778		1805	5036	1615	1480	5085	1599
Flt Permitted	0.09	1.00		0.10	1.00		0.10	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	173	1888		185	1778		190	5036	1615	142	5085	1599
Peak-hour factor, PHF	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Adj. Flow (vph)	346	624	28	295	585	440	381	2271	210	458	1825	219
RTOR Reduction (vph)	0	1	0	0	21	0	0	0	85	0	0	77
Lane Group Flow (vph)	346	651	0	295	1004	0	381	2271	125	458	1825	142
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	54.0	43.0		50.0	41.0		52.0	40.0	40.0	62.0	46.0	46.0
Effective Green, g (s)	54.0	43.0		50.0	41.0		52.0	40.0	42.0	62.0	46.0	48.0
Actuated g/C Ratio	0.42	0.33		0.38	0.32		0.40	0.31	0.32	0.48	0.35	0.37
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	206	624		183	560		225	1549	521	252	1799	590
v/s Ratio Prot	c0.14	0.34		0.11	c0.57		0.16	0.45		c0.25	0.36	
v/s Ratio Perm	0.55			0.51			0.52		0.08	c0.61		0.09
v/c Ratio	1.68	1.04		1.61	1.79		1.69	1.47	0.24	1.82	1.01	0.24
Uniform Delay, d1	36.2	43.5		33.3	44.5		36.7	45.0	32.3	41.0	42.0	28.4
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	326.1	47.6		299.3	364.3		330.4	213.3	1.1	383.1	24.9	1.0
Delay (s)	362.3	91.1		332.5	408.8		367.1	258.3	33.4	424.1	66.9	29.3
Level of Service	F	F		F	F		F	F	C	F	E	C
Approach Delay (s/veh)		185.2			391.7			256.3			129.0	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	228.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.83		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	130.0%	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)	0	1575	99	0	1937	13	0	0	37	0	0	371
Future Volume (vph)	0	1575	99	0	1937	13	0	0	37	0	0	371
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
Frt		0.991			0.999				0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3507	0	0	3536	0	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3507	0	0	3536	0	0	0	1611	0	0	1611
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		161.0			234.1			145.8			194.6	
Travel Time (s)		11.6			16.9			10.5			14.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1712	108	0	2105	14	0	0	40	0	0	403
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1820	0	0	2119	0	0	0	40	0	0	403
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

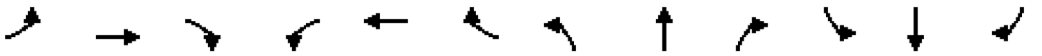
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 83.6%		ICU Level of Service E	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1575	99	0	1937	13	0	0	37	0	0	371
Future Volume (Veh/h)	0	1575	99	0	1937	13	0	0	37	0	0	371
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1712	108	0	2105	14	0	0	40	0	0	403
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		161			234							
pX, platoon unblocked	0.61			0.79			0.72	0.72	0.79	0.72	0.72	0.61
vC, conflicting volume	2119			1820			3222	3885	910	3008	3932	1060
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1557			1497			1961	2886	338	1664	2951	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	92	100	100	39
cM capacity (veh/h)	257			349			11	11	517	42	10	662

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	1141	679	1403	716	40	403
Volume Left	0	0	0	0	0	0
Volume Right	0	108	0	14	40	403
cSH	1700	1700	1700	1700	517	662
Volume to Capacity	0.67	0.40	0.83	0.42	0.08	0.61
Queue Length 95th (m)	0.0	0.0	0.0	0.0	2.0	33.1
Control Delay (s/veh)	0.0	0.0	0.0	0.0	12.6	18.5
Lane LOS					B	C
Approach Delay (s/veh)	0.0		0.0		12.6	18.5
Approach LOS					B	C

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	83.6%	ICU Level of Service		E
Analysis Period (min)	15			

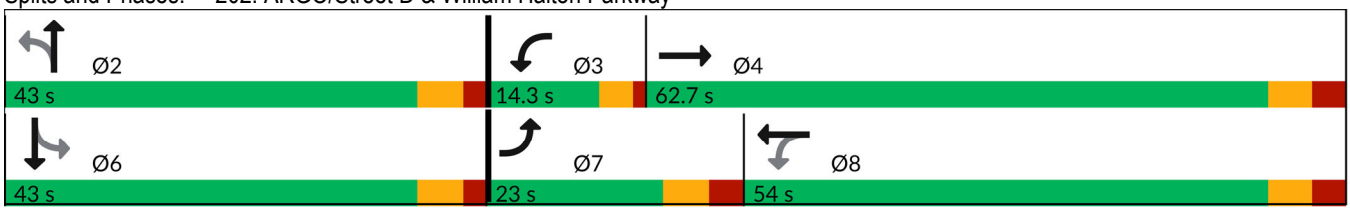


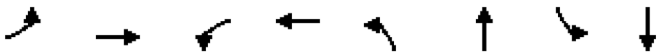
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	533	980	99	111	1509	9	248	10	37	77	10	193
Future Volume (vph)	533	980	99	111	1509	9	248	10	37	77	10	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0		0.0	55.0		0.0	115.0		0.0	0.0		0.0
Storage Lanes	2		0	1		0	1		0	1		0
Taper Length (m)	100.0			100.0			85.0			50.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.986			0.999			0.882			0.857	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3490	0	1770	3536	0	1770	1643	0	1770	1596	0
Flt Permitted	0.950			0.170			0.519			0.724		
Satd. Flow (perm)	3433	3490	0	317	3536	0	967	1643	0	1349	1596	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			1			40			210	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		234.1			1187.2			147.6			240.2	
Travel Time (s)		16.9			85.5			10.6			17.3	
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
Adj. Flow (vph)	579	1065	108	121	1640	10	270	11	40	84	11	210
Shared Lane Traffic (%)												
Lane Group Flow (vph)	579	1173	0	121	1650	0	270	51	0	84	221	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)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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	Prot	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases				8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	12.0	32.0		9.5	32.0		42.0	42.0		42.0	42.0	
Total Split (s)	23.0	62.7		14.3	54.0		43.0	43.0		43.0	43.0	
Total Split (%)	19.2%	52.3%		11.9%	45.0%		35.8%	35.8%		35.8%	35.8%	
Maximum Green (s)	16.0	55.7		10.3	47.0		37.0	37.0		37.0	37.0	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		1.0	3.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		4.0	7.0		6.0	6.0		6.0	6.0	
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	Min	Min		None	Min		None	None		None	None	
Walk Time (s)		10.0			10.0		14.0	14.0		14.0	14.0	
Flash Don't Walk (s)		15.0			15.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	16.0	57.4		58.7	47.0		34.5	34.5		34.5	34.5	
Actuated g/C Ratio	0.14	0.49		0.50	0.40		0.29	0.29		0.29	0.29	
v/c Ratio	1.24	0.69		0.46	1.17		0.95	0.10		0.21	0.36	
Control Delay (s/veh)	167.8	26.2		16.9	116.2		84.1	12.5		32.6	6.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	167.8	26.2		16.9	116.2		84.1	12.5		32.6	6.7	
LOS	F	C		B	F		F	B		C	A	
Approach Delay (s/veh)		73.0			109.4			72.7			13.8	
Approach LOS		E			F			E			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 117.6			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.24			
Intersection Signal Delay (s/veh): 84.2		Intersection LOS: F	
Intersection Capacity Utilization 105.1%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 202: ARGO/Street D & William Halton Parkway





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	579	1173	121	1650	270	51	84	221
v/c Ratio	1.24	0.69	0.46	1.17	0.95	0.10	0.21	0.36
Control Delay (s/veh)	167.8	26.2	16.9	116.2	84.1	12.5	32.6	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	167.8	26.2	16.9	116.2	84.1	12.5	32.6	6.7
Queue Length 50th (m)	~93.0	116.3	11.9	~261.0	64.1	1.9	15.3	1.9
Queue Length 95th (m)	#129.5	145.8	20.4	#306.2	#117.0	11.4	28.9	20.2
Internal Link Dist (m)		210.1		1163.2		123.6		216.2
Turn Bay Length (m)	120.0		55.0		115.0			
Base Capacity (vph)	467	1710	290	1415	304	544	424	646
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	1.24	0.69	0.42	1.17	0.89	0.09	0.20	0.34

Intersection Summary

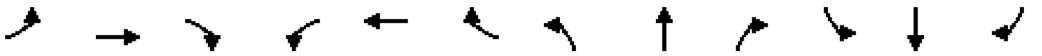
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	533	980	99	111	1509	9	248	10	37	77	10	193
Future Volume (vph)	533	980	99	111	1509	9	248	10	37	77	10	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		4.0	7.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.88		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3490		1770	3536		1770	1644		1770	1597	
Flt Permitted	0.95	1.00		0.17	1.00		0.52	1.00		0.72	1.00	
Satd. Flow (perm)	3433	3490		316	3536		967	1644		1348	1597	
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)	579	1065	108	121	1640	10	270	11	40	84	11	210
RTOR Reduction (vph)	0	6	0	0	1	0	0	28	0	0	148	0
Lane Group Flow (vph)	579	1167	0	121	1649	0	270	23	0	84	73	0
Turn Type	Prot	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases				8			2			6		
Actuated Green, G (s)	16.0	57.5		55.7	47.1		34.5	34.5		34.5	34.5	
Effective Green, g (s)	16.0	57.5		55.7	47.1		34.5	34.5		34.5	34.5	
Actuated g/C Ratio	0.14	0.49		0.47	0.40		0.29	0.29		0.29	0.29	
Clearance Time (s)	7.0	7.0		4.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	467	1706		256	1416		283	482		395	468	
v/s Ratio Prot	c0.17	0.33		0.03	c0.47			0.01			0.05	
v/s Ratio Perm				0.19			c0.28			0.06		
v/c Ratio	1.24	0.68		0.47	1.16		0.95	0.05		0.21	0.16	
Uniform Delay, d1	50.8	23.1		18.6	35.3		40.8	29.8		31.3	30.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	125.1	1.2		1.4	82.3		40.8	0.0		0.3	0.2	
Delay (s)	175.9	24.2		20.0	117.5		81.6	29.8		31.6	30.9	
Level of Service	F	C		C	F		F	C		C	C	
Approach Delay (s/veh)		74.4			110.9			73.4			31.1	
Approach LOS		E			F			E			C	

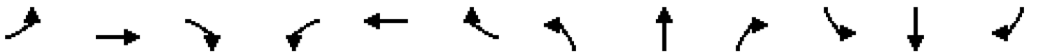
Intersection Summary			
HCM 2000 Control Delay (s/veh)	86.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	117.6	Sum of lost time (s)	20.0
Intersection Capacity Utilization	105.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1813	59	0	1521	385	0	0	78	0	0	340
Future Volume (vph)	0	1813	59	0	1521	385	0	0	78	0	0	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		50.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.995				0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3522	0	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3522	0	0	3539	1583	0	0	1611	0	0	1611
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		226.3			165.7			202.5			251.2	
Travel Time (s)		16.3			11.9			14.6			18.1	
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
Adj. Flow (vph)	0	1971	64	0	1653	418	0	0	85	0	0	370
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2035	0	0	1653	418	0	0	85	0	0	370
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

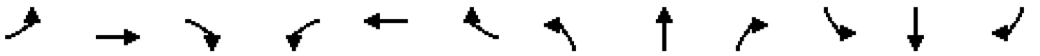
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 69.8%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1813	59	0	1521	385	0	0	78	0	0	340
Future Volume (Veh/h)	0	1813	59	0	1521	385	0	0	78	0	0	340
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1971	64	0	1653	418	0	0	85	0	0	370
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					166							
pX, platoon unblocked	0.76						0.76	0.76		0.76	0.76	0.76
vC, conflicting volume	2071			2035			3200	4074	1018	2724	3688	827
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1779			2035			3262	4412	1018	2637	3904	143
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	64	100	100	45
cM capacity (veh/h)	263			274			1	1	235	6	3	668

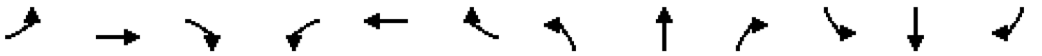
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1314	721	827	827	418	85	370
Volume Left	0	0	0	0	0	0	0
Volume Right	0	64	0	0	418	85	370
cSH	1700	1700	1700	1700	1700	235	668
Volume to Capacity	0.77	0.42	0.49	0.49	0.25	0.36	0.55
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	12.5	27.3
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	28.7	16.9
Lane LOS						D	C
Approach Delay (s/veh)	0.0		0.0			28.7	16.9
Approach LOS						D	C

Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	69.8%	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)	16	1410	56	164	1626	71	32	40	352	110	1	6
Future Volume (vph)	16	1410	56	164	1626	71	32	40	352	110	1	6
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	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994			0.994			0.888			0.993	
Flt Protected		0.999			0.996			0.996			0.955	
Satd. Flow (prot)	0	3514	0	0	3504	0	0	1648	0	0	1766	0
Flt Permitted		0.999			0.996			0.996			0.955	
Satd. Flow (perm)	0	3514	0	0	3504	0	0	1648	0	0	1766	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		824.7			226.3			176.0			195.5	
Travel Time (s)		59.4			16.3			12.7			14.1	
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
Adj. Flow (vph)	17	1533	61	178	1767	77	35	43	383	120	1	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1611	0	0	2022	0	0	461	0	0	128	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)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

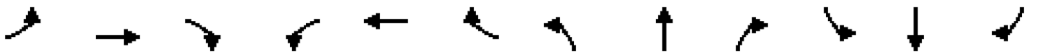
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 138.6%		ICU Level of Service H	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	1410	56	164	1626	71	32	40	352	110	1	6
Future Volume (Veh/h)	16	1410	56	164	1626	71	32	40	352	110	1	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	17	1533	61	178	1767	77	35	43	383	120	1	7
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					392							
pX, platoon unblocked	0.77						0.77	0.77		0.77	0.77	0.77
vC, conflicting volume	1844			1594			2845	3798	797	3367	3790	922
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1507			1594			2799	4030	797	3473	4019	317
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 %	95			56			0	0	0	0	12	99
cM capacity (veh/h)	341			407			1	1	329	0	1	526

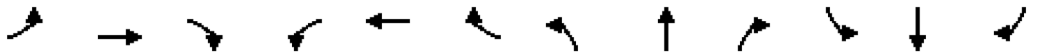
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	784	828	1062	961	461	128
Volume Left	17	0	178	0	35	120
Volume Right	0	61	0	77	383	7
cSH	341	1700	407	1700	6	0
Volume to Capacity	0.05	0.49	0.44	0.57	70.93	Err
Queue Length 95th (m)	1.3	0.0	17.3	0.0	Err	Err
Control Delay (s/veh)	1.8	0.0	19.0	0.0	Err	Err
Lane LOS	A		C		F	F
Approach Delay (s/veh)	0.9		10.0		Err	Err
Approach LOS					F	F

Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	138.6%	ICU Level of Service	H	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	30	10	3	36	250	23	62	167	52	150	12
Future Volume (vph)	95	30	10	3	36	250	23	62	167	52	150	12
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		0.990			0.883			0.910			0.992	
Flt Protected		0.966						0.995			0.988	
Satd. Flow (prot)	0	1781	0	0	1645	0	0	1687	0	0	1826	0
Flt Permitted		0.966						0.995			0.988	
Satd. Flow (perm)	0	1781	0	0	1645	0	0	1687	0	0	1826	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		276.8			164.9			130.3			140.1	
Travel Time (s)		19.9			11.9			9.4			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
Adj. Flow (vph)	103	33	11	3	39	272	25	67	182	57	163	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	147	0	0	314	0	0	274	0	0	233	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)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

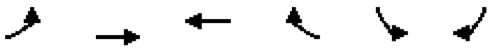
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.9%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	30	10	3	36	250	23	62	167	52	150	12
Future Volume (Veh/h)	95	30	10	3	36	250	23	62	167	52	150	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	103	33	11	3	39	272	25	67	182	57	163	13
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	311			44			520	562	39	641	431	175
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	311			44			520	562	39	641	431	175
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			100			92	83	82	78	66	99
cM capacity (veh/h)	1249			1564			317	399	1033	261	474	868

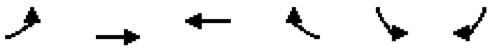
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	147	314	274	233
Volume Left	103	3	25	57
Volume Right	11	272	182	13
cSH	1249	1564	648	403
Volume to Capacity	0.08	0.00	0.42	0.58
Queue Length 95th (m)	2.2	0.0	16.8	28.2
Control Delay (s/veh)	5.9	0.1	14.6	25.4
Lane LOS	A	A	B	D
Approach Delay (s/veh)	5.9	0.1	14.6	25.4
Approach LOS			B	D

Intersection Summary				
Average Delay	11.2			
Intersection Capacity Utilization	57.9%	ICU Level of Service	B	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	114	149	119	238	87	147
Future Volume (vph)	114	149	119	238	87	147
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			0.910		0.915	
Flt Protected		0.979			0.982	
Satd. Flow (prot)	0	1824	1695	0	1674	0
Flt Permitted		0.979			0.982	
Satd. Flow (perm)	0	1824	1695	0	1674	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		164.9	188.6		202.5	
Travel Time (s)		11.9	13.6		14.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	124	162	129	259	95	160
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	286	388	0	255	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.9%		ICU Level of Service B	
Analysis Period (min) 15			



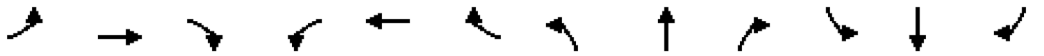
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	114	149	119	238	87	147
Future Volume (Veh/h)	114	149	119	238	87	147
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	124	162	129	259	95	160
Pedestrians						
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	388				669	259
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	388				669	259
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	89				75	79
cM capacity (veh/h)	1170				378	780

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	286	388	255
Volume Left	124	0	95
Volume Right	0	259	160
cSH	1170	1700	559
Volume to Capacity	0.11	0.23	0.46
Queue Length 95th (m)	2.8	0.0	19.0
Control Delay (s/veh)	4.2	0.0	16.7
Lane LOS	A		C
Approach Delay (s/veh)	4.2	0.0	16.7
Approach LOS			C

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	58.9%	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)	0	0	198	0	0	66	0	2380	193	0	1889	373
Future Volume (vph)	0	0	198	0	0	66	0	2380	193	0	1889	373
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		50.0	0.0		50.0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.865			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	1611	0	0	1611	0	5085	1583	0	5085	1583
Flt Permitted												
Satd. Flow (perm)	0	0	1611	0	0	1611	0	5085	1583	0	5085	1583
Link Speed (k/h)		50			50			50			80	
Link Distance (m)		188.6			84.7			203.1			258.3	
Travel Time (s)		13.6			6.1			14.6			11.6	
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
Adj. Flow (vph)	0	0	215	0	0	72	0	2587	210	0	2053	405
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	215	0	0	72	0	2587	210	0	2053	405
Enter Blocked Intersection	No	No	No	No	No	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			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

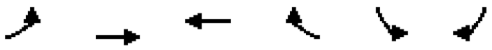
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 56.7%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	198	0	0	66	0	2380	193	0	1889	373
Future Volume (Veh/h)	0	0	198	0	0	66	0	2380	193	0	1889	373
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	215	0	0	72	0	2587	210	0	2053	405
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								203			258	
pX, platoon unblocked	0.83	0.83	0.68	0.83	0.83	0.71	0.68			0.71		
vC, conflicting volume	2987	4850	684	3486	5045	862	2458			2797		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	261	2515	0	865	2751	0	1493			2084		
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	71	100	100	91	100			100		
cM capacity (veh/h)	502	23	736	145	16	764	303			185		

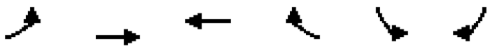
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	215	72	862	862	862	210	684	684	684	405
Volume Left	0	0	0	0	0	0	0	0	0	0
Volume Right	215	72	0	0	0	210	0	0	0	405
cSH	736	764	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.29	0.09	0.51	0.51	0.51	0.12	0.40	0.40	0.40	0.24
Queue Length 95th (m)	9.7	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s/veh)	11.9	10.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	B								
Approach Delay (s/veh)	11.9	10.2	0.0				0.0			
Approach LOS	B	B								

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	56.7%	ICU Level of Service	B	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	7	605	666	240	151	12
Future Volume (vph)	7	605	666	240	151	12
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			0.964		0.990	
Flt Protected		0.999			0.956	
Satd. Flow (prot)	0	1861	1796	0	1763	0
Flt Permitted		0.999			0.956	
Satd. Flow (perm)	0	1861	1796	0	1763	0
Link Speed (k/h)		60	50		50	
Link Distance (m)		550.9	277.8		134.0	
Travel Time (s)		33.1	20.0		9.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	658	724	261	164	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	666	985	0	177	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 65.4%		ICU Level of Service C	
Analysis Period (min) 15			



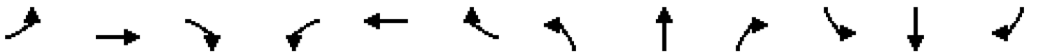
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	605	666	240	151	12
Future Volume (Veh/h)	7	605	666	240	151	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	658	724	261	164	13
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			278			
pX, platoon unblocked	0.56				0.56	0.56
vC, conflicting volume	985				1529	855
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	574				1551	339
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				0	97
cM capacity (veh/h)	556				69	391

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	666	985	177
Volume Left	8	0	164
Volume Right	0	261	13
cSH	556	1700	73
Volume to Capacity	0.01	0.58	2.43
Queue Length 95th (m)	0.4	0.0	135.4
Control Delay (s/veh)	0.4	0.0	771.6
Lane LOS	A		F
Approach Delay (s/veh)	0.4	0.0	771.6
Approach LOS			F

Intersection Summary			
Average Delay	74.9		
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		

Appendix G6

2036 Total with Improvements Synchro Reports

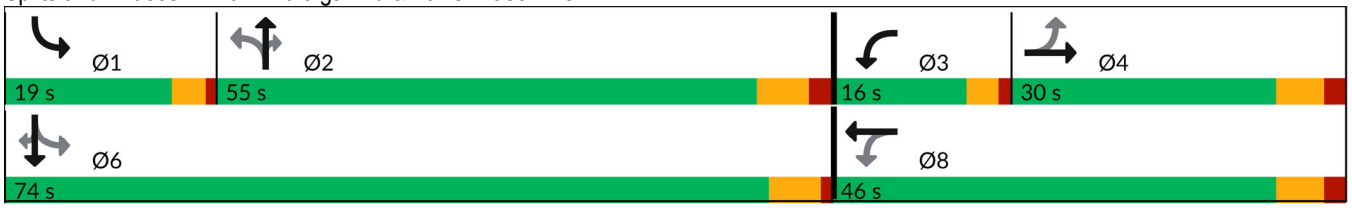


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	301	88	291	103	133	32	1456	324	315	1720	60
Future Volume (vph)	104	301	88	291	103	133	32	1456	324	315	1720	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		90.0	90.0		90.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.963			0.912				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1816	0	1736	1666	0	1597	4848	1568	1752	4988	1553
Flt Permitted	0.578			0.144			0.083			0.075		
Satd. Flow (perm)	1056	1816	0	263	1666	0	140	4848	1568	138	4988	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			63				311			85
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			728.7			434.3	
Travel Time (s)		38.5			41.4			32.8			19.5	
Peak Hour Factor	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Adj. Flow (vph)	124	391	129	399	124	175	44	1776	364	358	2024	85
Shared Lane Traffic (%)												
Lane Group Flow (vph)	124	520	0	399	299	0	44	1776	364	358	2024	85
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		25.0	25.0	25.0	7.0	25.0	25.0
Minimum Split (s)	22.5	22.5		11.5	22.5		31.6	31.6	31.6	11.5	30.6	30.6
Total Split (s)	30.0	30.0		16.0	46.0		55.0	55.0	55.0	19.0	74.0	74.0
Total Split (%)	25.0%	25.0%		13.3%	38.3%		45.8%	45.8%	45.8%	15.8%	61.7%	61.7%
Maximum Green (s)	23.8	23.8		12.0	39.8		48.4	48.4	48.4	15.0	68.4	68.4
Yellow Time (s)	4.2	4.2		3.0	4.2		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	Max
Act Effct Green (s)	23.8	23.8		42.0	39.8		48.4	48.4	48.4	70.0	68.4	68.4
Actuated g/C Ratio	0.20	0.20		0.35	0.33		0.40	0.40	0.40	0.58	0.57	0.57
v/c Ratio	0.59	1.41		1.67	0.50		0.79	0.91	0.45	1.27	0.71	0.09
Control Delay (s/veh)	56.7	237.1		344.1	28.4		107.0	41.8	6.4	177.0	20.4	2.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	56.7	237.1		344.1	28.4		107.0	41.8	6.4	177.0	20.4	2.7
LOS	E	F		F	C		F	D	A	F	C	A
Approach Delay (s/veh)		202.4			208.9			37.2			42.6	
Approach LOS		F			F			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.67			
Intersection Signal Delay (s/veh): 77.1		Intersection LOS: E	
Intersection Capacity Utilization 110.0%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line



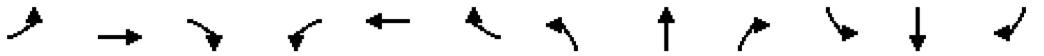


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	124	520	399	299	44	1776	364	358	2024	85
v/c Ratio	0.59	1.41	1.67	0.50	0.79	0.91	0.45	1.27	0.71	0.09
Control Delay (s/veh)	56.7	237.1	344.1	28.4	107.0	41.8	6.4	177.0	20.4	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	56.7	237.1	344.1	28.4	107.0	41.8	6.4	177.0	20.4	2.7
Queue Length 50th (m)	28.2	~172.5	~128.0	46.4	9.4	149.7	8.0	~95.7	126.6	0.0
Queue Length 95th (m)	45.9	#192.4	#140.5	66.2	#24.1	148.7	28.8	#151.8	130.8	3.5
Internal Link Dist (m)		725.3		666.6		704.7			410.3	
Turn Bay Length (m)	45.0		110.0		90.0		90.0	90.0		90.0
Base Capacity (vph)	209	368	239	594	56	1955	817	282	2843	921
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	0.59	1.41	1.67	0.50	0.79	0.91	0.45	1.27	0.71	0.09

Intersection Summary

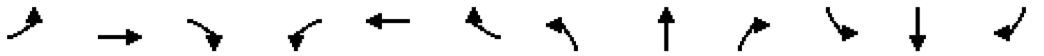
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	301	88	291	103	133	32	1456	324	315	1720	60
Future Volume (vph)	104	301	88	291	103	133	32	1456	324	315	1720	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	1816		1736	1667		1597	4848	1568	1752	4988	1553
Flt Permitted	0.58	1.00		0.14	1.00		0.08	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	1055	1816		263	1667		139	4848	1568	138	4988	1553
Peak-hour factor, PHF	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Adj. Flow (vph)	124	391	129	399	124	175	44	1776	364	358	2024	85
RTOR Reduction (vph)	0	8	0	0	42	0	0	0	186	0	0	37
Lane Group Flow (vph)	124	512	0	399	257	0	44	1776	178	358	2024	48
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	23.8	23.8		39.8	39.8		48.4	48.4	48.4	68.4	68.4	68.4
Effective Green, g (s)	23.8	23.8		39.8	39.8		48.4	48.4	48.4	68.4	68.4	68.4
Actuated g/C Ratio	0.20	0.20		0.33	0.33		0.40	0.40	0.40	0.57	0.57	0.57
Clearance Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Lane Grp Cap (vph)	209	360		234	552		56	1955	632	280	2843	885
v/s Ratio Prot		0.28		c0.17	0.15			0.37		c0.16	0.41	
v/s Ratio Perm	0.12			c0.39			0.32		0.11	c0.57		0.03
v/c Ratio	0.59	1.42		1.71	0.47		0.79	0.91	0.28	1.28	0.71	0.05
Uniform Delay, d1	43.7	48.1		34.4	31.7		31.3	33.7	24.1	37.8	18.7	11.5
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	6.7	205.5		334.9	1.3		68.8	7.7	1.1	150.0	1.5	0.1
Delay (s)	50.4	253.6		369.3	33.0		100.1	41.4	25.2	187.8	20.2	11.6
Level of Service	D	F		F	C		F	D	C	F	C	B
Approach Delay (s/veh)		214.5			225.3			39.9			44.2	
Approach LOS		F			F			D			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	82.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.52		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	110.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

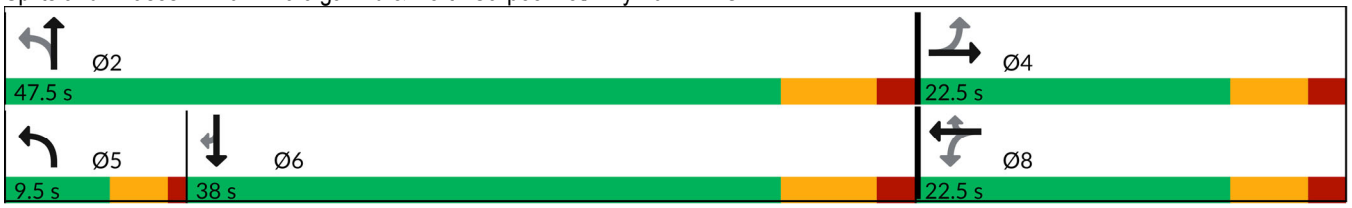


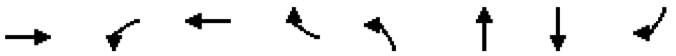
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	9	307	2	6	7	1802	0	0	2097	2
Future Volume (vph)	4	0	9	307	2	6	7	1802	0	0	2097	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.901			0.999	0.850						0.850
Flt Protected		0.987		0.950	0.954		0.950					
Satd. Flow (prot)	0	1503	0	1545	1475	1534	1543	4893	0	0	4988	1615
Flt Permitted		0.890		0.730	0.701		0.098					
Satd. Flow (perm)	0	1355	0	1187	1084	1534	159	4893	0	0	4988	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		125				125						109
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			728.7	
Travel Time (s)		9.6			41.3			26.2			52.5	
Peak Hour Factor	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Adj. Flow (vph)	11	0	30	399	4	14	23	1959	0	0	2410	8
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	0	41	0	203	201	13	23	1959	0	0	2410	8
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	4.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	27.0			27.0	27.0
Total Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	47.5			38.0	38.0
Total Split (%)	32.1%	32.1%		32.1%	32.1%	32.1%	13.6%	67.9%			54.3%	54.3%
Maximum Green (s)	16.5	16.5		16.5	16.5	16.5	5.5	40.5			31.0	31.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0			2.0	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	4.0	7.0			7.0	7.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	None	Max			Max	Max
Act Effct Green (s)		15.5		15.5	15.5	15.5	43.5	40.5			36.8	36.8
Actuated g/C Ratio		0.22		0.22	0.22	0.22	0.63	0.59			0.53	0.53
v/c Ratio		0.10		0.77	0.83	0.03	0.11	0.68			0.91	0.01
Control Delay (s/veh)		0.5		46.0	54.9	0.2	6.3	11.6			23.8	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		0.5		46.0	54.9	0.2	6.3	11.6			23.8	0.0
LOS		A		D	D	A	A	B			C	A
Approach Delay (s/veh)		0.5			48.8			11.5			23.7	
Approach LOS		A			D			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 69			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay (s/veh): 20.7		Intersection LOS: C	
Intersection Capacity Utilization 66.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off

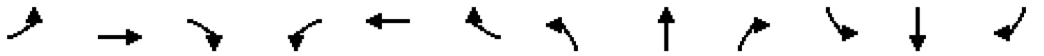




Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	41	203	201	13	23	1959	2410	8
v/c Ratio	0.10	0.77	0.83	0.03	0.11	0.68	0.91	0.01
Control Delay (s/veh)	0.5	46.0	54.9	0.2	6.3	11.6	23.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	0.5	46.0	54.9	0.2	6.3	11.6	23.8	0.0
Queue Length 50th (m)	0.0	27.2	28.6	0.0	1.1	62.4	89.3	0.0
Queue Length 95th (m)	0.0	#43.0	25.7	0.0	1.1	78.6	#160.8	0.0
Internal Link Dist (m)	110.0		550.1			339.6	704.7	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	418	283	259	462	210	2873	2658	911
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.72	0.78	0.03	0.11	0.68	0.91	0.01

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	9	307	2	6	7	1802	0	0	2097	2
Future Volume (vph)	4	0	9	307	2	6	7	1802	0	0	2097	2
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	4.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.91			0.91	1.00
Frt		0.90		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1503		1545	1475	1534	1543	4893			4988	1615
Flt Permitted		0.89		0.73	0.70	1.00	0.10	1.00			1.00	1.00
Satd. Flow (perm)		1355		1188	1084	1534	159	4893			4988	1615
Peak-hour factor, PHF	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Adj. Flow (vph)	11	0	30	399	4	14	23	1959	0	0	2410	8
RTOR Reduction (vph)	0	32	0	0	0	10	0	0	0	0	0	4
Lane Group Flow (vph)	0	9	0	203	201	3	23	1959	0	0	2410	4
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		15.5		15.5	15.5	15.5	43.0	43.0			36.8	36.8
Effective Green, g (s)		15.5		15.5	15.5	15.5	43.0	43.0			36.8	36.8
Actuated g/C Ratio		0.22		0.22	0.22	0.22	0.60	0.60			0.51	0.51
Clearance Time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Lane Grp Cap (vph)		293		257	234	332	138	2942			2567	831
v/s Ratio Prot							0.01	c0.40			c0.48	
v/s Ratio Perm		0.01		0.17	c0.19	0.00	0.09					0.00
v/c Ratio		0.03		0.79	0.86	0.01	0.17	0.67			0.94	0.00
Uniform Delay, d1		22.1		26.5	26.9	22.0	12.5	9.5			16.3	8.4
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2		0.0		15.2	25.9	0.0	0.4	1.2			8.3	0.0
Delay (s)		22.1		41.7	52.9	22.0	12.9	10.7			24.6	8.5
Level of Service		C		D	D	C	B	B			C	A
Approach Delay (s/veh)		22.1			46.5			10.7			24.5	
Approach LOS		C			D			B			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	20.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	71.5	Sum of lost time (s)	17.0
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

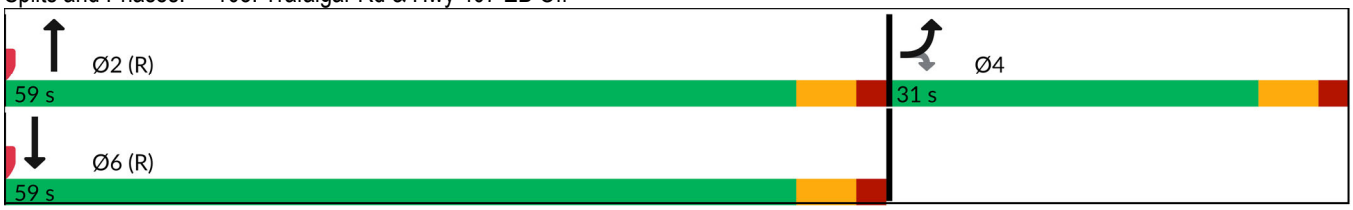


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	75	267	0	1931	2315	0
Future Volume (vph)	75	267	0	1931	2315	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1671	1392	0	4848	4940	0
Flt Permitted	0.950					
Satd. Flow (perm)	1671	1392	0	4848	4940	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		2				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			485.1	363.6	
Travel Time (s)	39.9			34.9	26.2	
Peak Hour Factor	0.79	0.78	0.25	0.85	0.86	0.25
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Adj. Flow (vph)	95	342	0	2272	2692	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	95	342	0	2272	2692	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			7.2	7.2	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	24.0	24.0		24.0	24.0	
Total Split (s)	31.0	31.0		59.0	59.0	
Total Split (%)	34.4%	34.4%		65.6%	65.6%	
Maximum Green (s)	25.0	25.0		53.0	53.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	25.0	25.0		53.0	53.0	
Actuated g/C Ratio	0.28	0.28		0.59	0.59	
v/c Ratio	0.20	0.88		0.80	0.93	
Control Delay (s/veh)	26.4	56.7		17.0	23.8	
Queue Delay	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay (s/veh)	26.4	56.7		17.0	23.8	
LOS	C	E		B	C	
Approach Delay (s/veh)	50.1			17.0	23.8	
Approach LOS	D			B	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 75			
Control Type: Pretimed			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay (s/veh): 23.1		Intersection LOS: C	
Intersection Capacity Utilization 71.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off

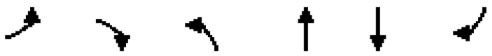




Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	95	342	2272	2692
v/c Ratio	0.20	0.88	0.80	0.93
Control Delay (s/veh)	26.4	56.7	17.0	23.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	26.4	56.7	17.0	23.8
Queue Length 50th (m)	13.2	59.1	108.0	149.5
Queue Length 95th (m)	22.4	#85.2	115.4	160.5
Internal Link Dist (m)	530.6		461.1	339.6
Turn Bay Length (m)				
Base Capacity (vph)	464	388	2854	2909
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.20	0.88	0.80	0.93

Intersection Summary

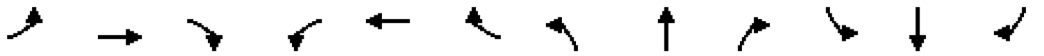
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	75	267	0	1931	2315	0
Future Volume (vph)	75	267	0	1931	2315	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1671	1392		4848	4940	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1671	1392		4848	4940	
Peak-hour factor, PHF	0.79	0.78	0.25	0.85	0.86	0.25
Adj. Flow (vph)	95	342	0	2272	2692	0
RTOR Reduction (vph)	0	1	0	0	0	0
Lane Group Flow (vph)	95	341	0	2272	2692	0
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	25.0	25.0		53.0	53.0	
Effective Green, g (s)	25.0	25.0		53.0	53.0	
Actuated g/C Ratio	0.28	0.28		0.59	0.59	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	464	386		2854	2909	
v/s Ratio Prot	0.06			0.47	c0.54	
v/s Ratio Perm		c0.24				
v/c Ratio	0.20	0.88		0.80	0.93	
Uniform Delay, d1	24.9	31.1		14.3	16.7	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	24.0		2.4	6.4	
Delay (s)	25.9	55.1		16.7	23.2	
Level of Service	C	E		B	C	
Approach Delay (s/veh)	48.8			16.7	23.2	
Approach LOS	D			B	C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

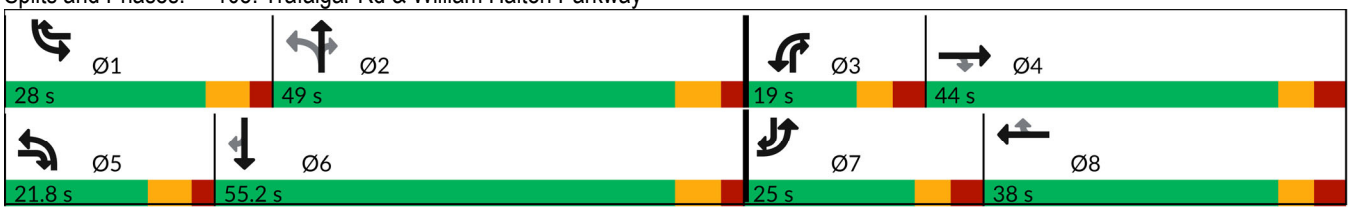


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	588	977	267	305	714	477	389	1415	251	651	1424	507
Future Volume (vph)	588	977	267	305	714	477	389	1415	251	651	1424	507
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	150.0		150.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3467	3574	1599	3273	3574	1429	3303	4988	1615	3433	4893	1538
Flt Permitted	0.950			0.950			0.095			0.950		
Satd. Flow (perm)	3467	3574	1599	3273	3574	1429	330	4988	1615	3433	4893	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			85			85			85			85
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		148.9			165.2			209.3			485.1	
Travel Time (s)		10.7			11.9			15.1			34.9	
Peak Hour Factor	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
Adj. Flow (vph)	692	1074	322	407	915	636	452	1572	299	794	1582	590
Shared Lane Traffic (%)												
Lane Group Flow (vph)	692	1074	322	407	915	636	452	1572	299	794	1582	590
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8	2		2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	20.0	7.0	7.0	20.0	7.0	7.0	20.0	7.0	7.0	20.0	7.0
Minimum Split (s)	14.0	38.0	13.9	14.0	38.0	13.9	13.9	42.9	14.0	13.9	42.9	14.0
Total Split (s)	25.0	44.0	21.8	19.0	38.0	28.0	21.8	49.0	19.0	28.0	55.2	25.0
Total Split (%)	17.9%	31.4%	15.6%	13.6%	27.1%	20.0%	15.6%	35.0%	13.6%	20.0%	39.4%	17.9%
Maximum Green (s)	18.0	37.0	14.9	12.0	31.0	21.1	14.9	42.1	12.0	21.1	48.3	18.0
Yellow Time (s)	3.7	3.7	4.6	3.7	3.7	4.6	4.6	4.6	3.7	4.6	4.6	3.7
All-Red Time (s)	3.3	3.3	2.3	3.3	3.3	2.3	2.3	2.3	3.3	2.3	2.3	3.3
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)	7.0	7.0	6.9	7.0	7.0	6.9	6.9	6.9	7.0	6.9	6.9	7.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0
Recall Mode	None	None	None	None	None	None	None	Max	None	None	Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		24.0			24.0			29.0			29.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	18.0	37.0	58.9	12.0	31.0	59.1	57.0	42.1	61.0	21.1	48.3	73.2
Actuated g/C Ratio	0.13	0.26	0.42	0.09	0.22	0.42	0.41	0.30	0.44	0.15	0.35	0.52
v/c Ratio	1.56	1.14	0.45	1.45	1.16	0.98	1.00	1.05	0.40	1.54	0.94	0.70
Control Delay (s/veh)	299.6	121.0	23.0	266.1	132.2	64.3	83.6	84.1	20.6	289.5	55.8	26.5
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 (s/veh)	299.6	121.0	23.0	266.1	132.2	64.3	83.6	84.1	20.6	289.5	55.8	26.5
LOS	F	F	C	F	F	E	F	F	C	F	E	C
Approach Delay (s/veh)		165.1			138.0			75.8			112.6	
Approach LOS		F			F			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.56			
Intersection Signal Delay (s/veh): 120.5		Intersection LOS: F	
Intersection Capacity Utilization 105.6%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway



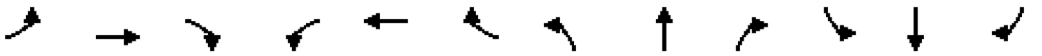


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	692	1074	322	407	915	636	452	1572	299	794	1582	590
v/c Ratio	1.56	1.14	0.45	1.45	1.16	0.98	1.00	1.05	0.40	1.54	0.94	0.70
Control Delay (s/veh)	299.6	121.0	23.0	266.1	132.2	64.3	83.6	84.1	20.6	289.5	55.8	26.5
Queue Delay	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 (s/veh)	299.6	121.0	23.0	266.1	132.2	64.3	83.6	84.1	20.6	289.5	55.8	26.5
Queue Length 50th (m)	~146.2	~191.4	48.1	~83.1	~165.2	163.3	~53.2	~182.0	41.3	~166.8	163.0	108.9
Queue Length 95th (m)	#171.8	#235.4	66.4	#90.6	#163.6	162.7	#82.8	#213.2	59.0	#182.4	#194.6	143.0
Internal Link Dist (m)		124.9			141.2			185.3			461.1	
Turn Bay Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	150.0		150.0
Base Capacity (vph)	445	944	721	280	791	652	450	1499	751	517	1688	844
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	1.56	1.14	0.45	1.45	1.16	0.98	1.00	1.05	0.40	1.54	0.94	0.70

Intersection Summary

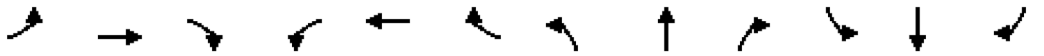
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	588	977	267	305	714	477	389	1415	251	651	1424	507
Future Volume (vph)	588	977	267	305	714	477	389	1415	251	651	1424	507
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	6.9	7.0	7.0	6.9	6.9	6.9	7.0	6.9	6.9	7.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3467	3574	1599	3273	3574	1429	3303	4988	1615	3433	4893	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.10	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3273	3574	1429	330	4988	1615	3433	4893	1538
Peak-hour factor, PHF	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Adj. Flow (vph)	692	1074	322	407	915	636	452	1572	299	794	1582	590
RTOR Reduction (vph)	0	0	53	0	0	53	0	0	52	0	0	45
Lane Group Flow (vph)	692	1074	269	407	915	583	452	1572	247	794	1582	545
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8	2		2			6
Actuated Green, G (s)	18.0	37.0	51.9	12.0	31.0	52.1	57.0	42.1	54.1	21.1	48.3	66.3
Effective Green, g (s)	18.0	37.0	51.9	12.0	31.0	52.1	57.0	42.1	54.1	21.1	48.3	66.3
Actuated g/C Ratio	0.13	0.26	0.37	0.09	0.22	0.37	0.41	0.30	0.39	0.15	0.35	0.47
Clearance Time (s)	7.0	7.0	6.9	7.0	7.0	6.9	6.9	6.9	7.0	6.9	6.9	7.0
Vehicle Extension (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0
Lane Grp Cap (vph)	445	944	592	280	791	531	450	1499	624	517	1688	728
v/s Ratio Prot	c0.20	c0.30	0.05	0.12	0.26	0.17	0.11	c0.32	0.03	c0.23	c0.32	0.10
v/s Ratio Perm			0.12			0.24	0.30		0.12			0.26
v/c Ratio	1.56	1.14	0.45	1.45	1.16	1.10	1.00	1.05	0.40	1.54	0.94	0.75
Uniform Delay, d1	61.0	51.5	33.3	64.0	54.5	44.0	41.3	49.0	31.1	59.5	44.4	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	260.6	75.0	0.6	223.0	84.6	68.3	43.5	37.2	0.4	250.7	11.4	4.2
Delay (s)	321.6	126.5	33.9	287.0	139.1	112.2	84.8	86.1	31.5	310.2	55.7	34.3
Level of Service	F	F	C	F	F	F	F	F	C	F	E	C
Approach Delay (s/veh)		176.9			161.1			78.8			119.6	
Approach LOS		F			F			E			F	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	131.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	27.8
Intersection Capacity Utilization	105.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

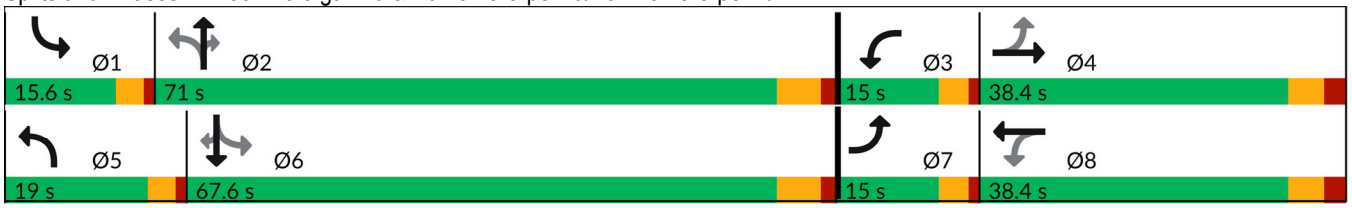


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	393	329	133	205	142	58	194	1664	114	127	1786	59
Future Volume (vph)	393	329	133	205	142	58	194	1664	114	127	1786	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		60.0	60.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	70.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.957			0.939				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1803	0	1770	1784	0	1703	4988	1615	1752	4940	1495
Flt Permitted	0.204			0.123			0.062			0.065		
Satd. Flow (perm)	376	1803	0	229	1784	0	111	4988	1615	120	4940	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			23				86			86
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		258.9			989.6			1077.8			246.4	
Travel Time (s)		15.5			59.4			48.5			11.1	
Peak Hour Factor	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
Adj. Flow (vph)	468	416	168	336	209	145	281	1809	133	195	1920	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	468	584	0	336	354	0	281	1809	133	195	1920	70
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	pm+pt	NA		pm+pt	NA		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			8			2		2	6		6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	9.5	24.0		9.5	24.0		9.5	26.0	26.0	11.5	26.0	26.0
Total Split (s)	15.0	38.4		15.0	38.4		19.0	71.0	71.0	15.6	67.6	67.6
Total Split (%)	10.7%	27.4%		10.7%	27.4%		13.6%	50.7%	50.7%	11.1%	48.3%	48.3%
Maximum Green (s)	11.0	32.4		11.0	32.4		15.0	65.0	65.0	11.6	61.6	61.6
Yellow Time (s)	3.0	3.7		3.0	3.7		3.0	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	1.0	2.3		1.0	2.3		1.0	1.4	1.4	1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		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
Recall Mode	None	None		None	None		None	Max	Max	None	Max	Max
Act Effct Green (s)	45.4	32.4		45.4	32.4		82.0	65.0	67.0	75.2	61.6	63.6
Actuated g/C Ratio	0.32	0.23		0.32	0.23		0.59	0.46	0.48	0.54	0.44	0.45
v/c Ratio	2.03	1.36		1.72	0.82		1.20	0.78	0.16	0.98	0.88	0.10
Control Delay (s/veh)	504.5	218.2		372.0	64.3		158.0	34.5	8.4	95.7	41.9	2.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	504.5	218.2		372.0	64.3		158.0	34.5	8.4	95.7	41.9	2.9
LOS	F	F		F	E		F	C	A	F	D	A
Approach Delay (s/veh)		345.5			214.2			48.6			45.5	
Approach LOS		F			F			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Natural Cycle: 120			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 2.03			
Intersection Signal Delay (s/veh): 116.8		Intersection LOS: F	
Intersection Capacity Utilization 98.7%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burhamthorpe Rd/Burnhamthorpe Rd



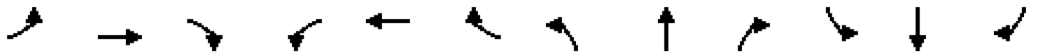


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	468	584	336	354	281	1809	133	195	1920	70
v/c Ratio	2.03	1.36	1.72	0.82	1.20	0.78	0.16	0.98	0.88	0.10
Control Delay (s/veh)	504.5	218.2	372.0	64.3	158.0	34.5	8.4	95.7	41.9	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	504.5	218.2	372.0	64.3	158.0	34.5	8.4	95.7	41.9	2.9
Queue Length 50th (m)	~186.8	~221.8	~127.9	92.9	~82.6	159.4	7.2	40.6	185.1	0.0
Queue Length 95th (m)	#233.4	#244.4	#104.5	90.5	#88.1	179.5	17.8	#43.8	207.8	5.1
Internal Link Dist (m)		234.9		965.6		1053.8			222.4	
Turn Bay Length (m)	30.0		15.0		60.0		60.0	60.0		60.0
Base Capacity (vph)	230	428	195	430	235	2315	817	199	2173	726
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	2.03	1.36	1.72	0.82	1.20	0.78	0.16	0.98	0.88	0.10

Intersection Summary

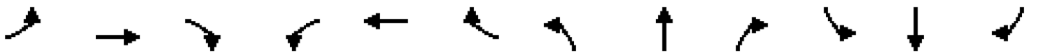
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



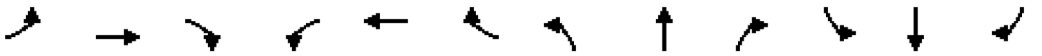
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	393	329	133	205	142	58	194	1664	114	127	1786	59
Future Volume (vph)	393	329	133	205	142	58	194	1664	114	127	1786	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	1802		1770	1783		1703	4988	1615	1752	4940	1495
Flt Permitted	0.20	1.00		0.12	1.00		0.06	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	377	1802		230	1783		110	4988	1615	120	4940	1495
Peak-hour factor, PHF	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Adj. Flow (vph)	468	416	168	336	209	145	281	1809	133	195	1920	70
RTOR Reduction (vph)	0	11	0	0	18	0	0	0	45	0	0	38
Lane Group Flow (vph)	468	573	0	336	336	0	281	1809	88	195	1920	32
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	43.4	32.4		43.4	32.4		80.0	65.0	65.0	73.2	61.6	61.6
Effective Green, g (s)	43.4	32.4		43.4	32.4		80.0	65.0	67.0	73.2	61.6	63.6
Actuated g/C Ratio	0.31	0.23		0.31	0.23		0.57	0.46	0.48	0.52	0.44	0.45
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	224	417		192	412		233	2315	772	197	2173	679
v/s Ratio Prot	c0.16	0.32		0.14	0.19		c0.13	0.36		0.08	0.39	
v/s Ratio Perm	c0.48			0.40			c0.56		0.05	0.43		0.02
v/c Ratio	2.09	1.37		1.75	0.82		1.21	0.78	0.11	0.99	0.88	0.05
Uniform Delay, d1	44.4	53.8		42.0	51.0		45.7	31.5	20.1	40.8	35.9	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	505.1	183.2		358.1	11.8		126.0	2.7	0.3	60.5	5.7	0.1
Delay (s)	549.5	237.0		400.1	62.8		171.7	34.2	20.4	101.3	41.6	21.4
Level of Service	F	F		F	E		F	C	C	F	D	C
Approach Delay (s/veh)		376.0			227.1			50.8			46.3	
Approach LOS		F			F			D			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	124.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.55		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	98.7%	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	1802	77	0	1255	6	0	0	89	0	0	241
Future Volume (vph)	0	1802	77	0	1255	6	0	0	89	0	0	241
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
Frt		0.994			0.999				0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3518	0	0	3536	0	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3518	0	0	3536	0	0	0	1611	0	0	1611
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		165.2			220.0			185.6			207.5	
Travel Time (s)		11.9			15.8			13.4			14.9	
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
Adj. Flow (vph)	0	1959	84	0	1364	7	0	0	97	0	0	262
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2043	0	0	1371	0	0	0	97	0	0	262
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

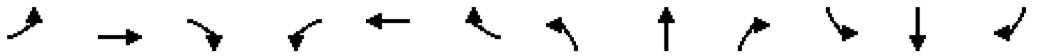
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 64.4%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1802	77	0	1255	6	0	0	89	0	0	241
Future Volume (Veh/h)	0	1802	77	0	1255	6	0	0	89	0	0	241
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1959	84	0	1364	7	0	0	97	0	0	262
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		165			220							
pX, platoon unblocked	0.75			0.74			0.86	0.86	0.74	0.86	0.86	0.75
vC, conflicting volume	1371			2043			2945	3372	1022	2444	3411	686
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	841			1710			1659	2153	333	1079	2197	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	80	100	100	68
cM capacity (veh/h)	596			272			38	41	492	120	38	818

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	1306	737	909	462	97	262
Volume Left	0	0	0	0	0	0
Volume Right	0	84	0	7	97	262
cSH	1700	1700	1700	1700	492	818
Volume to Capacity	0.77	0.43	0.53	0.27	0.20	0.32
Queue Length 95th (m)	0.0	0.0	0.0	0.0	5.8	11.1
Control Delay (s/veh)	0.0	0.0	0.0	0.0	14.1	11.5
Lane LOS					B	B
Approach Delay (s/veh)	0.0		0.0		14.1	11.5
Approach LOS					B	B

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	64.4%	ICU Level of Service		C
Analysis Period (min)	15			

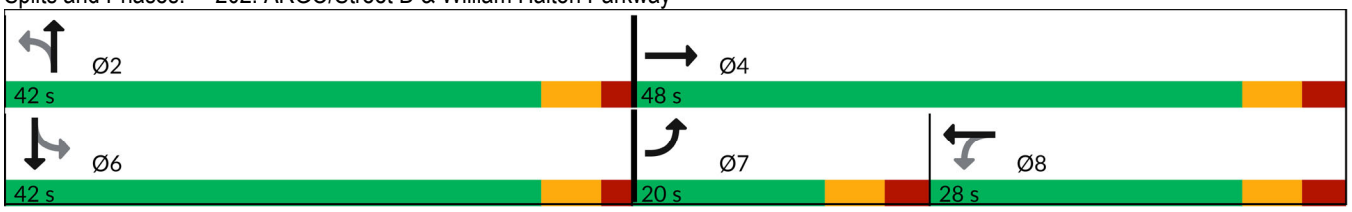


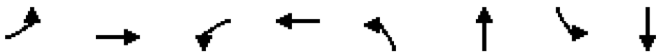
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	482	1332	77	54	843	14	293	10	89	49	10	125
Future Volume (vph)	482	1332	77	54	843	14	293	10	89	49	10	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	50.0		0.0	0.0		0.0
Storage Lanes	2		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.998			0.865			0.861	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3511	0	1770	3532	0	1770	1611	0	1770	1604	0
Flt Permitted	0.950			0.188			0.663			0.687		
Satd. Flow (perm)	3433	3511	0	350	3532	0	1235	1611	0	1280	1604	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			2			14			136	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		220.0			1108.5			243.0			268.9	
Travel Time (s)		15.8			79.8			17.5			19.4	
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
Adj. Flow (vph)	524	1448	84	59	916	15	318	11	97	53	11	136
Shared Lane Traffic (%)												
Lane Group Flow (vph)	524	1532	0	59	931	0	318	108	0	53	147	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)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases				8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	15.0		15.0	15.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	12.0	25.0		25.0	25.0		42.0	42.0		42.0	42.0	
Total Split (s)	20.0	48.0		28.0	28.0		42.0	42.0		42.0	42.0	
Total Split (%)	22.2%	53.3%		31.1%	31.1%		46.7%	46.7%		46.7%	46.7%	
Maximum Green (s)	13.0	41.0		21.0	21.0		36.0	36.0		36.0	36.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	0.2		0.2	0.2		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		Max	Max		None	None		None	None	
Walk Time (s)		7.0		7.0	7.0		14.0	14.0		14.0	14.0	
Flash Don't Walk (s)		11.0		11.0	11.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	13.1	41.4		21.2	21.2		24.8	24.8		24.8	24.8	
Actuated g/C Ratio	0.17	0.52		0.27	0.27		0.31	0.31		0.31	0.31	
v/c Ratio	0.92	0.83		0.63	0.99		0.82	0.21		0.13	0.25	
Control Delay (s/veh)	58.9	23.1		62.4	57.8		42.9	17.4		19.1	5.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	58.9	23.1		62.4	57.8		42.9	17.4		19.1	5.3	
LOS	E	C		E	E		D	B		B	A	
Approach Delay (s/veh)		32.2			58.0			36.5			8.9	
Approach LOS		C			E			D			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 79.3			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay (s/veh): 38.4		Intersection LOS: D	
Intersection Capacity Utilization 98.0%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 202: ARGO/Street D & William Halton Parkway





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	524	1532	59	931	318	108	53	147
v/c Ratio	0.92	0.83	0.63	0.99	0.82	0.21	0.13	0.25
Control Delay (s/veh)	58.9	23.1	62.4	57.8	42.9	17.4	19.1	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	58.9	23.1	62.4	57.8	42.9	17.4	19.1	5.3
Queue Length 50th (m)	42.4	101.1	8.2	76.7	45.7	10.6	5.9	1.2
Queue Length 95th (m)	#86.3	#189.8	#32.2	#144.1	76.6	21.6	13.6	12.6
Internal Link Dist (m)		196.0		1084.5		219.0		244.9
Turn Bay Length (m)					50.0			
Base Capacity (vph)	567	1836	93	945	565	745	586	808
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.83	0.63	0.99	0.56	0.14	0.09	0.18

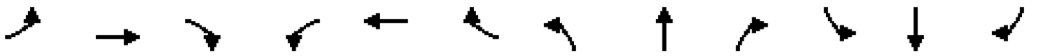
Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	482	1332	77	54	843	14	293	10	89	49	10	125
Future Volume (vph)	482	1332	77	54	843	14	293	10	89	49	10	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.87		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3510		1770	3531		1770	1612		1770	1604	
Flt Permitted	0.95	1.00		0.19	1.00		0.66	1.00		0.69	1.00	
Satd. Flow (perm)	3433	3510		350	3531		1236	1612		1280	1604	
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)	524	1448	84	59	916	15	318	11	97	53	11	136
RTOR Reduction (vph)	0	4	0	0	1	0	0	10	0	0	93	0
Lane Group Flow (vph)	524	1528	0	59	930	0	318	98	0	53	54	0
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases				8			2			6		
Actuated Green, G (s)	13.1	41.4		21.3	21.3		24.8	24.8		24.8	24.8	
Effective Green, g (s)	13.1	41.4		21.3	21.3		24.8	24.8		24.8	24.8	
Actuated g/C Ratio	0.17	0.52		0.27	0.27		0.31	0.31		0.31	0.31	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	0.2		0.2	0.2		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	567	1834		94	949		387	504		400	502	
v/s Ratio Prot	0.15	c0.44			c0.26			0.06			0.03	
v/s Ratio Perm				0.17			c0.26			0.04		
v/c Ratio	0.92	0.83		0.63	0.98		0.82	0.20		0.13	0.11	
Uniform Delay, d1	32.6	16.0		25.5	28.7		25.2	19.9		19.5	19.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	20.9	3.3		27.7	24.7		13.1	0.2		0.2	0.1	
Delay (s)	53.5	19.2		53.2	53.4		38.3	20.1		19.6	19.4	
Level of Service	D	B		D	D		D	C		B	B	
Approach Delay (s/veh)		28.0			53.4			33.7			19.5	
Approach LOS		C			D			C			B	

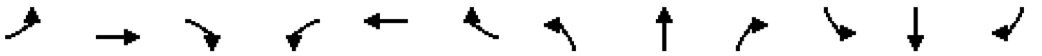
Intersection Summary			
HCM 2000 Control Delay (s/veh)	35.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	79.2	Sum of lost time (s)	20.0
Intersection Capacity Utilization	98.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1750	18	0	1353	257	0	0	82	0	0	378
Future Volume (vph)	0	1750	18	0	1353	257	0	0	82	0	0	378
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		50.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.998				0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3532	0	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3532	0	0	3539	1583	0	0	1611	0	0	1611
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		249.0			148.9			206.9			234.9	
Travel Time (s)		17.9			10.7			14.9			16.9	
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
Adj. Flow (vph)	0	1902	20	0	1471	279	0	0	89	0	0	411
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1922	0	0	1471	279	0	0	89	0	0	411
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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 67.5%		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	1750	18	0	1353	257	0	0	82	0	0	378
Future Volume (Veh/h)	0	1750	18	0	1353	257	0	0	82	0	0	378
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1902	20	0	1471	279	0	0	89	0	0	411
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		249			149							
pX, platoon unblocked	0.71			0.58			0.72	0.72	0.58	0.72	0.72	0.71
vC, conflicting volume	1750			1922			3059	3662	961	2511	3393	736
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1249			1141			1299	2134	0	542	1762	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	86	100	100	47
cM capacity (veh/h)	395			353			40	35	629	263	60	774

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1268	654	736	736	279	89	411
Volume Left	0	0	0	0	0	0	0
Volume Right	0	20	0	0	279	89	411
cSH	1700	1700	1700	1700	1700	629	774
Volume to Capacity	0.75	0.38	0.43	0.43	0.16	0.14	0.53
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	3.9	25.4
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	11.7	14.8
Lane LOS						B	B
Approach Delay (s/veh)	0.0		0.0			11.7	14.8
Approach LOS						B	B

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	67.5%	ICU Level of Service		C
Analysis Period (min)	15			

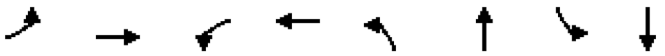
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1354	45	231	1449	51	29	31	317	97	3	5
Future Volume (vph)	11	1354	45	231	1449	51	29	31	317	97	3	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	100.0		0.0	50.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	100.0			100.0			50.0			50.0		
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
Frt		0.995			0.995			0.863			0.906	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3522	0	1770	3522	0	1770	1608	0	1770	1688	0
Flt Permitted	0.111			0.073			0.752			0.183		
Satd. Flow (perm)	207	3522	0	136	3522	0	1401	1608	0	341	1688	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			5			223			5	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		825.3			249.0			160.5			291.6	
Travel Time (s)		59.4			17.9			11.6			21.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	1472	49	251	1575	55	32	34	345	105	3	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	1521	0	251	1630	0	32	379	0	105	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)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		3	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		5.0	15.0		10.0	10.0		5.0	10.0	
Minimum Split (s)	25.0	25.0		9.5	25.0		42.0	42.0		9.5	42.0	
Total Split (s)	57.5	57.5		16.0	73.5		37.0	37.0		9.5	46.5	
Total Split (%)	47.9%	47.9%		13.3%	61.3%		30.8%	30.8%		7.9%	38.8%	
Maximum Green (s)	50.5	50.5		12.0	66.5		31.0	31.0		5.5	40.5	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		1.0	3.0		2.0	2.0		1.0	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)	7.0	7.0		4.0	7.0		6.0	6.0		4.0	6.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes		Yes		
Vehicle Extension (s)	0.2	0.2		3.0	0.2		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Walk Time (s)	7.0	7.0			7.0		14.0	14.0			14.0	
Flash Don't Walk (s)	11.0	11.0			11.0		22.0	22.0			22.0	
Pedestrian Calls (#/hr)	0	0			0		0	0			0	
Act Effct Green (s)	50.7	50.7		69.8	66.8		17.8	17.8		29.4	27.3	
Actuated g/C Ratio	0.47	0.47		0.65	0.62		0.17	0.17		0.27	0.25	
v/c Ratio	0.12	0.91		0.92	0.74		0.14	0.84		0.63	0.02	
Control Delay (s/veh)	23.1	36.8		66.1	18.1		37.9	33.8		47.3	19.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	23.1	36.8		66.1	18.1		37.9	33.8		47.3	19.9	
LOS	C	D		E	B		D	C		D	B	
Approach Delay (s/veh)		36.6			24.5			34.1			45.4	
Approach LOS		D			C			C			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 107.2			
Natural Cycle: 130			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay (s/veh): 30.8		Intersection LOS: C	
Intersection Capacity Utilization 100.8%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 204: West Drive & William Halton Parkway





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	12	1521	251	1630	32	379	105	8
v/c Ratio	0.12	0.91	0.92	0.74	0.14	0.84	0.63	0.02
Control Delay (s/veh)	23.1	36.8	66.1	18.1	37.9	33.8	47.3	19.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	23.1	36.8	66.1	18.1	37.9	33.8	47.3	19.9
Queue Length 50th (m)	1.4	154.4	36.9	118.2	6.0	33.8	17.7	0.5
Queue Length 95th (m)	6.7	#252.5	#102.4	197.8	14.6	69.9	31.5	4.3
Internal Link Dist (m)		801.3		225.0		136.5		267.6
Turn Bay Length (m)	100.0		100.0		50.0		50.0	
Base Capacity (vph)	97	1668	272	2196	406	625	166	643
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	0.12	0.91	0.92	0.74	0.08	0.61	0.63	0.01

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1354	45	231	1449	51	29	31	317	97	3	5
Future Volume (vph)	11	1354	45	231	1449	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)	7.0	7.0		4.0	7.0		6.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.86		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3522		1770	3521		1770	1608		1770	1688	
Flt Permitted	0.11	1.00		0.07	1.00		0.75	1.00		0.18	1.00	
Satd. Flow (perm)	207	3522		136	3521		1402	1608		342	1688	
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)	12	1472	49	251	1575	55	32	34	345	105	3	5
RTOR Reduction (vph)	0	2	0	0	2	0	0	186	0	0	4	0
Lane Group Flow (vph)	12	1519	0	251	1628	0	32	193	0	105	4	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	50.7	50.7		66.8	66.8		17.8	17.8		27.3	27.3	
Effective Green, g (s)	50.7	50.7		66.8	66.8		17.8	17.8		27.3	27.3	
Actuated g/C Ratio	0.47	0.47		0.62	0.62		0.17	0.17		0.25	0.25	
Clearance Time (s)	7.0	7.0		4.0	7.0		6.0	6.0		4.0	6.0	
Vehicle Extension (s)	0.2	0.2		3.0	0.2		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	97	1667		269	2196		233	267		160	430	
v/s Ratio Prot		0.43		c0.11	0.46			0.12		c0.03	0.00	
v/s Ratio Perm	0.06			c0.48			0.02			c0.13		
v/c Ratio	0.12	0.91		0.93	0.74		0.14	0.72		0.66	0.01	
Uniform Delay, d1	15.8	26.1		32.5	14.1		38.1	42.3		33.2	29.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	7.8		37.1	1.2		0.3	9.3		9.3	0.0	
Delay (s)	16.0	33.9		69.6	15.3		38.4	51.6		42.5	29.8	
Level of Service	B	C		E	B		D	D		D	C	
Approach Delay (s/veh)		33.8			22.6			50.6			41.6	
Approach LOS		C			C			D			D	

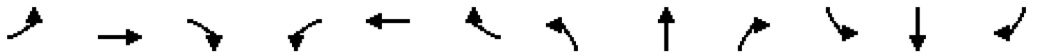
Intersection Summary			
HCM 2000 Control Delay (s/veh)	30.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	107.1	Sum of lost time (s)	21.0
Intersection Capacity Utilization	100.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	9	3	6	73	281	45	49	77	76	178	22
Future Volume (vph)	31	9	3	6	73	281	45	49	77	76	178	22
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		0.991			0.895			0.939			0.989	
Flt Protected		0.965			0.999			0.987			0.986	
Satd. Flow (prot)	0	1781	0	0	1665	0	0	1726	0	0	1816	0
Flt Permitted		0.965			0.999			0.987			0.986	
Satd. Flow (perm)	0	1781	0	0	1665	0	0	1726	0	0	1816	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		333.0			150.5			112.8			152.1	
Travel Time (s)		24.0			10.8			8.1			11.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	10	3	7	79	305	49	53	84	83	193	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	47	0	0	391	0	0	186	0	0	300	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)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

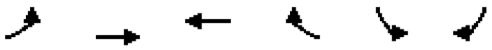
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 48.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	9	3	6	73	281	45	49	77	76	178	22
Future Volume (Veh/h)	31	9	3	6	73	281	45	49	77	76	178	22
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	10	3	7	79	305	49	53	84	83	193	24
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	384			13			446	478	12	436	327	232
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	384			13			446	478	12	436	327	232
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			87	89	92	81	66	97
cM capacity (veh/h)	1174			1606			366	471	1069	436	572	808

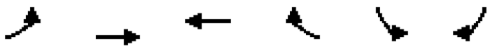
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	47	391	186	300
Volume Left	34	7	49	83
Volume Right	3	305	84	24
cSH	1174	1606	572	538
Volume to Capacity	0.03	0.00	0.33	0.56
Queue Length 95th (m)	0.7	0.1	11.2	27.1
Control Delay (s/veh)	6.0	0.2	14.3	19.8
Lane LOS	A	A	B	C
Approach Delay (s/veh)	6.0	0.2	14.3	19.8
Approach LOS			B	C

Intersection Summary			
Average Delay	9.7		
Intersection Capacity Utilization	48.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	33	122	203	97	96	191
Future Volume (vph)	33	122	203	97	96	191
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			0.957		0.910	
Flt Protected		0.989			0.984	
Satd. Flow (prot)	0	1842	1783	0	1668	0
Flt Permitted		0.989			0.984	
Satd. Flow (perm)	0	1842	1783	0	1668	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		24.2	152.6		206.9	
Travel Time (s)		1.7	11.0		14.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	133	221	105	104	208
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	169	326	0	312	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

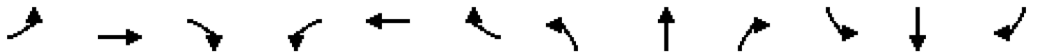
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 51.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	33	122	203	97	96	191
Future Volume (Veh/h)	33	122	203	97	96	191
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)	36	133	221	105	104	208
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	326				479	274
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	326				479	274
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				80	73
cM capacity (veh/h)	1234				530	765

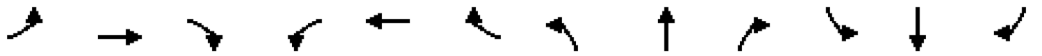
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	169	326	312
Volume Left	36	0	104
Volume Right	0	105	208
cSH	1234	1700	667
Volume to Capacity	0.03	0.19	0.47
Queue Length 95th (m)	0.7	0.0	20.0
Control Delay (s/veh)	1.9	0.0	15.1
Lane LOS	A		C
Approach Delay (s/veh)	1.9	0.0	15.1
Approach LOS			C

Intersection Summary			
Average Delay	6.2		
Intersection Capacity Utilization	51.9%	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)	0	0	210	0	0	80	0	1974	141	0	1762	233
Future Volume (vph)	0	0	210	0	0	80	0	1974	141	0	1762	233
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	0.91	1.00	1.00	0.91	1.00
Frt			0.865			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	1611	0	0	1611	0	5085	1583	0	5085	1583
Flt Permitted												
Satd. Flow (perm)	0	0	1611	0	0	1611	0	5085	1583	0	5085	1583
Link Speed (k/h)		50			50			50			80	
Link Distance (m)		152.6			80.3			246.4			209.3	
Travel Time (s)		11.0			5.8			17.7			9.4	
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
Adj. Flow (vph)	0	0	228	0	0	87	0	2146	153	0	1915	253
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	228	0	0	87	0	2146	153	0	1915	253
Enter Blocked Intersection	No	No	No	No	No	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			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

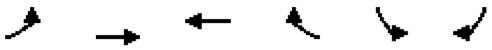
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.7%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	210	0	0	80	0	1974	141	0	1762	233
Future Volume (Veh/h)	0	0	210	0	0	80	0	1974	141	0	1762	233
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	228	0	0	87	0	2146	153	0	1915	253
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								246			209	
pX, platoon unblocked	0.85	0.85	0.70	0.85	0.85	0.71	0.70			0.71		
vC, conflicting volume	2717	4214	638	3012	4314	715	2168			2299		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	104	1866	0	452	1984	0	1192			1404		
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	70	100	100	89	100			100		
cM capacity (veh/h)	652	61	764	293	51	771	410			343		

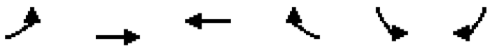
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	228	87	715	715	715	153	638	638	638	253
Volume Left	0	0	0	0	0	0	0	0	0	0
Volume Right	228	87	0	0	0	153	0	0	0	253
cSH	764	771	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.30	0.11	0.42	0.42	0.42	0.09	0.38	0.38	0.38	0.15
Queue Length 95th (m)	10.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s/veh)	11.7	10.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	B								
Approach Delay (s/veh)	11.7	10.3	0.0				0.0			
Approach LOS	B	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)	12	686	238	157	171	16
Future Volume (vph)	12	686	238	157	171	16
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			0.946		0.989	
Flt Protected		0.999			0.956	
Satd. Flow (prot)	0	1861	1762	0	1761	0
Flt Permitted		0.999			0.956	
Satd. Flow (perm)	0	1861	1762	0	1761	0
Link Speed (k/h)		60	50		50	
Link Distance (m)		569.8	258.9		157.5	
Travel Time (s)		34.2	18.6		11.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	746	259	171	186	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	759	430	0	203	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

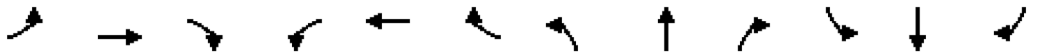
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 62.8%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	686	238	157	171	16
Future Volume (Veh/h)	12	686	238	157	171	16
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	746	259	171	186	17
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			259			
pX, platoon unblocked	0.94				0.94	0.94
vC, conflicting volume	430				1117	345
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	367				1094	276
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				16	98
cM capacity (veh/h)	1125				221	720

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	759	430	203
Volume Left	13	0	186
Volume Right	0	171	17
cSH	1125	1700	235
Volume to Capacity	0.01	0.25	0.86
Queue Length 95th (m)	0.3	0.0	55.7
Control Delay (s/veh)	0.3	0.0	73.0
Lane LOS	A		F
Approach Delay (s/veh)	0.3	0.0	73.0
Approach LOS			F

Intersection Summary			
Average Delay	10.8		
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		

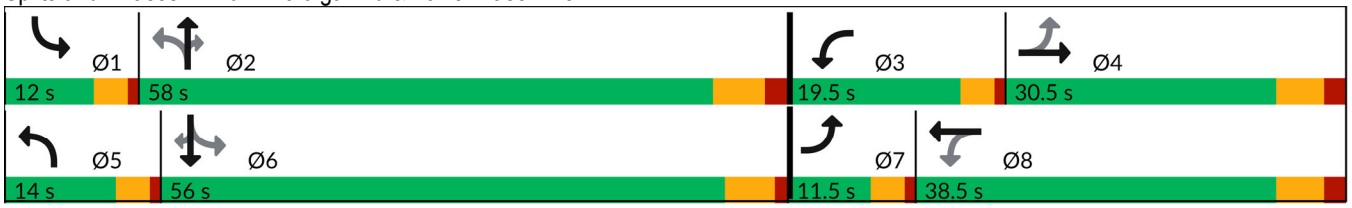


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	226	44	275	287	308	213	2027	404	174	1673	58
Future Volume (vph)	63	226	44	275	287	308	213	2027	404	174	1673	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		90.0	90.0		90.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.965			0.924				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1834	0	1770	1738	0	1805	5036	1599	1752	5085	1615
Flt Permitted	0.160			0.154			0.078			0.079		
Satd. Flow (perm)	298	1834	0	287	1738	0	148	5036	1599	146	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			43				400			138
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			728.6			888.2	
Travel Time (s)		38.5			41.4			32.8			40.0	
Peak Hour Factor	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Adj. Flow (vph)	82	269	81	289	363	376	239	2111	481	196	1838	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	82	350	0	289	739	0	239	2111	481	196	1838	92
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	pm+pt	NA		pm+pt	NA		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			8			2		2	6		6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		7.0	10.0		5.0	25.0	25.0	7.0	25.0	25.0
Minimum Split (s)	9.5	22.5		11.5	22.5		9.5	31.6	31.6	11.5	30.6	30.6
Total Split (s)	11.5	30.5		19.5	38.5		14.0	58.0	58.0	12.0	56.0	56.0
Total Split (%)	9.6%	25.4%		16.3%	32.1%		11.7%	48.3%	48.3%	10.0%	46.7%	46.7%
Maximum Green (s)	7.5	24.3		15.5	32.3		10.0	51.4	51.4	8.0	50.4	50.4
Yellow Time (s)	3.0	4.2		3.0	4.2		3.0	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0	2.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.2		4.0	6.2		4.0	6.6	6.6	4.0	5.6	5.6
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0		0.2	5.0		3.0	5.0	5.0	0.2	5.0	5.0
Recall Mode	None	None		None	None		None	Max	Max	Max	Max	Max
Act Effct Green (s)	33.6	24.2		45.9	34.5		64.0	51.4	51.4	60.0	50.4	50.4
Actuated g/C Ratio	0.28	0.20		0.38	0.29		0.53	0.43	0.43	0.50	0.42	0.42
v/c Ratio	0.48	0.93		0.96	1.39		1.10	0.98	0.53	1.09	0.86	0.12
Control Delay (s/veh)	34.4	76.8		73.4	220.8		119.7	48.7	6.7	120.6	36.7	1.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	34.4	76.8		73.4	220.8		119.7	48.7	6.7	120.6	36.7	1.3
LOS	C	E		E	F		F	D	A	F	D	A
Approach Delay (s/veh)		68.8			179.4			47.6			42.9	
Approach LOS		E			F			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 119.9			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.39			
Intersection Signal Delay (s/veh): 68.6		Intersection LOS: E	
Intersection Capacity Utilization 104.3%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line



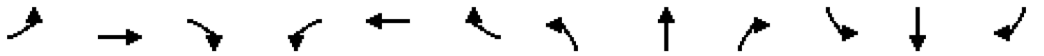


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	82	350	289	739	239	2111	481	196	1838	92
v/c Ratio	0.48	0.93	0.96	1.39	1.10	0.98	0.53	1.09	0.86	0.12
Control Delay (s/veh)	34.4	76.8	73.4	220.8	119.7	48.7	6.7	120.6	36.7	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	34.4	76.8	73.4	220.8	119.7	48.7	6.7	120.6	36.7	1.3
Queue Length 50th (m)	13.0	83.3	52.3	~246.2	~49.7	185.3	11.9	~37.9	149.0	0.0
Queue Length 95th (m)	20.5	#125.0	#108.9	#266.1	#100.6	#225.6	28.5	#85.7	171.0	0.0
Internal Link Dist (m)		725.3		666.6		704.6			864.2	
Turn Bay Length (m)	45.0		110.0		90.0		90.0	90.0		90.0
Base Capacity (vph)	176	380	301	530	217	2159	914	180	2138	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	0.47	0.92	0.96	1.39	1.10	0.98	0.53	1.09	0.86	0.12

Intersection Summary

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	226	44	275	287	308	213	2027	404	174	1673	58
Future Volume (vph)	63	226	44	275	287	308	213	2027	404	174	1673	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.2		4.0	6.2		4.0	6.6	6.6	4.0	5.6	5.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.97		1.00	0.92		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1834		1770	1738		1805	5036	1599	1752	5085	1615
Flt Permitted	0.16	1.00		0.15	1.00		0.08	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	298	1834		287	1738		148	5036	1599	146	5085	1615
Peak-hour factor, PHF	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Adj. Flow (vph)	82	269	81	289	363	376	239	2111	481	196	1838	92
RTOR Reduction (vph)	0	9	0	0	31	0	0	0	230	0	0	54
Lane Group Flow (vph)	82	341	0	289	708	0	239	2111	251	196	1838	38
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	31.0	25.0		44.5	34.5		61.4	51.4	51.4	58.4	50.4	50.4
Effective Green, g (s)	31.0	25.0		44.5	34.5		61.4	51.4	51.4	58.4	50.4	50.4
Actuated g/C Ratio	0.26	0.21		0.37	0.29		0.51	0.43	0.43	0.48	0.42	0.42
Clearance Time (s)	4.0	6.2		4.0	6.2		4.0	6.6	6.6	4.0	5.6	5.6
Vehicle Extension (s)	3.0	5.0		0.2	5.0		3.0	5.0	5.0	0.2	5.0	5.0
Lane Grp Cap (vph)	149	379		296	496		212	2144	680	177	2123	674
v/s Ratio Prot	0.03	0.19		c0.13	c0.41		c0.09	0.42		0.07	0.36	
v/s Ratio Perm	0.11			0.23			c0.48		0.16	0.46		0.02
v/c Ratio	0.55	0.90		0.98	1.43		1.13	0.98	0.37	1.11	0.87	0.06
Uniform Delay, d1	36.9	46.6		31.4	43.1		34.3	34.3	23.6	32.3	32.1	21.0
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	4.3	24.9		45.2	204.0		100.3	16.1	1.5	99.3	5.0	0.2
Delay (s)	41.2	71.5		76.7	247.1		134.6	50.4	25.2	131.6	37.1	21.1
Level of Service	D	E		E	F		F	D	C	F	D	C
Approach Delay (s/veh)		65.8			199.2			53.2			45.1	
Approach LOS		E			F			D			D	

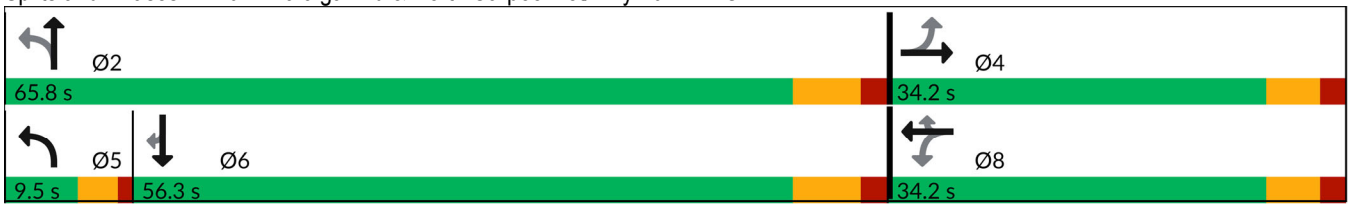
Intersection Summary			
HCM 2000 Control Delay (s/veh)	74.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.26		
Actuated Cycle Length (s)	120.7	Sum of lost time (s)	20.8
Intersection Capacity Utilization	104.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

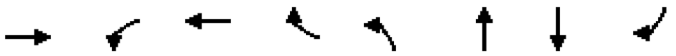
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	20	556	4	30	12	2611	0	0	1987	5
Future Volume (vph)	4	0	20	556	4	30	12	2611	0	0	1987	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.900			0.998	0.850						0.850
Flt Protected		0.987		0.950	0.955		0.950					
Satd. Flow (prot)	0	1539	0	1681	1598	1408	1641	5085	0	0	5085	1615
Flt Permitted		0.889		0.729	0.705		0.068					
Satd. Flow (perm)	0	1386	0	1290	1179	1408	117	5085	0	0	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		87			1	87						76
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			728.6	
Travel Time (s)		9.6			41.3			26.2			52.5	
Peak Hour Factor	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Adj. Flow (vph)	11	0	32	625	11	37	24	2778	0	0	2184	10
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	0	43	0	319	321	33	24	2778	0	0	2184	10
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	4.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	27.0			27.0	27.0
Total Split (s)	34.2	34.2		34.2	34.2	34.2	9.5	65.8			56.3	56.3
Total Split (%)	34.2%	34.2%		34.2%	34.2%	34.2%	9.5%	65.8%			56.3%	56.3%
Maximum Green (s)	28.2	28.2		28.2	28.2	28.2	5.5	58.8			49.3	49.3
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0			2.0	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	4.0	7.0			7.0	7.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	None	Max			Max	Max
Act Effct Green (s)		28.2		28.2	28.2	28.2	61.8	58.8			55.0	55.0
Actuated g/C Ratio		0.28		0.28	0.28	0.28	0.62	0.59			0.55	0.55
v/c Ratio		0.09		0.88	0.96	0.07	0.16	0.93			0.78	0.01
Control Delay (s/veh)		1.1		60.6	78.2	0.3	9.7	25.8			21.2	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		1.1		60.6	78.2	0.3	9.7	25.8			21.2	0.0
LOS		A		E	E	A	A	C			C	A
Approach Delay (s/veh)		1.1			66.0			25.7			21.1	
Approach LOS		A			E			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay (s/veh): 28.5		Intersection LOS: C	
Intersection Capacity Utilization 83.8%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off

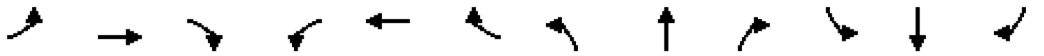




Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	43	319	321	33	24	2778	2184	10
v/c Ratio	0.09	0.88	0.96	0.07	0.16	0.93	0.78	0.01
Control Delay (s/veh)	1.1	60.6	78.2	0.3	9.7	25.8	21.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	1.1	60.6	78.2	0.3	9.7	25.8	21.2	0.0
Queue Length 50th (m)	0.0	65.2	70.6	0.0	1.8	175.6	109.7	0.0
Queue Length 95th (m)	0.0	#116.4	36.0	0.0	2.7	204.5	163.1	0.0
Internal Link Dist (m)	110.0		550.1			339.6	704.6	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	453	363	333	459	156	2989	2796	922
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	0.88	0.96	0.07	0.15	0.93	0.78	0.01

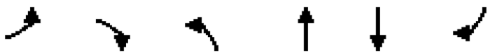
Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	20	556	4	30	12	2611	0	0	1987	5
Future Volume (vph)	4	0	20	556	4	30	12	2611	0	0	1987	5
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	4.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.91			0.91	1.00
Frt		0.90		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1539		1681	1597	1408	1641	5085			5085	1615
Flt Permitted		0.89		0.73	0.70	1.00	0.07	1.00			1.00	1.00
Satd. Flow (perm)		1385		1290	1179	1408	117	5085			5085	1615
Peak-hour factor, PHF	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Adj. Flow (vph)	11	0	32	625	11	37	24	2778	0	0	2184	10
RTOR Reduction (vph)	0	31	0	0	1	24	0	0	0	0	0	5
Lane Group Flow (vph)	0	12	0	319	320	9	24	2778	0	0	2184	5
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		28.2		28.2	28.2	28.2	61.2	61.2			55.0	55.0
Effective Green, g (s)		28.2		28.2	28.2	28.2	61.2	61.2			55.0	55.0
Actuated g/C Ratio		0.28		0.28	0.28	0.28	0.60	0.60			0.54	0.54
Clearance Time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Lane Grp Cap (vph)		381		355	324	387	102	3039			2731	867
v/s Ratio Prot							0.01	c0.55			0.43	
v/s Ratio Perm		0.01		0.25	c0.27	0.01	0.13					0.00
v/c Ratio		0.03		0.90	0.99	0.02	0.24	0.91			0.80	0.01
Uniform Delay, d1		27.1		35.7	36.9	27.1	14.9	18.3			19.2	11.0
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2		0.0		24.6	46.5	0.0	0.9	5.5			2.6	0.0
Delay (s)		27.2		60.4	83.4	27.1	15.8	23.8			21.8	11.0
Level of Service		C		E	F	C	B	C			C	B
Approach Delay (s/veh)		27.2			69.7			23.7			21.7	
Approach LOS		C			E			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	28.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	102.4	Sum of lost time (s)	17.0
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

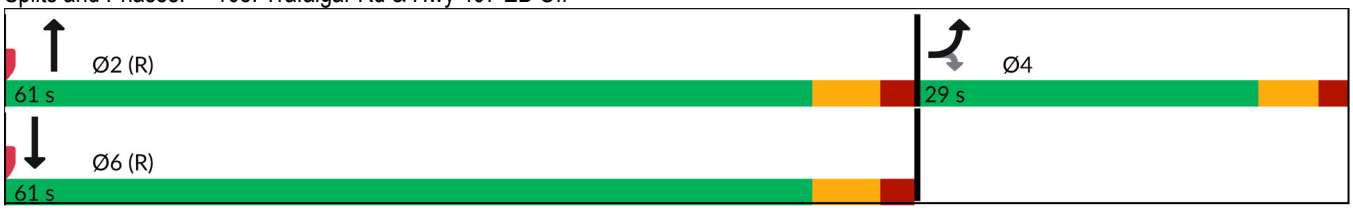


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	42	288	0	2915	2380	0
Future Volume (vph)	42	288	0	2915	2380	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1703	1429	0	5085	5085	0
Flt Permitted	0.950					
Satd. Flow (perm)	1703	1429	0	5085	5085	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		3				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			479.2	363.6	
Travel Time (s)	39.9			34.5	26.2	
Peak Hour Factor	0.75	0.94	0.25	0.94	0.92	0.25
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Adj. Flow (vph)	56	306	0	3101	2587	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	56	306	0	3101	2587	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			7.2	7.2	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	29.0	29.0		24.9	24.9	
Total Split (s)	29.0	29.0		61.0	61.0	
Total Split (%)	32.2%	32.2%		67.8%	67.8%	
Maximum Green (s)	23.0	23.0		54.1	54.1	
Yellow Time (s)	4.0	4.0		4.6	4.6	
All-Red Time (s)	2.0	2.0		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.9	6.9	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	23.0	23.0		54.1	54.1	
Actuated g/C Ratio	0.26	0.26		0.60	0.60	
v/c Ratio	0.13	0.83		1.01	0.85	
Control Delay (s/veh)	26.9	52.6		39.1	18.0	
Queue Delay	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay (s/veh)	26.9	52.6		39.1	18.0	
LOS	C	D		D	B	
Approach Delay (s/veh)	48.6			39.1	18.0	
Approach LOS	D			D	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 90			
Control Type: Pretimed			
Maximum v/c Ratio: 1.01			
Intersection Signal Delay (s/veh): 30.6		Intersection LOS: C	
Intersection Capacity Utilization 74.6%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off



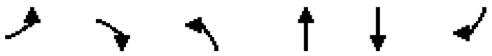


Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	56	306	3101	2587
v/c Ratio	0.13	0.83	1.01	0.85
Control Delay (s/veh)	26.9	52.6	39.1	18.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	26.9	52.6	39.1	18.0
Queue Length 50th (m)	7.9	52.2	~201.0	128.3
Queue Length 95th (m)	14.6	#97.8	#249.8	152.3
Internal Link Dist (m)	530.6		455.2	339.6
Turn Bay Length (m)				
Base Capacity (vph)	435	367	3056	3056
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.13	0.83	1.01	0.85

Intersection Summary

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

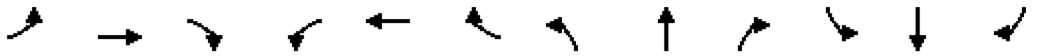
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	42	288	0	2915	2380	0
Future Volume (vph)	42	288	0	2915	2380	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.9	6.9	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1703	1429		5085	5085	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1703	1429		5085	5085	
Peak-hour factor, PHF	0.75	0.94	0.25	0.94	0.92	0.25
Adj. Flow (vph)	56	306	0	3101	2587	0
RTOR Reduction (vph)	0	2	0	0	0	0
Lane Group Flow (vph)	56	304	0	3101	2587	0
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	23.0	23.0		54.1	54.1	
Effective Green, g (s)	23.0	23.0		54.1	54.1	
Actuated g/C Ratio	0.26	0.26		0.60	0.60	
Clearance Time (s)	6.0	6.0		6.9	6.9	
Lane Grp Cap (vph)	435	365		3056	3056	
v/s Ratio Prot	0.03			c0.61	0.51	
v/s Ratio Perm		c0.21				
v/c Ratio	0.13	0.83		1.01	0.85	
Uniform Delay, d1	25.8	31.7		18.0	14.6	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	19.5		20.0	3.1	
Delay (s)	26.4	51.1		38.0	17.7	
Level of Service	C	D		D	B	
Approach Delay (s/veh)	47.3			38.0	17.7	
Approach LOS	D			D	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	29.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

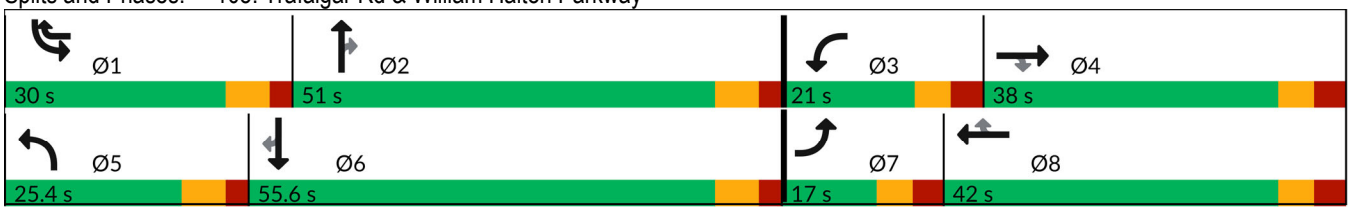


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	714	880	297	382	949	977	422	1782	243	551	1582	535
Future Volume (vph)	714	880	297	382	949	977	422	1782	243	551	1582	535
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		100.0	150.0		150.0	150.0		75.0	150.0		150.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			278			85			187			186
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		165.7			161.0			258.3			479.2	
Travel Time (s)		11.9			11.6			18.6			34.5	
Peak Hour Factor	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
Adj. Flow (vph)	793	907	326	538	1103	1149	521	1980	386	599	1840	582
Shared Lane Traffic (%)												
Lane Group Flow (vph)	793	907	326	538	1103	1149	521	1980	386	599	1840	582
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	1	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	1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	7.0	7.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	14.0	38.0	38.0	14.0	38.0	13.9	13.9	42.9	42.9	13.9	42.9	42.9
Total Split (s)	17.0	38.0	38.0	21.0	42.0	30.0	25.4	51.0	51.0	30.0	55.6	55.6
Total Split (%)	12.1%	27.1%	27.1%	15.0%	30.0%	21.4%	18.1%	36.4%	36.4%	21.4%	39.7%	39.7%
Maximum Green (s)	10.0	31.0	31.0	14.0	35.0	23.1	18.5	44.1	44.1	23.1	48.7	48.7
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	4.6	4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	3.3	3.3	3.3	3.3	3.3	2.3	2.3	2.3	2.3	2.3	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)	7.0	7.0	7.0	7.0	7.0	6.9	6.9	6.9	6.9	6.9	6.9	6.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	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	3.0	3.0	5.0	5.0	3.0	5.0	5.0
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
Flash Don't Walk (s)		24.0	24.0		24.0			29.0	29.0		29.0	29.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effct Green (s)	10.0	31.0	31.0	14.0	35.0	65.1	18.5	44.1	44.1	23.1	48.7	48.7
Actuated g/C Ratio	0.07	0.22	0.22	0.10	0.25	0.47	0.13	0.32	0.32	0.17	0.35	0.35
v/c Ratio	3.24	1.16	0.57	1.54	1.22	1.47	1.14	1.24	0.61	1.09	1.04	0.86
Control Delay (s/veh)	Error	132.9	13.0	295.9	154.2	247.5	138.5	152.7	24.7	118.3	77.1	42.4
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 (s/veh)	Error	132.9	13.0	295.9	154.2	247.5	138.5	152.7	24.7	118.3	77.1	42.4
LOS	F	F	B	F	F	F	F	F	C	F	E	D
Approach Delay (s/veh)		467.1			220.0			133.0			78.6	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 3.24			
Intersection Signal Delay (s/veh): 203.4		Intersection LOS: F	
Intersection Capacity Utilization 132.6%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway



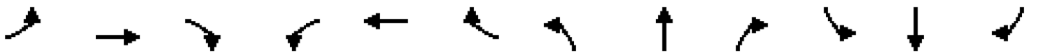


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	793	907	326	538	1103	1149	521	1980	386	599	1840	582
v/c Ratio	3.24	1.16	0.57	1.54	1.22	1.47	1.14	1.24	0.61	1.09	1.04	0.86
Control Delay (s/veh)	Error	132.9	13.0	295.9	154.2	247.5	138.5	152.7	24.7	118.3	77.1	42.4
Queue Delay	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 (s/veh)	Error	132.9	13.0	295.9	154.2	247.5	138.5	152.7	24.7	118.3	77.1	42.4
Queue Length 50th (m)	~208.9	~163.9	11.4	~113.0	~207.4	~447.6	~90.9	~261.1	49.0	~100.9	~211.6	114.2
Queue Length 95th (m)	#250.1	#206.9	42.2	#107.2	#234.1	#489.3	#108.1	#291.2	37.6	#139.5	#222.7	#184.0
Internal Link Dist (m)		141.7			137.0			234.3			455.2	
Turn Bay Length (m)	150.0		100.0	150.0		150.0	150.0		75.0	150.0		150.0
Base Capacity (vph)	245	783	570	350	902	781	458	1601	636	550	1768	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	3.24	1.16	0.57	1.54	1.22	1.47	1.14	1.24	0.61	1.09	1.04	0.86

Intersection Summary

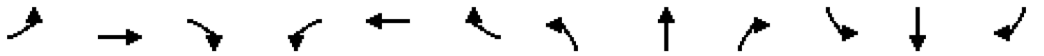
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	714	880	297	382	949	977	422	1782	243	551	1582	535
Future Volume (vph)	714	880	297	382	949	977	422	1782	243	551	1582	535
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	6.9	6.9	6.9	6.9	6.9	6.9	6.9
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
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)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
Peak-hour factor, PHF	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Adj. Flow (vph)	793	907	326	538	1103	1149	521	1980	386	599	1840	582
RTOR Reduction (vph)	0	0	216	0	0	50	0	0	128	0	0	121
Lane Group Flow (vph)	793	907	110	538	1103	1099	521	1980	258	599	1840	461
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	10.0	31.0	31.0	14.0	35.0	58.1	18.5	44.1	44.1	23.1	48.7	48.7
Effective Green, g (s)	10.0	31.0	31.0	14.0	35.0	58.1	18.5	44.1	44.1	23.1	48.7	48.7
Actuated g/C Ratio	0.07	0.22	0.22	0.10	0.25	0.42	0.13	0.32	0.32	0.17	0.35	0.35
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	6.9	6.9	6.9	6.9	6.9	6.9	6.9
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	245	783	354	350	902	656	458	1601	508	550	1768	556
v/s Ratio Prot	c0.23	0.26		0.15	0.31	c0.28	0.15	c0.39		0.18	c0.36	
v/s Ratio Perm			0.07			0.42			0.16			0.29
v/c Ratio	3.24	1.16	0.31	1.54	1.22	1.68	1.14	1.24	0.51	1.09	1.04	0.83
Uniform Delay, d1	65.0	54.5	45.6	63.0	52.5	40.9	60.8	48.0	39.1	58.5	45.7	41.8
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	1017.1	85.3	1.0	255.6	110.2	310.7	85.4	112.1	3.6	64.8	32.8	13.3
Delay (s)	1082.1	139.8	46.6	318.6	162.7	351.7	146.2	160.1	42.7	123.3	78.5	55.2
Level of Service	F	F	D	F	F	F	F	F	D	F	E	E
Approach Delay (s/veh)		493.6			270.6			141.9			82.9	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	225.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.66		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	27.8
Intersection Capacity Utilization	132.6%	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)	291	437	23	233	421	352	297	1930	143	293	1606	188
Future Volume (vph)	291	437	23	233	421	352	297	1930	143	293	1606	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		60.0	60.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	70.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.994			0.936				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1889	0	1805	1778	0	1805	5036	1615	1480	5085	1599
Flt Permitted	0.105			0.108			0.108			0.098		
Satd. Flow (perm)	196	1889	0	205	1778	0	205	5036	1615	153	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			33				136			132
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		277.8			989.6			1941.0			203.1	
Travel Time (s)		16.7			59.4			87.3			9.1	
Peak Hour Factor	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	1%
Adj. Flow (vph)	346	624	28	295	585	440	381	2271	210	458	1825	219
Shared Lane Traffic (%)												
Lane Group Flow (vph)	346	652	0	295	1025	0	381	2271	210	458	1825	219
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	pm+pt	NA		pm+pt	NA		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			8			2		2	6		6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	9.5	24.0		9.5	24.0		9.5	26.0	26.0	11.5	26.0	26.0
Total Split (s)	14.0	44.0		13.0	43.0		15.0	43.0	43.0	20.0	48.0	48.0
Total Split (%)	11.7%	36.7%		10.8%	35.8%		12.5%	35.8%	35.8%	16.7%	40.0%	40.0%
Maximum Green (s)	10.0	38.0		9.0	37.0		11.0	37.0	37.0	16.0	42.0	42.0
Yellow Time (s)	3.0	3.7		3.0	3.7		3.0	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	1.0	2.3		1.0	2.3		1.0	1.4	1.4	1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		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
Recall Mode	None	None		None	None		None	Max	Max	None	Max	Max
Act Effct Green (s)	50.0	38.0		48.0	37.0		50.0	37.0	39.0	59.0	42.0	44.0
Actuated g/C Ratio	0.42	0.32		0.40	0.31		0.42	0.31	0.33	0.49	0.35	0.37
v/c Ratio	1.63	1.09		1.46	1.80		1.64	1.46	0.34	1.82	1.03	0.33
Control Delay (s/veh)	329.1	102.3		257.4	391.7		333.0	244.4	12.9	407.7	66.8	12.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	329.1	102.3		257.4	391.7		333.0	244.4	12.9	407.7	66.8	12.3
LOS	F	F		F	F		F	F	B	F	E	B
Approach Delay (s/veh)		180.9			361.7			239.2			124.5	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 120			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.82			
Intersection Signal Delay (s/veh): 215.3		Intersection LOS: F	
Intersection Capacity Utilization 130.0%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burnhamthorpe Rd



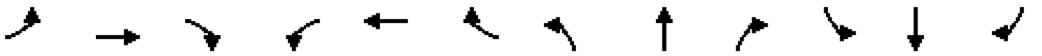


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	346	652	295	1025	381	2271	210	458	1825	219
v/c Ratio	1.63	1.09	1.46	1.80	1.64	1.46	0.34	1.82	1.03	0.33
Control Delay (s/veh)	329.1	102.3	257.4	391.7	333.0	244.4	12.9	407.7	66.8	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	329.1	102.3	257.4	391.7	333.0	244.4	12.9	407.7	66.8	12.3
Queue Length 50th (m)	~107.3	~181.8	~83.1	~379.3	~120.2	~282.3	12.9	~158.4	~176.6	14.3
Queue Length 95th (m)	#152.4	#163.4	#115.1	#337.3	#148.0	#286.9	17.0	#136.9	#199.3	30.7
Internal Link Dist (m)		253.8		965.6		1917.0			179.1	
Turn Bay Length (m)	30.0		15.0		60.0		60.0	60.0		60.0
Base Capacity (vph)	212	599	202	571	232	1552	616	252	1779	669
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.63	1.09	1.46	1.80	1.64	1.46	0.34	1.82	1.03	0.33

Intersection Summary

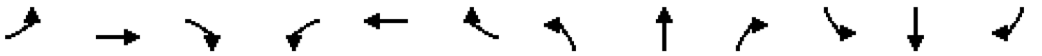
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



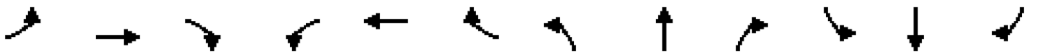
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	291	437	23	233	421	352	297	1930	143	293	1606	188
Future Volume (vph)	291	437	23	233	421	352	297	1930	143	293	1606	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.99		1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1888		1805	1778		1805	5036	1615	1480	5085	1599
Flt Permitted	0.11	1.00		0.11	1.00		0.11	1.00	1.00	0.10	1.00	1.00
Satd. Flow (perm)	196	1888		205	1778		205	5036	1615	152	5085	1599
Peak-hour factor, PHF	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Adj. Flow (vph)	346	624	28	295	585	440	381	2271	210	458	1825	219
RTOR Reduction (vph)	0	1	0	0	23	0	0	0	92	0	0	84
Lane Group Flow (vph)	346	651	0	295	1002	0	381	2271	118	458	1825	135
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	48.0	38.0		46.0	37.0		48.0	37.0	37.0	57.0	42.0	42.0
Effective Green, g (s)	48.0	38.0		46.0	37.0		48.0	37.0	39.0	57.0	42.0	44.0
Actuated g/C Ratio	0.40	0.32		0.38	0.31		0.40	0.31	0.33	0.48	0.35	0.37
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	209	597		198	548		228	1552	524	249	1779	586
v/s Ratio Prot	c0.14	0.34		0.11	c0.56		0.15	0.45		c0.25	0.36	
v/s Ratio Perm	0.52			0.46			0.51		0.07	c0.63		0.08
v/c Ratio	1.66	1.09		1.49	1.83		1.67	1.46	0.23	1.84	1.03	0.23
Uniform Delay, d1	31.5	41.0		31.0	41.5		32.4	41.5	29.5	36.8	39.0	26.3
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	315.3	63.7		245.3	380.1		320.5	212.1	1.0	392.9	28.2	0.9
Delay (s)	346.8	104.7		276.3	421.6		352.9	253.6	30.5	429.7	67.2	27.2
Level of Service	F	F		F	F		F	F	C	F	E	C
Approach Delay (s/veh)		188.6			389.1			250.4			130.1	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	227.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	130.0%	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)	0	1575	99	0	1937	13	0	0	37	0	0	371
Future Volume (vph)	0	1575	99	0	1937	13	0	0	37	0	0	371
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
Frt		0.991			0.999				0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3507	0	0	3536	0	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3507	0	0	3536	0	0	0	1611	0	0	1611
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		161.0			234.1			145.8			194.6	
Travel Time (s)		11.6			16.9			10.5			14.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1712	108	0	2105	14	0	0	40	0	0	403
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1820	0	0	2119	0	0	0	40	0	0	403
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

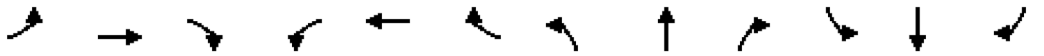
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 83.6%		ICU Level of Service E	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1575	99	0	1937	13	0	0	37	0	0	371
Future Volume (Veh/h)	0	1575	99	0	1937	13	0	0	37	0	0	371
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1712	108	0	2105	14	0	0	40	0	0	403
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		161			234							
pX, platoon unblocked	0.61			0.79			0.72	0.72	0.79	0.72	0.72	0.61
vC, conflicting volume	2119			1820			3222	3885	910	3008	3932	1060
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1557			1497			1961	2886	338	1664	2951	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	92	100	100	39
cM capacity (veh/h)	257			349			11	11	517	42	10	662

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	1141	679	1403	716	40	403
Volume Left	0	0	0	0	0	0
Volume Right	0	108	0	14	40	403
cSH	1700	1700	1700	1700	517	662
Volume to Capacity	0.67	0.40	0.83	0.42	0.08	0.61
Queue Length 95th (m)	0.0	0.0	0.0	0.0	2.0	33.1
Control Delay (s/veh)	0.0	0.0	0.0	0.0	12.6	18.5
Lane LOS					B	C
Approach Delay (s/veh)	0.0		0.0		12.6	18.5
Approach LOS					B	C

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	83.6%	ICU Level of Service		E
Analysis Period (min)	15			

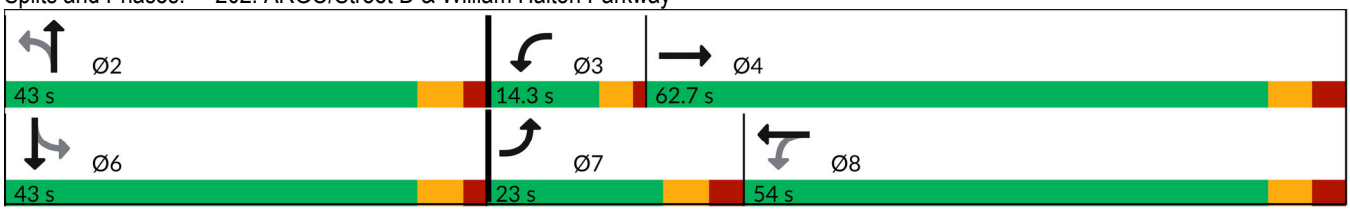


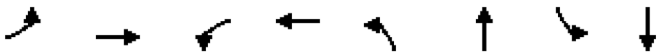
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	533	980	99	111	1509	9	248	10	37	77	10	193
Future Volume (vph)	533	980	99	111	1509	9	248	10	37	77	10	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0		0.0	55.0		0.0	115.0		0.0	0.0		0.0
Storage Lanes	2		0	1		0	1		0	1		0
Taper Length (m)	100.0			100.0			85.0			50.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.986			0.999			0.882			0.857	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3490	0	1770	3536	0	1770	1643	0	1770	1596	0
Flt Permitted	0.950			0.170			0.519			0.724		
Satd. Flow (perm)	3433	3490	0	317	3536	0	967	1643	0	1349	1596	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			1			40			210	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		234.1			1187.2			147.6			240.2	
Travel Time (s)		16.9			85.5			10.6			17.3	
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
Adj. Flow (vph)	579	1065	108	121	1640	10	270	11	40	84	11	210
Shared Lane Traffic (%)												
Lane Group Flow (vph)	579	1173	0	121	1650	0	270	51	0	84	221	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)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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	Prot	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases				8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	12.0	32.0		9.5	32.0		42.0	42.0		42.0	42.0	
Total Split (s)	23.0	62.7		14.3	54.0		43.0	43.0		43.0	43.0	
Total Split (%)	19.2%	52.3%		11.9%	45.0%		35.8%	35.8%		35.8%	35.8%	
Maximum Green (s)	16.0	55.7		10.3	47.0		37.0	37.0		37.0	37.0	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		1.0	3.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		4.0	7.0		6.0	6.0		6.0	6.0	
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	Min	Min		None	Min		None	None		None	None	
Walk Time (s)		10.0			10.0		14.0	14.0		14.0	14.0	
Flash Don't Walk (s)		15.0			15.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	16.0	57.4		58.7	47.0		34.5	34.5		34.5	34.5	
Actuated g/C Ratio	0.14	0.49		0.50	0.40		0.29	0.29		0.29	0.29	
v/c Ratio	1.24	0.69		0.46	1.17		0.95	0.10		0.21	0.36	
Control Delay (s/veh)	167.8	26.2		16.9	116.2		84.1	12.5		32.6	6.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	167.8	26.2		16.9	116.2		84.1	12.5		32.6	6.7	
LOS	F	C		B	F		F	B		C	A	
Approach Delay (s/veh)		73.0			109.4			72.7			13.8	
Approach LOS		E			F			E			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 117.6			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.24			
Intersection Signal Delay (s/veh): 84.2		Intersection LOS: F	
Intersection Capacity Utilization 105.1%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 202: ARGO/Street D & William Halton Parkway





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	579	1173	121	1650	270	51	84	221
v/c Ratio	1.24	0.69	0.46	1.17	0.95	0.10	0.21	0.36
Control Delay (s/veh)	167.8	26.2	16.9	116.2	84.1	12.5	32.6	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	167.8	26.2	16.9	116.2	84.1	12.5	32.6	6.7
Queue Length 50th (m)	~93.0	116.3	11.9	~261.0	64.1	1.9	15.3	1.9
Queue Length 95th (m)	#129.5	145.8	20.4	#306.2	#117.0	11.4	28.9	20.2
Internal Link Dist (m)		210.1		1163.2		123.6		216.2
Turn Bay Length (m)	120.0		55.0		115.0			
Base Capacity (vph)	467	1710	290	1415	304	544	424	646
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	1.24	0.69	0.42	1.17	0.89	0.09	0.20	0.34

Intersection Summary

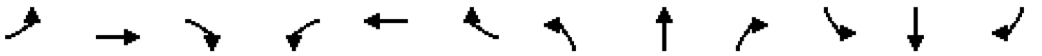
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	533	980	99	111	1509	9	248	10	37	77	10	193
Future Volume (vph)	533	980	99	111	1509	9	248	10	37	77	10	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		4.0	7.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.88		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3490		1770	3536		1770	1644		1770	1597	
Flt Permitted	0.95	1.00		0.17	1.00		0.52	1.00		0.72	1.00	
Satd. Flow (perm)	3433	3490		316	3536		967	1644		1348	1597	
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)	579	1065	108	121	1640	10	270	11	40	84	11	210
RTOR Reduction (vph)	0	6	0	0	1	0	0	28	0	0	148	0
Lane Group Flow (vph)	579	1167	0	121	1649	0	270	23	0	84	73	0
Turn Type	Prot	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases				8			2			6		
Actuated Green, G (s)	16.0	57.5		55.7	47.1		34.5	34.5		34.5	34.5	
Effective Green, g (s)	16.0	57.5		55.7	47.1		34.5	34.5		34.5	34.5	
Actuated g/C Ratio	0.14	0.49		0.47	0.40		0.29	0.29		0.29	0.29	
Clearance Time (s)	7.0	7.0		4.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	467	1706		256	1416		283	482		395	468	
v/s Ratio Prot	c0.17	0.33		0.03	c0.47			0.01			0.05	
v/s Ratio Perm				0.19			c0.28			0.06		
v/c Ratio	1.24	0.68		0.47	1.16		0.95	0.05		0.21	0.16	
Uniform Delay, d1	50.8	23.1		18.6	35.3		40.8	29.8		31.3	30.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	125.1	1.2		1.4	82.3		40.8	0.0		0.3	0.2	
Delay (s)	175.9	24.2		20.0	117.5		81.6	29.8		31.6	30.9	
Level of Service	F	C		C	F		F	C		C	C	
Approach Delay (s/veh)		74.4			110.9			73.4			31.1	
Approach LOS		E			F			E			C	

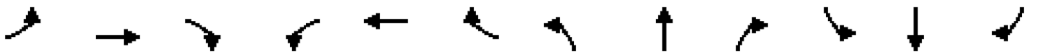
Intersection Summary			
HCM 2000 Control Delay (s/veh)	86.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	117.6	Sum of lost time (s)	20.0
Intersection Capacity Utilization	105.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1813	59	0	1521	385	0	0	78	0	0	340
Future Volume (vph)	0	1813	59	0	1521	385	0	0	78	0	0	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		50.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.995				0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3522	0	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3522	0	0	3539	1583	0	0	1611	0	0	1611
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		226.3			165.7			202.5			251.2	
Travel Time (s)		16.3			11.9			14.6			18.1	
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
Adj. Flow (vph)	0	1971	64	0	1653	418	0	0	85	0	0	370
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2035	0	0	1653	418	0	0	85	0	0	370
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

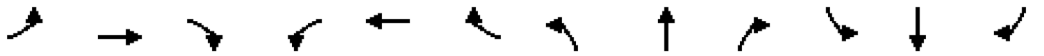
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 69.8%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1813	59	0	1521	385	0	0	78	0	0	340
Future Volume (Veh/h)	0	1813	59	0	1521	385	0	0	78	0	0	340
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1971	64	0	1653	418	0	0	85	0	0	370
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		226			166							
pX, platoon unblocked	0.76			0.56			0.68	0.68	0.56	0.68	0.68	0.76
vC, conflicting volume	2071			2035			3200	4074	1018	2724	3688	827
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1779			1290			1718	2997	0	1022	2432	143
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	45
cM capacity (veh/h)	263			301			18	9	612	112	21	668

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1314	721	827	827	418	85	370
Volume Left	0	0	0	0	0	0	0
Volume Right	0	64	0	0	418	85	370
cSH	1700	1700	1700	1700	1700	612	668
Volume to Capacity	0.77	0.42	0.49	0.49	0.25	0.14	0.55
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	3.8	27.3
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	11.8	16.9
Lane LOS						B	C
Approach Delay (s/veh)	0.0		0.0			11.8	16.9
Approach LOS						B	C

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	69.8%	ICU Level of Service		C
Analysis Period (min)	15			

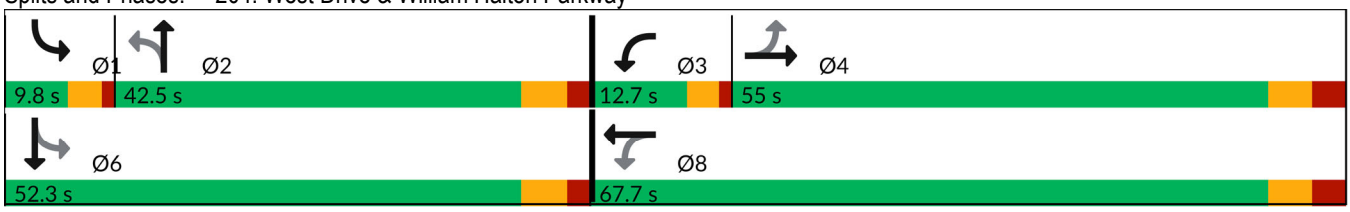


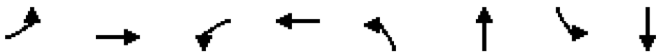
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	1410	56	164	1626	71	32	40	352	110	1	6
Future Volume (vph)	16	1410	56	164	1626	71	32	40	352	110	1	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	100.0		0.0	50.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	100.0			100.0			50.0			50.0		
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
Frt		0.994			0.994			0.865			0.869	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3518	0	1770	3518	0	1770	1611	0	1770	1619	0
Flt Permitted	0.083			0.076			0.752			0.148		
Satd. Flow (perm)	155	3518	0	142	3518	0	1401	1611	0	276	1619	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			5			178			7	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		824.7			226.3			176.0			195.5	
Travel Time (s)		59.4			16.3			12.7			14.1	
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
Adj. Flow (vph)	17	1533	61	178	1767	77	35	43	383	120	1	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	1594	0	178	1844	0	35	426	0	120	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)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		3	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	20.0	20.0		5.0	20.0		10.0	10.0		5.0	10.0	
Minimum Split (s)	27.0	27.0		9.5	27.0		42.0	42.0		9.5	42.0	
Total Split (s)	55.0	55.0		12.7	67.7		42.5	42.5		9.8	52.3	
Total Split (%)	45.8%	45.8%		10.6%	56.4%		35.4%	35.4%		8.2%	43.6%	
Maximum Green (s)	48.0	48.0		8.7	60.7		36.5	36.5		5.8	46.3	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		1.0	3.0		2.0	2.0		1.0	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)	7.0	7.0		4.0	7.0		6.0	6.0		4.0	6.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes		Yes		
Vehicle Extension (s)	0.2	0.2		3.0	0.2		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Walk Time (s)	7.0	7.0			7.0		14.0	14.0			14.0	
Flash Don't Walk (s)	11.0	11.0			11.0		22.0	22.0			22.0	
Pedestrian Calls (#/hr)	0	0			0		0	0			0	
Act Effct Green (s)	48.3	48.3		64.1	61.1		22.9	22.9		34.8	32.8	
Actuated g/C Ratio	0.45	0.45		0.60	0.57		0.21	0.21		0.33	0.31	
v/c Ratio	0.24	1.00		0.82	0.92		0.12	0.88		0.70	0.02	
Control Delay (s/veh)	33.4	53.8		50.4	30.8		32.9	42.7		48.7	14.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	33.4	53.8		50.4	30.8		32.9	42.7		48.7	14.0	
LOS	C	D		D	C		C	D		D	B	
Approach Delay (s/veh)		53.6			32.5			42.0			46.5	
Approach LOS		D			C			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 107			
Natural Cycle: 130			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay (s/veh): 42.0		Intersection LOS: D	
Intersection Capacity Utilization 113.8%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 204: West Drive & William Halton Parkway





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	17	1594	178	1844	35	426	120	8
v/c Ratio	0.24	1.00	0.82	0.92	0.12	0.88	0.70	0.02
Control Delay (s/veh)	33.4	53.8	50.4	30.8	32.9	42.7	48.7	14.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	33.4	53.8	50.4	30.8	32.9	42.7	48.7	14.0
Queue Length 50th (m)	2.2	~179.3	21.0	179.7	6.2	54.9	18.8	0.2
Queue Length 95th (m)	10.5	#287.4	#71.7	#303.9	14.4	94.0	#36.2	3.5
Internal Link Dist (m)		800.7		202.3		152.0		171.5
Turn Bay Length (m)	100.0		100.0		50.0		50.0	
Base Capacity (vph)	70	1590	218	2011	481	669	171	709
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	1.00	0.82	0.92	0.07	0.64	0.70	0.01

Intersection Summary

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	1410	56	164	1626	71	32	40	352	110	1	6
Future Volume (vph)	16	1410	56	164	1626	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)	7.0	7.0		4.0	7.0		6.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.87		1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3519		1770	3517		1770	1612		1770	1618	
Flt Permitted	0.08	1.00		0.08	1.00		0.75	1.00		0.15	1.00	
Satd. Flow (perm)	154	3519		142	3517		1402	1612		276	1618	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	1533	61	178	1767	77	35	43	383	120	1	7
RTOR Reduction (vph)	0	2	0	0	2	0	0	140	0	0	5	0
Lane Group Flow (vph)	17	1592	0	178	1842	0	35	286	0	120	3	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	48.3	48.3		61.1	61.1		23.0	23.0		32.8	32.8	
Effective Green, g (s)	48.3	48.3		61.1	61.1		23.0	23.0		32.8	32.8	
Actuated g/C Ratio	0.45	0.45		0.57	0.57		0.22	0.22		0.31	0.31	
Clearance Time (s)	7.0	7.0		4.0	7.0		6.0	6.0		4.0	6.0	
Vehicle Extension (s)	0.2	0.2		3.0	0.2		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	69	1589		215	2010		301	346		165	496	
v/s Ratio Prot		c0.45		0.07	c0.52			c0.18		c0.04	0.00	
v/s Ratio Perm	0.11			0.40			0.02			0.18		
v/c Ratio	0.25	1.00		0.83	0.92		0.12	0.83		0.73	0.01	
Uniform Delay, d1	18.1	29.3		27.9	20.6		33.8	40.1		30.2	25.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	23.0		22.3	6.9		0.2	14.9		14.8	0.0	
Delay (s)	18.8	52.3		50.2	27.5		33.9	55.0		44.9	25.7	
Level of Service	B	D		D	C		C	D		D	C	
Approach Delay (s/veh)		51.9			29.5			53.4			43.7	
Approach LOS		D			C			D			D	

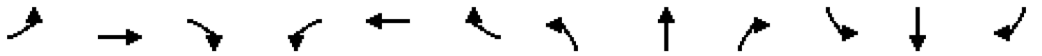
Intersection Summary			
HCM 2000 Control Delay (s/veh)	41.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	106.9	Sum of lost time (s)	21.0
Intersection Capacity Utilization	113.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	30	10	3	36	250	23	62	167	52	150	12
Future Volume (vph)	95	30	10	3	36	250	23	62	167	52	150	12
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		0.990			0.883			0.910			0.992	
Flt Protected		0.966						0.995			0.988	
Satd. Flow (prot)	0	1781	0	0	1645	0	0	1687	0	0	1826	0
Flt Permitted		0.966						0.995			0.988	
Satd. Flow (perm)	0	1781	0	0	1645	0	0	1687	0	0	1826	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		276.8			164.9			130.3			140.1	
Travel Time (s)		19.9			11.9			9.4			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
Adj. Flow (vph)	103	33	11	3	39	272	25	67	182	57	163	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	147	0	0	314	0	0	274	0	0	233	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)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

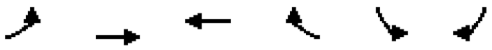
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.9%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	30	10	3	36	250	23	62	167	52	150	12
Future Volume (Veh/h)	95	30	10	3	36	250	23	62	167	52	150	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	103	33	11	3	39	272	25	67	182	57	163	13
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	311			44			520	562	39	641	431	175
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	311			44			520	562	39	641	431	175
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			100			92	83	82	78	66	99
cM capacity (veh/h)	1249			1564			317	399	1033	261	474	868

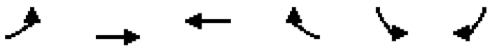
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	147	314	274	233
Volume Left	103	3	25	57
Volume Right	11	272	182	13
cSH	1249	1564	648	403
Volume to Capacity	0.08	0.00	0.42	0.58
Queue Length 95th (m)	2.2	0.0	16.8	28.2
Control Delay (s/veh)	5.9	0.1	14.6	25.4
Lane LOS	A	A	B	D
Approach Delay (s/veh)	5.9	0.1	14.6	25.4
Approach LOS			B	D

Intersection Summary				
Average Delay	11.2			
Intersection Capacity Utilization	57.9%	ICU Level of Service	B	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	114	149	119	238	87	147
Future Volume (vph)	114	149	119	238	87	147
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			0.910		0.915	
Flt Protected		0.979			0.982	
Satd. Flow (prot)	0	1824	1695	0	1674	0
Flt Permitted		0.979			0.982	
Satd. Flow (perm)	0	1824	1695	0	1674	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		164.9	188.6		202.5	
Travel Time (s)		11.9	13.6		14.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	124	162	129	259	95	160
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	286	388	0	255	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

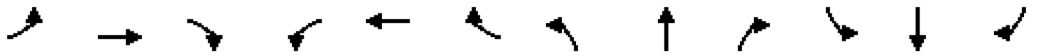
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.9%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	114	149	119	238	87	147
Future Volume (Veh/h)	114	149	119	238	87	147
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)	124	162	129	259	95	160
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	388				669	259
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	388				669	259
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	89				75	79
cM capacity (veh/h)	1170				378	780

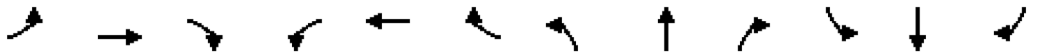
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	286	388	255
Volume Left	124	0	95
Volume Right	0	259	160
cSH	1170	1700	559
Volume to Capacity	0.11	0.23	0.46
Queue Length 95th (m)	2.8	0.0	19.0
Control Delay (s/veh)	4.2	0.0	16.7
Lane LOS	A		C
Approach Delay (s/veh)	4.2	0.0	16.7
Approach LOS			C

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	58.9%	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)	0	0	198	0	0	66	0	2380	193	0	1889	373
Future Volume (vph)	0	0	198	0	0	66	0	2380	193	0	1889	373
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		50.0	0.0		50.0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.865			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	1611	0	0	1611	0	5085	1583	0	5085	1583
Flt Permitted												
Satd. Flow (perm)	0	0	1611	0	0	1611	0	5085	1583	0	5085	1583
Link Speed (k/h)		50			50			50			80	
Link Distance (m)		188.6			84.7			203.1			258.3	
Travel Time (s)		13.6			6.1			14.6			11.6	
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
Adj. Flow (vph)	0	0	215	0	0	72	0	2587	210	0	2053	405
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	215	0	0	72	0	2587	210	0	2053	405
Enter Blocked Intersection	No	No	No	No	No	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			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

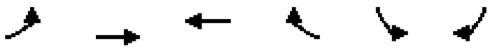
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 56.7%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	198	0	0	66	0	2380	193	0	1889	373
Future Volume (Veh/h)	0	0	198	0	0	66	0	2380	193	0	1889	373
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	215	0	0	72	0	2587	210	0	2053	405
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								203			258	
pX, platoon unblocked	0.83	0.83	0.68	0.83	0.83	0.71	0.68			0.71		
vC, conflicting volume	2987	4850	684	3486	5045	862	2458			2797		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	263	2518	0	867	2754	0	1493			2086		
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	71	100	100	91	100			100		
cM capacity (veh/h)	500	23	736	144	16	765	303			185		

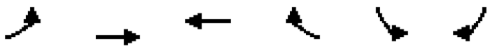
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	215	72	862	862	862	210	684	684	684	405
Volume Left	0	0	0	0	0	0	0	0	0	0
Volume Right	215	72	0	0	0	210	0	0	0	405
cSH	736	765	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.29	0.09	0.51	0.51	0.51	0.12	0.40	0.40	0.40	0.24
Queue Length 95th (m)	9.7	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s/veh)	11.9	10.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	B								
Approach Delay (s/veh)	11.9	10.2	0.0				0.0			
Approach LOS	B	B								

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	56.7%	ICU Level of Service	B	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	7	605	666	240	151	12
Future Volume (vph)	7	605	666	240	151	12
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			0.964		0.990	
Flt Protected		0.999			0.956	
Satd. Flow (prot)	0	1861	1796	0	1763	0
Flt Permitted		0.999			0.956	
Satd. Flow (perm)	0	1861	1796	0	1763	0
Link Speed (k/h)		60	50		50	
Link Distance (m)		550.9	277.8		134.0	
Travel Time (s)		33.1	20.0		9.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	658	724	261	164	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	666	985	0	177	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 65.4%		ICU Level of Service C	
Analysis Period (min) 15			



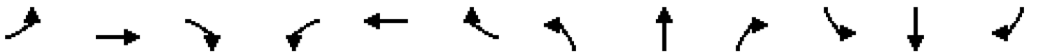
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	605	666	240	151	12
Future Volume (Veh/h)	7	605	666	240	151	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	658	724	261	164	13
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			278			
pX, platoon unblocked	0.57				0.57	0.57
vC, conflicting volume	985				1529	855
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	589				1550	358
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				0	97
cM capacity (veh/h)	558				70	388

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	666	985	177
Volume Left	8	0	164
Volume Right	0	261	13
cSH	558	1700	74
Volume to Capacity	0.01	0.58	2.38
Queue Length 95th (m)	0.3	0.0	134.4
Control Delay (s/veh)	0.4	0.0	751.4
Lane LOS	A		F
Approach Delay (s/veh)	0.4	0.0	751.4
Approach LOS			F

Intersection Summary			
Average Delay	72.9		
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		

Appendix G7

2041 Total Operation Synchro Reports

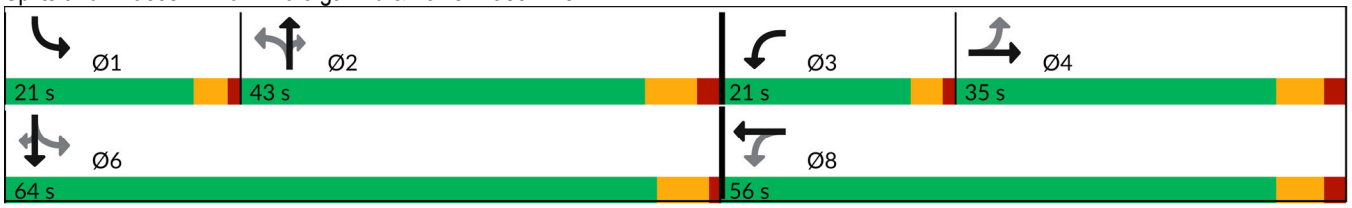


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	332	95	319	114	147	35	1580	349	347	1890	66
Future Volume (vph)	115	332	95	319	114	147	35	1580	349	347	1890	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		90.0	90.0		90.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.963			0.912				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1816	0	1736	1666	0	1597	4848	1568	1752	4988	1553
Flt Permitted	0.561			0.122			0.110			0.097		
Satd. Flow (perm)	1025	1816	0	223	1666	0	185	4848	1568	179	4988	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			72				293			82
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			728.7			434.3	
Travel Time (s)		38.5			41.4			32.8			19.5	
Peak Hour Factor	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Adj. Flow (vph)	137	431	140	437	137	193	49	1927	392	394	2224	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	137	571	0	437	330	0	49	1927	392	394	2224	93
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		25.0	25.0	25.0	7.0	25.0	25.0
Minimum Split (s)	22.5	22.5		11.5	22.5		31.6	31.6	31.6	11.5	30.6	30.6
Total Split (s)	35.0	35.0		21.0	56.0		43.0	43.0	43.0	21.0	64.0	64.0
Total Split (%)	29.2%	29.2%		17.5%	46.7%		35.8%	35.8%	35.8%	17.5%	53.3%	53.3%
Maximum Green (s)	28.8	28.8		17.0	49.8		36.4	36.4	36.4	17.0	58.4	58.4
Yellow Time (s)	4.2	4.2		3.0	4.2		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	Max
Act Effct Green (s)	28.8	28.8		52.0	49.8		36.4	36.4	36.4	60.0	58.4	58.4
Actuated g/C Ratio	0.24	0.24		0.43	0.42		0.30	0.30	0.30	0.50	0.49	0.49
v/c Ratio	0.56	1.29		1.41	0.45		0.88	1.31	0.58	1.26	0.92	0.12
Control Delay (s/veh)	50.0	182.2		230.9	21.7		132.4	180.0	12.8	172.1	35.8	4.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	50.0	182.2		230.9	21.7		132.4	180.0	12.8	172.1	35.8	4.9
LOS	D	F		F	C		F	F	B	F	D	A
Approach Delay (s/veh)		156.6			140.9			151.4			54.5	
Approach LOS		F			F			F			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 120			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.41			
Intersection Signal Delay (s/veh): 110.6		Intersection LOS: F	
Intersection Capacity Utilization 116.9%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line



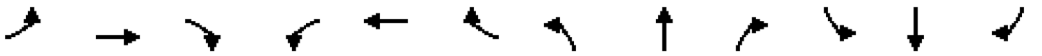


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	137	571	437	330	49	1927	392	394	2224	93
v/c Ratio	0.56	1.29	1.41	0.45	0.88	1.31	0.58	1.26	0.92	0.12
Control Delay (s/veh)	50.0	182.2	230.9	21.7	132.4	180.0	12.8	172.1	35.8	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	50.0	182.2	230.9	21.7	132.4	180.0	12.8	172.1	35.8	4.9
Queue Length 50th (m)	30.0	~178.8	~129.0	44.7	11.5	~225.1	18.2	~106.3	181.6	1.4
Queue Length 95th (m)	47.9	#196.7	#138.9	62.7	#27.3	#220.9	48.8	#164.0	185.9	5.9
Internal Link Dist (m)		725.3		666.6		704.7			410.3	
Turn Bay Length (m)	45.0		110.0		90.0		90.0	90.0		90.0
Base Capacity (vph)	246	444	310	733	56	1470	679	312	2427	797
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	0.56	1.29	1.41	0.45	0.88	1.31	0.58	1.26	0.92	0.12

Intersection Summary

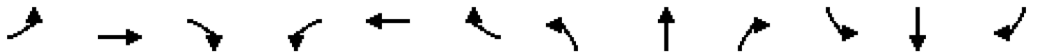
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	332	95	319	114	147	35	1580	349	347	1890	66
Future Volume (vph)	115	332	95	319	114	147	35	1580	349	347	1890	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	1816		1736	1667		1597	4848	1568	1752	4988	1553
Flt Permitted	0.56	1.00		0.12	1.00		0.11	1.00	1.00	0.10	1.00	1.00
Satd. Flow (perm)	1026	1816		223	1667		185	4848	1568	178	4988	1553
Peak-hour factor, PHF	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Adj. Flow (vph)	137	431	140	437	137	193	49	1927	392	394	2224	93
RTOR Reduction (vph)	0	8	0	0	42	0	0	0	204	0	0	42
Lane Group Flow (vph)	137	563	0	437	288	0	49	1927	188	394	2224	51
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	28.8	28.8		49.8	49.8		36.4	36.4	36.4	58.4	58.4	58.4
Effective Green, g (s)	28.8	28.8		49.8	49.8		36.4	36.4	36.4	58.4	58.4	58.4
Actuated g/C Ratio	0.24	0.24		0.42	0.42		0.30	0.30	0.30	0.49	0.49	0.49
Clearance Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Lane Grp Cap (vph)	246	435		306	691		56	1470	475	309	2427	755
v/s Ratio Prot		0.31		c0.20	0.17			0.40		c0.18	0.45	
v/s Ratio Perm	0.13			c0.39			0.27		0.12	c0.44		0.03
v/c Ratio	0.56	1.29		1.43	0.42		0.88	1.31	0.40	1.28	0.92	0.07
Uniform Delay, d1	40.0	45.6		35.4	24.8		39.6	41.8	33.1	37.1	28.5	16.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.6	148.3		210.6	0.9		87.8	144.9	2.5	146.6	6.9	0.2
Delay (s)	44.6	193.9		246.0	25.7		127.5	186.7	35.5	183.7	35.4	16.5
Level of Service	D	F		F	C		F	F	D	F	D	B
Approach Delay (s/veh)		165.0			151.2			160.4			56.3	
Approach LOS		F			F			F			E	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	116.8	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)	20.8
Intersection Capacity Utilization	116.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

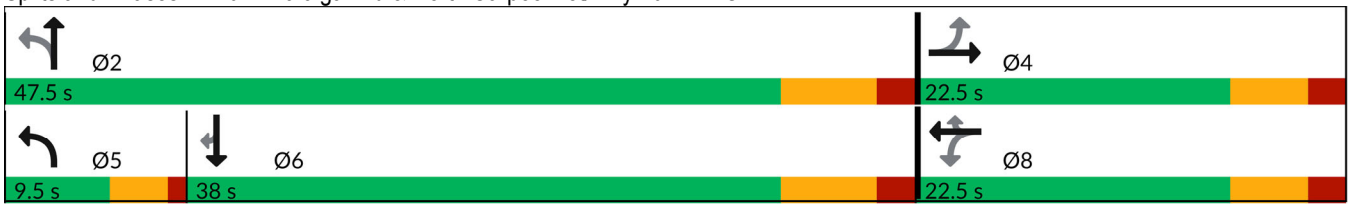


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	10	339	3	7	8	1953	0	0	2031	3
Future Volume (vph)	4	0	10	339	3	7	8	1953	0	0	2031	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.899			0.999	0.850						0.850
Flt Protected		0.988		0.950	0.954		0.950					
Satd. Flow (prot)	0	1497	0	1545	1472	1534	1543	4893	0	0	4988	1615
Flt Permitted		0.893		0.728	0.701		0.098					
Satd. Flow (perm)	0	1353	0	1184	1082	1534	159	4893	0	0	4988	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		125			1	125						109
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			728.7	
Travel Time (s)		9.6			41.3			26.2			52.5	
Peak Hour Factor	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Adj. Flow (vph)	11	0	33	440	6	17	27	2123	0	0	2334	12
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	0	44	0	224	224	15	27	2123	0	0	2334	12
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	4.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	27.0			27.0	27.0
Total Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	47.5			38.0	38.0
Total Split (%)	32.1%	32.1%		32.1%	32.1%	32.1%	13.6%	67.9%			54.3%	54.3%
Maximum Green (s)	16.5	16.5		16.5	16.5	16.5	5.5	40.5			31.0	31.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0			2.0	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	4.0	7.0			7.0	7.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	None	Max			Max	Max
Act Effct Green (s)		16.1		16.1	16.1	16.1	43.5	40.5			36.8	36.8
Actuated g/C Ratio		0.23		0.23	0.23	0.23	0.63	0.58			0.53	0.53
v/c Ratio		0.11		0.82	0.90	0.03	0.13	0.75			0.89	0.01
Control Delay (s/veh)		0.5		51.5	65.3	0.2	6.5	12.9			22.5	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		0.5		51.5	65.3	0.2	6.5	12.9			22.5	0.0
LOS		A		D	E	A	A	B			C	A
Approach Delay (s/veh)		0.5			56.5			12.8			22.4	
Approach LOS		A			E			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 69.6			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay (s/veh): 21.3		Intersection LOS: C	
Intersection Capacity Utilization 66.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off

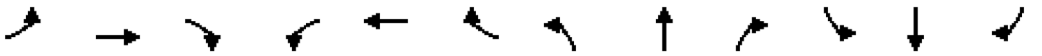




Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	44	224	224	15	27	2123	2334	12
v/c Ratio	0.11	0.82	0.90	0.03	0.13	0.75	0.89	0.01
Control Delay (s/veh)	0.5	51.5	65.3	0.2	6.5	12.9	22.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	0.5	51.5	65.3	0.2	6.5	12.9	22.5	0.0
Queue Length 50th (m)	0.0	30.7	32.6	0.0	1.3	71.9	84.0	0.0
Queue Length 95th (m)	0.0	#52.4	28.5	0.0	1.2	90.1	#152.8	0.0
Internal Link Dist (m)	110.0		550.1			339.6	704.7	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	416	281	257	459	208	2848	2633	904
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	0.80	0.87	0.03	0.13	0.75	0.89	0.01

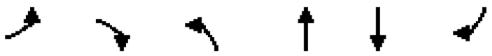
Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	10	339	3	7	8	1953	0	0	2031	3
Future Volume (vph)	4	0	10	339	3	7	8	1953	0	0	2031	3
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	4.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.91			0.91	1.00
Frt		0.90		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1496		1545	1471	1534	1543	4893			4988	1615
Flt Permitted		0.89		0.73	0.70	1.00	0.10	1.00			1.00	1.00
Satd. Flow (perm)		1352		1184	1082	1534	160	4893			4988	1615
Peak-hour factor, PHF	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Adj. Flow (vph)	11	0	33	440	6	17	27	2123	0	0	2334	12
RTOR Reduction (vph)	0	34	0	0	1	12	0	0	0	0	0	6
Lane Group Flow (vph)	0	10	0	224	223	3	27	2123	0	0	2334	6
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		16.1		16.1	16.1	16.1	42.9	42.9			36.7	36.7
Effective Green, g (s)		16.1		16.1	16.1	16.1	42.9	42.9			36.7	36.7
Actuated g/C Ratio		0.22		0.22	0.22	0.22	0.60	0.60			0.51	0.51
Clearance Time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Lane Grp Cap (vph)		302		264	241	343	137	2915			2542	823
v/s Ratio Prot							0.01	c0.43			c0.47	
v/s Ratio Perm		0.01		0.19	c0.21	0.00	0.11					0.00
v/c Ratio		0.03		0.85	0.93	0.01	0.20	0.73			0.92	0.01
Uniform Delay, d1		21.9		26.8	27.4	21.7	12.1	10.4			16.3	8.7
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2		0.1		22.0	38.5	0.0	0.5	1.6			6.7	0.0
Delay (s)		21.9		48.8	65.9	21.8	12.6	12.0			23.0	8.7
Level of Service		C		D	E	C	B	B			C	A
Approach Delay (s/veh)		21.9			56.2			12.0			22.9	
Approach LOS		C			E			B			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	21.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

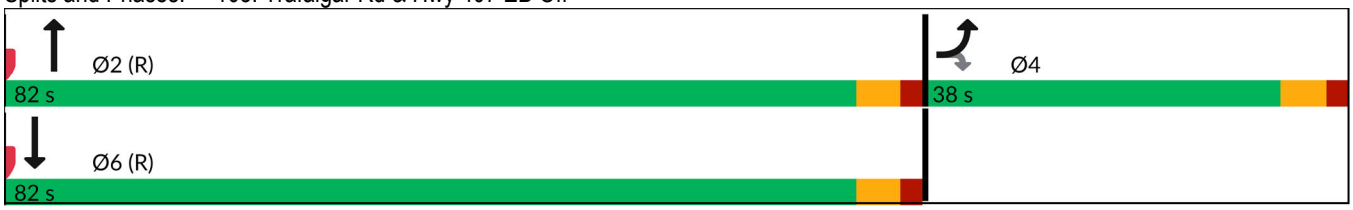


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	82	297	0	2090	2542	0
Future Volume (vph)	82	297	0	2090	2542	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1671	1392	0	4848	4940	0
Flt Permitted	0.950					
Satd. Flow (perm)	1671	1392	0	4848	4940	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		2				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			485.1	363.6	
Travel Time (s)	39.9			34.9	26.2	
Peak Hour Factor	0.79	0.78	0.25	0.85	0.86	0.25
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Adj. Flow (vph)	104	381	0	2459	2956	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	104	381	0	2459	2956	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			7.2	7.2	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	24.0	24.0		24.0	24.0	
Total Split (s)	38.0	38.0		82.0	82.0	
Total Split (%)	31.7%	31.7%		68.3%	68.3%	
Maximum Green (s)	32.0	32.0		76.0	76.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	32.0	32.0		76.0	76.0	
Actuated g/C Ratio	0.27	0.27		0.63	0.63	
v/c Ratio	0.23	1.02		0.80	0.95	
Control Delay (s/veh)	36.2	96.6		19.0	28.1	
Queue Delay	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay (s/veh)	36.2	96.6		19.0	28.1	
LOS	D	F		B	C	
Approach Delay (s/veh)	83.6			19.0	28.1	
Approach LOS	F			B	C	

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: 90			
Control Type: Pretimed			
Maximum v/c Ratio: 1.02			
Intersection Signal Delay (s/veh): 28.9		Intersection LOS: C	
Intersection Capacity Utilization 77.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off



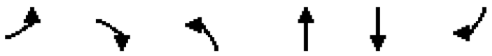


Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	104	381	2459	2956
v/c Ratio	0.23	1.02	0.80	0.95
Control Delay (s/veh)	36.2	96.6	19.0	28.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	36.2	96.6	19.0	28.1
Queue Length 50th (m)	20.2	~100.1	154.4	227.7
Queue Length 95th (m)	31.1	#127.9	156.1	229.5
Internal Link Dist (m)	530.6		461.1	339.6
Turn Bay Length (m)				
Base Capacity (vph)	445	372	3070	3128
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	0.23	1.02	0.80	0.95

Intersection Summary

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

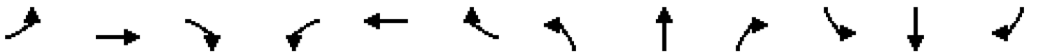
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	82	297	0	2090	2542	0
Future Volume (vph)	82	297	0	2090	2542	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1671	1392		4848	4940	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1671	1392		4848	4940	
Peak-hour factor, PHF	0.79	0.78	0.25	0.85	0.86	0.25
Adj. Flow (vph)	104	381	0	2459	2956	0
RTOR Reduction (vph)	0	1	0	0	0	0
Lane Group Flow (vph)	104	380	0	2459	2956	0
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	32.0	32.0		76.0	76.0	
Effective Green, g (s)	32.0	32.0		76.0	76.0	
Actuated g/C Ratio	0.27	0.27		0.63	0.63	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	445	371		3070	3128	
v/s Ratio Prot	0.06			0.51	c0.60	
v/s Ratio Perm		c0.27				
v/c Ratio	0.23	1.02		0.80	0.95	
Uniform Delay, d1	34.4	44.0		16.4	20.1	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	52.7		2.3	7.6	
Delay (s)	35.6	96.7		18.7	27.7	
Level of Service	D	F		B	C	
Approach Delay (s/veh)	83.6			18.7	27.7	
Approach LOS	F			B	C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	28.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

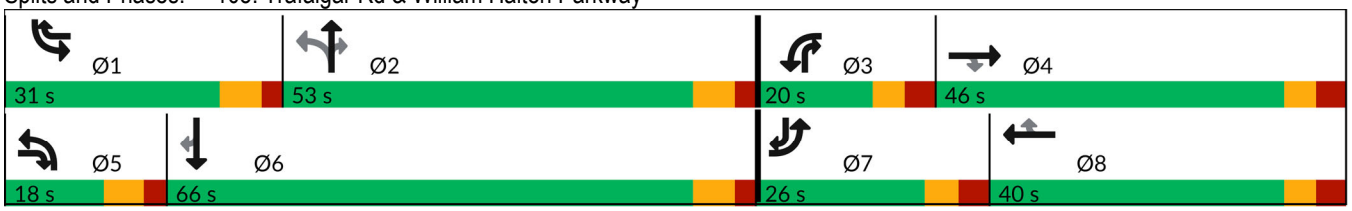


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	609	1064	288	323	738	530	407	1544	302	764	1548	528
Future Volume (vph)	609	1064	288	323	738	530	407	1544	302	764	1548	528
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	150.0		150.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3467	3574	1599	3273	3574	1429	3303	4988	1615	3433	4893	1538
Flt Permitted	0.950			0.950			0.087			0.950		
Satd. Flow (perm)	3467	3574	1599	3273	3574	1429	303	4988	1615	3433	4893	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			129			79			129			79
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		148.9			165.2			209.3			485.1	
Travel Time (s)		10.7			11.9			15.1			34.9	
Peak Hour Factor	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
Adj. Flow (vph)	716	1169	347	431	946	707	473	1716	360	932	1720	614
Shared Lane Traffic (%)												
Lane Group Flow (vph)	716	1169	347	431	946	707	473	1716	360	932	1720	614
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8	2		2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	20.0	7.0	7.0	20.0	7.0	7.0	20.0	7.0	7.0	20.0	7.0
Minimum Split (s)	14.0	38.0	13.9	14.0	38.0	13.9	13.9	42.9	14.0	13.9	42.9	14.0
Total Split (s)	26.0	46.0	18.0	20.0	40.0	31.0	18.0	53.0	20.0	31.0	66.0	26.0
Total Split (%)	17.3%	30.7%	12.0%	13.3%	26.7%	20.7%	12.0%	35.3%	13.3%	20.7%	44.0%	17.3%
Maximum Green (s)	19.0	39.0	11.1	13.0	33.0	24.1	11.1	46.1	13.0	24.1	59.1	19.0
Yellow Time (s)	3.7	3.7	4.6	3.7	3.7	4.6	4.6	4.6	3.7	4.6	4.6	3.7
All-Red Time (s)	3.3	3.3	2.3	3.3	3.3	2.3	2.3	2.3	3.3	2.3	2.3	3.3
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)	7.0	7.0	6.9	7.0	7.0	6.9	6.9	6.9	7.0	6.9	6.9	7.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0
Recall Mode	None	None	None	None	None	None	None	Max	None	None	Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		24.0			24.0			29.0			29.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	19.0	39.0	57.1	13.0	33.0	64.1	57.2	46.1	66.0	24.1	59.1	85.0
Actuated g/C Ratio	0.13	0.26	0.38	0.09	0.22	0.43	0.38	0.31	0.44	0.16	0.39	0.57
v/c Ratio	1.63	1.26	0.50	1.52	1.20	1.08	1.40	1.12	0.46	1.69	0.89	0.68
Control Delay (s/veh)	333.0	169.8	24.4	295.6	152.3	94.8	231.9	110.4	20.3	355.4	49.5	24.2
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 (s/veh)	333.0	169.8	24.4	295.6	152.3	94.8	231.9	110.4	20.3	355.4	49.5	24.2
LOS	F	F	C	F	F	F	F	F	C	F	D	C
Approach Delay (s/veh)		199.6			162.4			120.2			132.1	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.69			
Intersection Signal Delay (s/veh): 150.2		Intersection LOS: F	
Intersection Capacity Utilization 113.4%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway



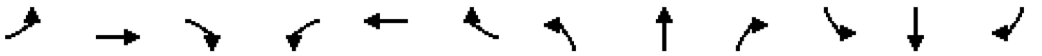


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	716	1169	347	431	946	707	473	1716	360	932	1720	614
v/c Ratio	1.63	1.26	0.50	1.52	1.20	1.08	1.40	1.12	0.46	1.69	0.89	0.68
Control Delay (s/veh)	333.0	169.8	24.4	295.6	152.3	94.8	231.9	110.4	20.3	355.4	49.5	24.2
Queue Delay	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 (s/veh)	333.0	169.8	24.4	295.6	152.3	94.8	231.9	110.4	20.3	355.4	49.5	24.2
Queue Length 50th (m)	~166.0	~240.6	51.5	~96.7	~188.8	~231.4	~86.3	~225.7	49.3	~219.5	183.3	115.2
Queue Length 95th (m)	#191.5	#285.7	71.6	#102.7	#183.7	#220.9	#114.8	#256.4	69.1	#230.9	205.5	147.7
Internal Link Dist (m)		124.9			141.2			185.3			461.1	
Turn Bay Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	150.0		150.0
Base Capacity (vph)	439	929	688	283	786	655	337	1532	782	551	1927	905
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	1.63	1.26	0.50	1.52	1.20	1.08	1.40	1.12	0.46	1.69	0.89	0.68

Intersection Summary

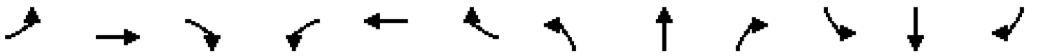
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	609	1064	288	323	738	530	407	1544	302	764	1548	528
Future Volume (vph)	609	1064	288	323	738	530	407	1544	302	764	1548	528
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	6.9	7.0	7.0	6.9	6.9	6.9	7.0	6.9	6.9	7.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3467	3574	1599	3273	3574	1429	3303	4988	1615	3433	4893	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.09	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3273	3574	1429	302	4988	1615	3433	4893	1538
Peak-hour factor, PHF	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Adj. Flow (vph)	716	1169	347	431	946	707	473	1716	360	932	1720	614
RTOR Reduction (vph)	0	0	86	0	0	49	0	0	78	0	0	38
Lane Group Flow (vph)	716	1169	261	431	946	658	473	1716	282	932	1720	576
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8	2		2			6
Actuated Green, G (s)	19.0	39.0	50.1	13.0	33.0	57.1	57.2	46.1	59.1	24.1	59.1	78.1
Effective Green, g (s)	19.0	39.0	50.1	13.0	33.0	57.1	57.2	46.1	59.1	24.1	59.1	78.1
Actuated g/C Ratio	0.13	0.26	0.33	0.09	0.22	0.38	0.38	0.31	0.39	0.16	0.39	0.52
Clearance Time (s)	7.0	7.0	6.9	7.0	7.0	6.9	6.9	6.9	7.0	6.9	6.9	7.0
Vehicle Extension (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0
Lane Grp Cap (vph)	439	929	534	283	786	543	337	1532	636	551	1927	800
v/s Ratio Prot	c0.21	c0.33	0.04	0.13	0.26	0.19	0.10	0.34	0.04	c0.27	0.35	0.09
v/s Ratio Perm			0.13			0.27	c0.43		0.14			0.28
v/c Ratio	1.63	1.26	0.49	1.52	1.20	1.21	1.40	1.12	0.44	1.69	0.89	0.72
Uniform Delay, d1	65.5	55.5	39.8	68.5	58.5	46.4	40.0	52.0	33.4	63.0	42.5	27.6
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	294.2	125.0	0.7	252.6	103.6	111.6	198.6	63.4	0.5	319.0	6.8	3.2
Delay (s)	359.7	180.5	40.5	321.1	162.1	158.0	238.6	115.3	33.9	381.9	49.3	30.8
Level of Service	F	F	D	F	F	F	F	F	C	F	D	C
Approach Delay (s/veh)		216.2			193.6			126.7			140.7	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	164.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.50		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	27.8
Intersection Capacity Utilization	113.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

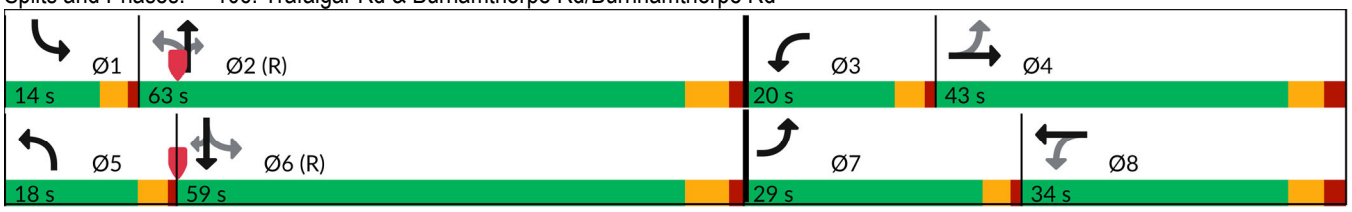


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	415	345	146	212	148	68	201	1830	124	134	1938	65
Future Volume (vph)	415	345	146	212	148	68	201	1830	124	134	1938	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		60.0	60.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	70.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Ped Bike Factor	1.00											
Frt		0.955			0.934				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1798	0	1770	1775	0	1703	4988	1615	1752	4940	1495
Flt Permitted	0.125			0.143			0.070			0.075		
Satd. Flow (perm)	230	1798	0	266	1775	0	125	4988	1615	138	4940	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			25				117			117
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		258.9			989.6			1077.8			246.4	
Travel Time (s)		15.5			59.4			48.5			11.1	
Confl. Peds. (#/hr)	6											
Peak Hour Factor	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
Adj. Flow (vph)	494	437	185	348	218	170	291	1989	144	206	2084	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	494	622	0	348	388	0	291	1989	144	206	2084	77
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Minimum Split (s)	9.5	24.0		9.5	24.0		9.5	26.0	26.0	11.5	26.0	26.0
Total Split (s)	29.0	43.0		20.0	34.0		18.0	63.0	63.0	14.0	59.0	59.0
Total Split (%)	20.7%	30.7%		14.3%	24.3%		12.9%	45.0%	45.0%	10.0%	42.1%	42.1%
Maximum Green (s)	25.0	37.0		16.0	28.0		14.0	57.0	57.0	10.0	53.0	53.0
Yellow Time (s)	3.0	3.7		3.0	3.7		3.0	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	1.0	2.3		1.0	2.3		1.0	1.4	1.4	1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Act Effct Green (s)	59.0	37.0		46.0	28.0		73.0	57.0	59.0	65.0	53.0	55.0
Actuated g/C Ratio	0.42	0.26		0.33	0.20		0.52	0.41	0.42	0.46	0.38	0.39
v/c Ratio	1.34	1.28		1.34	1.03		1.31	0.98	0.19	1.15	1.11	0.12

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay (s/veh)	205.3	181.7		211.2	106.1		201.3	56.6	7.1	146.6	100.1	1.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	205.3	181.7		211.2	106.1		201.3	56.6	7.1	146.6	100.1	1.5
LOS	F	F		F	F		F	E	A	F	F	A
Approach Delay (s/veh)		192.1			155.7			71.0			100.9	
Approach LOS		F			F			E			F	

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: 130			
Control Type: Pretimed			
Maximum v/c Ratio: 1.34			
Intersection Signal Delay (s/veh): 111.4		Intersection LOS: F	
Intersection Capacity Utilization 104.0%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burhamthorpe Rd/Burnhamthorpe Rd



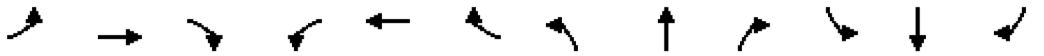


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	494	622	348	388	291	1989	144	206	2084	77
v/c Ratio	1.34	1.28	1.34	1.03	1.31	0.98	0.19	1.15	1.11	0.12
Control Delay (s/veh)	205.3	181.7	211.2	106.1	201.3	56.6	7.1	146.6	100.1	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	205.3	181.7	211.2	106.1	201.3	56.6	7.1	146.6	100.1	1.5
Queue Length 50th (m)	~171.0	~226.9	~115.1	~115.1	~92.8	207.4	4.6	~53.7	~254.4	0.0
Queue Length 95th (m)	#217.6	#247.7	#89.9	104.2	#97.7	#245.7	16.5	#57.4	#284.3	1.6
Internal Link Dist (m)		234.9		965.6		1053.8			222.4	
Turn Bay Length (m)	30.0		15.0		60.0		60.0	60.0		60.0
Base Capacity (vph)	368	486	259	375	222	2030	748	179	1870	658
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.34	1.28	1.34	1.03	1.31	0.98	0.19	1.15	1.11	0.12

Intersection Summary

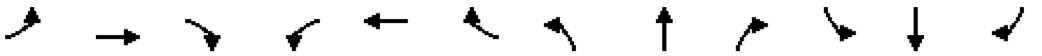
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



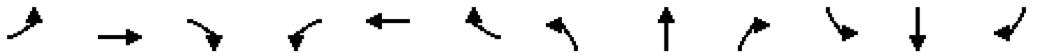
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	415	345	146	212	148	68	201	1830	124	134	1938	65
Future Volume (vph)	415	345	146	212	148	68	201	1830	124	134	1938	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00		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	1.00	1.00
Frt	1.00	0.96		1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	1799		1770	1775		1703	4988	1615	1752	4940	1495
Flt Permitted	0.13	1.00		0.14	1.00		0.07	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	231	1799		266	1775		126	4988	1615	139	4940	1495
Peak-hour factor, PHF	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Adj. Flow (vph)	494	437	185	348	218	170	291	1989	144	206	2084	77
RTOR Reduction (vph)	0	11	0	0	20	0	0	0	68	0	0	47
Lane Group Flow (vph)	494	611	0	348	368	0	291	1989	76	206	2084	30
Confl. Peds. (#/hr)	6											
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	57.0	37.0		44.0	28.0		71.0	57.0	57.0	63.0	53.0	53.0
Effective Green, g (s)	57.0	37.0		44.0	28.0		71.0	57.0	59.0	63.0	53.0	55.0
Actuated g/C Ratio	0.41	0.26		0.31	0.20		0.51	0.41	0.42	0.45	0.38	0.39
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Grp Cap (vph)	365	475		255	355		221	2030	680	177	1870	587
v/s Ratio Prot	c0.24	0.34		0.16	0.21		c0.13	0.40		0.08	0.42	
v/s Ratio Perm	c0.31			0.27			c0.54		0.05	0.44		0.02
v/c Ratio	1.35	1.29		1.36	1.04		1.32	0.98	0.11	1.16	1.11	0.05
Uniform Delay, d1	43.4	51.5		41.0	56.0		44.9	40.9	24.6	39.6	43.5	26.3
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	176.1	144.0		187.3	57.6		170.8	15.7	0.3	118.6	59.6	0.2
Delay (s)	219.5	195.5		228.3	113.6		215.7	56.7	24.9	158.2	103.1	26.5
Level of Service	F	F		F	F		F	E	C	F	F	C
Approach Delay (s/veh)		206.1			167.8			73.9			105.4	
Approach LOS		F			F			E			F	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	117.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.39		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	104.0%	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	2053	77	0	1350	6	0	0	89	0	0	241
Future Volume (vph)	0	2053	77	0	1350	6	0	0	89	0	0	241
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
Frt		0.995			0.999				0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3522	0	0	3536	0	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3522	0	0	3536	0	0	0	1611	0	0	1611
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		165.2			220.0			185.6			207.5	
Travel Time (s)		11.9			15.8			13.4			14.9	
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
Adj. Flow (vph)	0	2232	84	0	1467	7	0	0	97	0	0	262
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2316	0	0	1474	0	0	0	97	0	0	262
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

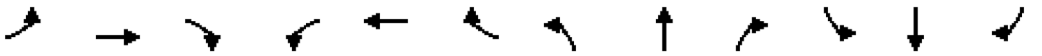
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 71.4%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2053	77	0	1350	6	0	0	89	0	0	241
Future Volume (Veh/h)	0	2053	77	0	1350	6	0	0	89	0	0	241
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2232	84	0	1467	7	0	0	97	0	0	262
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		165			220							
pX, platoon unblocked	0.75			0.75			0.87	0.87	0.75	0.87	0.87	0.75
vC, conflicting volume	1474			2316			3270	3748	1158	2684	3787	737
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	960			2083			2008	2557	530	1336	2601	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	74	100	100	68
cM capacity (veh/h)	533			196			21	23	368	72	21	811

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	1488	828	978	496	97	262
Volume Left	0	0	0	0	0	0
Volume Right	0	84	0	7	97	262
cSH	1700	1700	1700	1700	368	811
Volume to Capacity	0.88	0.49	0.58	0.29	0.26	0.32
Queue Length 95th (m)	0.0	0.0	0.0	0.0	8.3	11.2
Control Delay (s/veh)	0.0	0.0	0.0	0.0	18.2	11.5
Lane LOS					C	B
Approach Delay (s/veh)	0.0		0.0		18.2	11.5
Approach LOS					C	B

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		

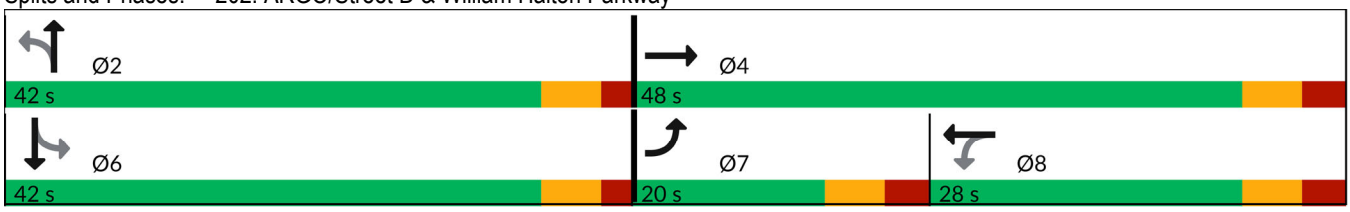


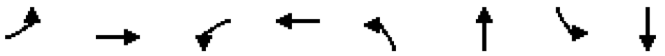
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	534	1531	77	54	924	14	293	10	89	49	10	139
Future Volume (vph)	534	1531	77	54	924	14	293	10	89	49	10	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	100.0		0.0	50.0		0.0	0.0		0.0
Storage Lanes	2		0	1		0	1		0	1		0
Taper Length (m)	100.0			100.0			100.0			7.5		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993			0.998			0.865			0.860	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3514	0	1770	3532	0	1770	1611	0	1770	1602	0
Flt Permitted	0.950			0.188			0.654			0.687		
Satd. Flow (perm)	3433	3514	0	350	3532	0	1218	1611	0	1280	1602	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			2			7			151	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		220.0			345.8			243.0			153.9	
Travel Time (s)		15.8			24.9			17.5			11.1	
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
Adj. Flow (vph)	580	1664	84	59	1004	15	318	11	97	53	11	151
Shared Lane Traffic (%)												
Lane Group Flow (vph)	580	1748	0	59	1019	0	318	108	0	53	162	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)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases				8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	15.0		15.0	15.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	12.0	25.0		25.0	25.0		42.0	42.0		42.0	42.0	
Total Split (s)	20.0	48.0		28.0	28.0		42.0	42.0		42.0	42.0	
Total Split (%)	22.2%	53.3%		31.1%	31.1%		46.7%	46.7%		46.7%	46.7%	
Maximum Green (s)	13.0	41.0		21.0	21.0		36.0	36.0		36.0	36.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	0.2		0.2	0.2		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		Max	Max		None	None		None	None	
Walk Time (s)		7.0		7.0	7.0		14.0	14.0		14.0	14.0	
Flash Don't Walk (s)		11.0		11.0	11.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	13.1	41.3		21.2	21.2		25.0	25.0		25.0	25.0	
Actuated g/C Ratio	0.16	0.52		0.27	0.27		0.31	0.31		0.31	0.31	
v/c Ratio	1.02	0.96		0.63	1.08		0.83	0.21		0.13	0.27	
Control Delay (s/veh)	80.6	33.9		63.0	85.0		43.6	18.7		19.6	5.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	80.6	33.9		63.0	85.0		43.6	18.7		19.6	5.5	
LOS	F	C		E	F		D	B		B	A	
Approach Delay (s/veh)		45.5			83.8			37.2			9.0	
Approach LOS		D			F			D			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 79.5			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.08			
Intersection Signal Delay (s/veh): 52.9		Intersection LOS: D	
Intersection Capacity Utilization 104.3%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 202: ARGO/Street D & William Halton Parkway





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	580	1748	59	1019	318	108	53	162
v/c Ratio	1.02	0.96	0.63	1.08	0.83	0.21	0.13	0.27
Control Delay (s/veh)	80.6	33.9	63.0	85.0	43.6	18.7	19.6	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	80.6	33.9	63.0	85.0	43.6	18.7	19.6	5.5
Queue Length 50th (m)	~51.7	131.2	8.3	~97.5	45.9	11.5	6.0	1.4
Queue Length 95th (m)	#98.5	#235.3	#32.2	#163.3	77.2	22.6	m13.5	m13.2
Internal Link Dist (m)		196.0		321.8		219.0		129.9
Turn Bay Length (m)	100.0		100.0		50.0			
Base Capacity (vph)	566	1830	93	942	556	739	584	813
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	1.02	0.96	0.63	1.08	0.57	0.15	0.09	0.20

Intersection Summary

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

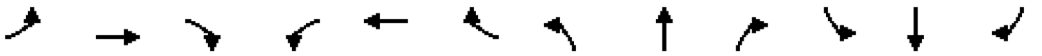
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	534	1531	77	54	924	14	293	10	89	49	10	139
Future Volume (vph)	534	1531	77	54	924	14	293	10	89	49	10	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.87		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3514		1770	3531		1770	1612		1770	1602	
Flt Permitted	0.95	1.00		0.19	1.00		0.65	1.00		0.69	1.00	
Satd. Flow (perm)	3433	3514		350	3531		1219	1612		1280	1602	
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)	580	1664	84	59	1004	15	318	11	97	53	11	151
RTOR Reduction (vph)	0	3	0	0	1	0	0	5	0	0	103	0
Lane Group Flow (vph)	580	1745	0	59	1018	0	318	103	0	53	59	0
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases				8			2			6		
Actuated Green, G (s)	13.1	41.4		21.3	21.3		25.1	25.1		25.1	25.1	
Effective Green, g (s)	13.1	41.4		21.3	21.3		25.1	25.1		25.1	25.1	
Actuated g/C Ratio	0.16	0.52		0.27	0.27		0.32	0.32		0.32	0.32	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	0.2		0.2	0.2		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	565	1829		93	946		384	508		404	505	
v/s Ratio Prot	0.17	c0.50			c0.29			0.06			0.04	
v/s Ratio Perm				0.17			c0.26			0.04		
v/c Ratio	1.03	0.95		0.63	1.08		0.83	0.20		0.13	0.12	
Uniform Delay, d1	33.2	18.1		25.7	29.1		25.2	19.9		19.4	19.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.03	1.09	
Incremental Delay, d2	44.8	11.8		28.6	51.8		13.7	0.2		0.1	0.1	
Delay (s)	78.0	29.9		54.3	80.9		38.9	20.1		20.2	21.2	
Level of Service	E	C		D	F		D	C		C	C	
Approach Delay (s/veh)		41.9			79.4			34.1			20.9	
Approach LOS		D			E			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	50.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	79.5	Sum of lost time (s)	20.0
Intersection Capacity Utilization	104.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



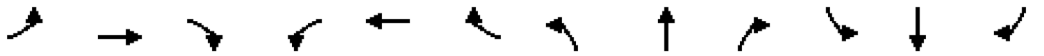
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1879	18	0	1399	274	0	0	82	0	0	391
Future Volume (vph)	0	1879	18	0	1399	274	0	0	82	0	0	391
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		50.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.999				0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3536	0	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3536	0	0	3539	1583	0	0	1611	0	0	1611
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		249.0			148.9			206.9			234.9	
Travel Time (s)		17.9			10.7			14.9			16.9	
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
Adj. Flow (vph)	0	2042	20	0	1521	298	0	0	89	0	0	425
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2062	0	0	1521	298	0	0	89	0	0	425
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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 69.5%		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	1879	18	0	1399	274	0	0	82	0	0	391
Future Volume (Veh/h)	0	1879	18	0	1399	274	0	0	82	0	0	391
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2042	20	0	1521	298	0	0	89	0	0	425
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		249			149							
pX, platoon unblocked	0.71			0.55			0.70	0.70	0.55	0.70	0.70	0.71
vC, conflicting volume	1819			2062			3238	3871	1031	2631	3583	761
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1326			1303			1446	2351	0	580	1940	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	85	100	100	44
cM capacity (veh/h)	365			291			29	25	599	237	45	765

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1361	701	761	761	298	89	425
Volume Left	0	0	0	0	0	0	0
Volume Right	0	20	0	0	298	89	425
cSH	1700	1700	1700	1700	1700	599	765
Volume to Capacity	0.80	0.41	0.45	0.45	0.18	0.15	0.56
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	4.2	27.7
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	12.1	15.4
Lane LOS						B	C
Approach Delay (s/veh)	0.0		0.0			12.1	15.4
Approach LOS						B	C

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	69.5%	ICU Level of Service		C
Analysis Period (min)	15			

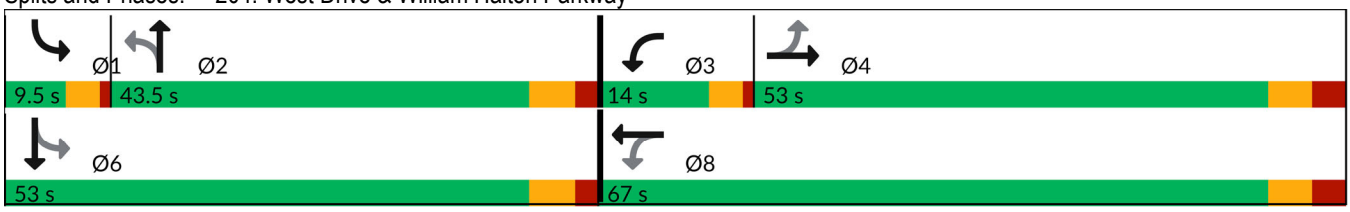


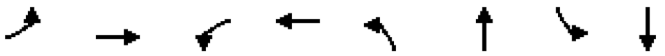
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1483	45	231	1508	51	29	31	317	97	3	5
Future Volume (vph)	11	1483	45	231	1508	51	29	31	317	97	3	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	100.0		0.0	50.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	100.0			100.0			50.0			50.0		
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
Frt		0.996			0.995			0.863			0.906	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3525	0	1770	3522	0	1770	1608	0	1770	1688	0
Flt Permitted	0.087			0.080			0.752			0.188		
Satd. Flow (perm)	162	3525	0	149	3522	0	1401	1608	0	350	1688	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			4			210			5	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		825.3			249.0			160.5			291.6	
Travel Time (s)		59.4			17.9			11.6			21.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	1612	49	251	1639	55	32	34	345	105	3	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	1661	0	251	1694	0	32	379	0	105	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)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		3	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		5.0	15.0		10.0	10.0		5.0	10.0	
Minimum Split (s)	25.0	25.0		9.5	25.0		42.0	42.0		9.5	42.0	
Total Split (s)	53.0	53.0		14.0	67.0		43.5	43.5		9.5	53.0	
Total Split (%)	44.2%	44.2%		11.7%	55.8%		36.3%	36.3%		7.9%	44.2%	
Maximum Green (s)	46.0	46.0		10.0	60.0		37.5	37.5		5.5	47.0	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		1.0	3.0		2.0	2.0		1.0	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)	7.0	7.0		4.0	7.0		6.0	6.0		4.0	6.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes		Yes		
Vehicle Extension (s)	0.2	0.2		3.0	0.2		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Walk Time (s)	7.0	7.0			7.0		14.0	14.0			14.0	
Flash Don't Walk (s)	11.0	11.0			11.0		22.0	22.0			22.0	
Pedestrian Calls (#/hr)	0	0			0		0	0			0	
Act Effct Green (s)	46.2	46.2		63.2	60.2		17.3	17.3		28.8	26.8	
Actuated g/C Ratio	0.46	0.46		0.63	0.60		0.17	0.17		0.29	0.27	
v/c Ratio	0.16	1.02		0.98	0.80		0.13	0.84		0.59	0.02	
Control Delay (s/veh)	25.6	56.0		77.6	20.3		34.9	34.3		40.6	18.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	25.6	56.0		77.6	20.3		34.9	34.3		40.6	18.1	
LOS	C	E		E	C		C	C		D	B	
Approach Delay (s/veh)		55.7			27.7			34.4			39.0	
Approach LOS		E			C			C			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 100.1			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.02			
Intersection Signal Delay (s/veh): 40.0		Intersection LOS: D	
Intersection Capacity Utilization 102.4%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 204: West Drive & William Halton Parkway





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	12	1661	251	1694	32	379	105	8
v/c Ratio	0.16	1.02	0.98	0.80	0.13	0.84	0.59	0.02
Control Delay (s/veh)	25.6	56.0	77.6	20.3	34.9	34.3	40.6	18.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	25.6	56.0	77.6	20.3	34.9	34.3	40.6	18.1
Queue Length 50th (m)	1.4	~176.4	33.4	125.3	5.6	34.0	16.1	0.5
Queue Length 95th (m)	7.0	#278.8	#99.5	209.8	13.9	69.1	29.1	3.9
Internal Link Dist (m)		801.3		225.0		136.5		267.6
Turn Bay Length (m)	100.0		100.0		50.0		50.0	
Base Capacity (vph)	74	1627	256	2120	526	735	179	798
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	1.02	0.98	0.80	0.06	0.52	0.59	0.01

Intersection Summary

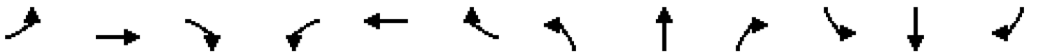
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1483	45	231	1508	51	29	31	317	97	3	5
Future Volume (vph)	11	1483	45	231	1508	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)	7.0	7.0		4.0	7.0		6.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.86		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3524		1770	3522		1770	1608		1770	1688	
Flt Permitted	0.09	1.00		0.08	1.00		0.75	1.00		0.19	1.00	
Satd. Flow (perm)	162	3524		148	3522		1402	1608		350	1688	
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)	12	1612	49	251	1639	55	32	34	345	105	3	5
RTOR Reduction (vph)	0	2	0	0	2	0	0	174	0	0	4	0
Lane Group Flow (vph)	12	1659	0	251	1692	0	32	205	0	105	4	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	46.3	46.3		60.3	60.3		17.3	17.3		26.8	26.8	
Effective Green, g (s)	46.3	46.3		60.3	60.3		17.3	17.3		26.8	26.8	
Actuated g/C Ratio	0.46	0.46		0.60	0.60		0.17	0.17		0.27	0.27	
Clearance Time (s)	7.0	7.0		4.0	7.0		6.0	6.0		4.0	6.0	
Vehicle Extension (s)	0.2	0.2		3.0	0.2		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	74	1629		251	2121		242	277		171	451	
v/s Ratio Prot		0.47		c0.10	0.48			c0.13		c0.03	0.00	
v/s Ratio Perm	0.07			c0.50			0.02			0.13		
v/c Ratio	0.16	1.02		1.00	0.80		0.13	0.74		0.61	0.01	
Uniform Delay, d1	15.6	26.9		31.2	15.2		35.0	39.3		30.1	26.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	27.1		56.8	2.0		0.2	10.2		6.4	0.0	
Delay (s)	16.0	54.0		88.0	17.3		35.3	49.5		36.5	26.9	
Level of Service	B	D		F	B		D	D		D	C	
Approach Delay (s/veh)		53.7			26.4			48.4			35.8	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	39.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	100.1	Sum of lost time (s)	21.0
Intersection Capacity Utilization	102.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



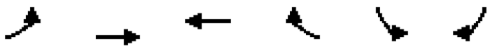
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	9	3	6	73	281	45	49	77	76	178	22
Future Volume (vph)	31	9	3	6	73	281	45	49	77	76	178	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991			0.895			0.939			0.989	
Flt Protected		0.965			0.999			0.987			0.986	
Satd. Flow (prot)	0	1781	0	0	1665	0	0	1726	0	0	1816	0
Flt Permitted		0.965			0.999			0.987			0.986	
Satd. Flow (perm)	0	1781	0	0	1665	0	0	1726	0	0	1816	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		333.0			150.5			112.8			152.1	
Travel Time (s)		24.0			10.8			8.1			11.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	10	3	7	79	305	49	53	84	83	193	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	47	0	0	391	0	0	186	0	0	300	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)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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 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												
Traffic Volume (veh/h)	31	9	3	6	73	281	45	49	77	76	178	22
Future Volume (Veh/h)	31	9	3	6	73	281	45	49	77	76	178	22
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	10	3	7	79	305	49	53	84	83	193	24
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	384			13			446	478	12	436	327	232
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	384			13			446	478	12	436	327	232
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			87	89	92	81	66	97
cM capacity (veh/h)	1174			1606			366	471	1069	436	572	808

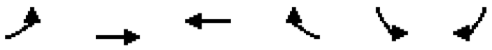
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	47	391	186	300
Volume Left	34	7	49	83
Volume Right	3	305	84	24
cSH	1174	1606	572	538
Volume to Capacity	0.03	0.00	0.33	0.56
Queue Length 95th (m)	0.7	0.1	11.2	27.1
Control Delay (s/veh)	6.0	0.2	14.3	19.8
Lane LOS	A	A	B	C
Approach Delay (s/veh)	6.0	0.2	14.3	19.8
Approach LOS			B	C

Intersection Summary				
Average Delay	9.7			
Intersection Capacity Utilization	48.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	33	122	203	97	96	191
Future Volume (vph)	33	122	203	97	96	191
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			0.957		0.910	
Flt Protected		0.989			0.984	
Satd. Flow (prot)	0	1842	1783	0	1668	0
Flt Permitted		0.989			0.984	
Satd. Flow (perm)	0	1842	1783	0	1668	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		24.2	152.6		206.9	
Travel Time (s)		1.7	11.0		14.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	133	221	105	104	208
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	169	326	0	312	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

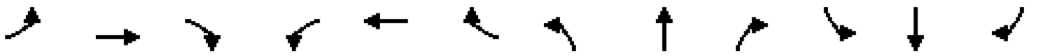
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 51.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	33	122	203	97	96	191
Future Volume (Veh/h)	33	122	203	97	96	191
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)	36	133	221	105	104	208
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	326				479	274
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	326				479	274
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				80	73
cM capacity (veh/h)	1234				530	765

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	169	326	312
Volume Left	36	0	104
Volume Right	0	105	208
cSH	1234	1700	667
Volume to Capacity	0.03	0.19	0.47
Queue Length 95th (m)	0.7	0.0	20.0
Control Delay (s/veh)	1.9	0.0	15.1
Lane LOS	A		C
Approach Delay (s/veh)	1.9	0.0	15.1
Approach LOS			C

Intersection Summary			
Average Delay	6.2		
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		



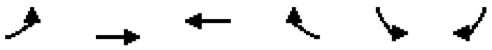
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	210	0	0	80	0	2172	141	0	1927	233
Future Volume (vph)	0	0	210	0	0	80	0	2172	141	0	1927	233
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		100.0	0.0		100.0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.865			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	1611	0	0	1611	0	5085	1583	0	5085	1583
Flt Permitted												
Satd. Flow (perm)	0	0	1611	0	0	1611	0	5085	1583	0	5085	1583
Link Speed (k/h)		50			50			50			80	
Link Distance (m)		152.6			80.3			246.4			209.3	
Travel Time (s)		11.0			5.8			17.7			9.4	
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
Adj. Flow (vph)	0	0	228	0	0	87	0	2361	153	0	2095	253
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	228	0	0	87	0	2361	153	0	2095	253
Enter Blocked Intersection	No	No	No	No	No	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			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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 56.9%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	210	0	0	80	0	2172	141	0	1927	233
Future Volume (Veh/h)	0	0	210	0	0	80	0	2172	141	0	1927	233
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	228	0	0	87	0	2361	153	0	2095	253
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								246			209	
pX, platoon unblocked	0.78	0.78	0.69	0.78	0.78	0.63	0.69			0.63		
vC, conflicting volume	2969	4609	698	3287	4709	787	2348			2514		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	1940	0	254	2068	0	1366			1334		
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	69	100	100	87	100			100		
cM capacity (veh/h)	699	51	744	369	42	680	343			322		

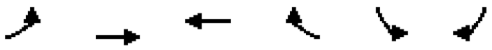
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	228	87	787	787	787	153	698	698	698	253
Volume Left	0	0	0	0	0	0	0	0	0	0
Volume Right	228	87	0	0	0	153	0	0	0	253
cSH	744	680	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.31	0.13	0.46	0.46	0.46	0.09	0.41	0.41	0.41	0.15
Queue Length 95th (m)	10.4	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s/veh)	12.0	11.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	B								
Approach Delay (s/veh)	12.0	11.1	0.0				0.0			
Approach LOS	B	B								

Intersection Summary					
Average Delay	0.7				
Intersection Capacity Utilization	56.9%	ICU Level of Service		B	
Analysis Period (min)	15				



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	12	735	271	157	171	16
Future Volume (vph)	12	735	271	157	171	16
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			0.950		0.989	
Flt Protected		0.999			0.956	
Satd. Flow (prot)	0	1861	1770	0	1761	0
Flt Permitted		0.999			0.956	
Satd. Flow (perm)	0	1861	1770	0	1761	0
Link Speed (k/h)		60	50		50	
Link Distance (m)		569.8	258.9		157.5	
Travel Time (s)		34.2	18.6		11.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	799	295	171	186	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	812	466	0	203	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

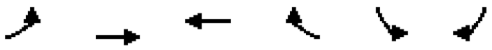
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 65.4%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	735	271	157	171	16
Future Volume (Veh/h)	12	735	271	157	171	16
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	799	295	171	186	17
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			259			
pX, platoon unblocked	0.92				0.92	0.92
vC, conflicting volume	466				1206	381
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	377				1180	284
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				3	98
cM capacity (veh/h)	1088				191	695

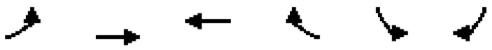
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	812	466	203
Volume Left	13	0	186
Volume Right	0	171	17
cSH	1088	1700	204
Volume to Capacity	0.01	0.27	1.00
Queue Length 95th (m)	0.3	0.0	69.5
Control Delay (s/veh)	0.3	0.0	111.2
Lane LOS	A		F
Approach Delay (s/veh)	0.3	0.0	111.2
Approach LOS			F

Intersection Summary			
Average Delay	15.4		
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	89	1580	963	7	5	29
Future Volume (vph)	89	1580	963	7	5	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Frt			0.999		0.883	
Flt Protected		0.997			0.993	
Satd. Flow (prot)	0	3529	3536	0	1633	0
Flt Permitted		0.997			0.993	
Satd. Flow (perm)	0	3529	3536	0	1633	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		345.8	762.7		155.9	
Travel Time (s)		24.9	54.9		11.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	97	1717	1047	8	5	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1814	1055	0	37	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 86.4%		ICU Level of Service E	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	89	1580	963	7	5	29
Future Volume (Veh/h)	89	1580	963	7	5	29
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)	97	1717	1047	8	5	32
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		346				
pX, platoon unblocked					0.53	
vC, conflicting volume	1055				2104	528
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1055				1323	528
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	85				93	94
cM capacity (veh/h)	656				67	495

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	669	1145	698	357	37
Volume Left	97	0	0	0	5
Volume Right	0	0	0	8	32
cSH	656	1700	1700	1700	266
Volume to Capacity	0.15	0.67	0.41	0.21	0.14
Queue Length 95th (m)	4.1	0.0	0.0	0.0	3.8
Control Delay (s/veh)	3.8	0.0	0.0	0.0	20.7
Lane LOS	A				C
Approach Delay (s/veh)	1.4		0.0		20.7
Approach LOS					C

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	86.4%	ICU Level of Service	E
Analysis Period (min)	15		



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	14	0	352	52	0	56
Future Volume (vph)	14	0	352	52	0	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Frt			0.981			
Flt Protected	0.950					
Satd. Flow (prot)	1770	0	3472	0	0	3539
Flt Permitted	0.950					
Satd. Flow (perm)	1770	0	3472	0	0	3539
Link Speed (k/h)	50		50			50
Link Distance (m)	329.1		153.9			115.0
Travel Time (s)	23.7		11.1			8.3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	0	383	57	0	61
Shared Lane Traffic (%)						
Lane Group Flow (vph)	15	0	440	0	0	61
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 21.4%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	14	0	352	52	0	56
Future Volume (Veh/h)	14	0	352	52	0	56
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	0	383	57	0	61
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			154			
pX, platoon unblocked						
vC, conflicting volume	442	220			440	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	442	220			440	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	100			100	
cM capacity (veh/h)	544	784			1116	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	15	255	185	20	41
Volume Left	15	0	0	0	0
Volume Right	0	0	57	0	0
cSH	544	1700	1700	1116	1700
Volume to Capacity	0.03	0.15	0.11	0.00	0.02
Queue Length 95th (m)	0.7	0.0	0.0	0.0	0.0
Control Delay (s/veh)	11.8	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s/veh)	11.8	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	21.4%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	56	0	0	171	171
Future Volume (vph)	0	56	0	0	171	171
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					0.850
Flt Protected					0.950	
Satd. Flow (prot)	1611	0	0	1863	1770	1583
Flt Permitted					0.950	
Satd. Flow (perm)	1611	0	0	1863	1770	1583
Link Speed (k/h)	50			50	50	
Link Distance (m)	229.4			321.2	115.0	
Travel Time (s)	16.5			23.1	8.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	61	0	0	186	186
Shared Lane Traffic (%)						
Lane Group Flow (vph)	61	0	0	0	186	186
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.7%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	56	0	0	171	171
Future Volume (Veh/h)	0	56	0	0	171	171
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	61	0	0	186	186
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			61		31	31
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			61		31	31
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		81	82
cM capacity (veh/h)			1542		984	1044

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	61	0	186	186
Volume Left	0	0	186	0
Volume Right	61	0	0	186
cSH	1700	1700	984	1044
Volume to Capacity	0.04	0.00	0.19	0.18
Queue Length 95th (m)	0.0	0.0	5.6	5.2
Control Delay (s/veh)	0.0	0.0	9.5	9.2
Lane LOS			A	A
Approach Delay (s/veh)	0.0	0.0	9.4	
Approach LOS			A	

Intersection Summary			
Average Delay	8.0		
Intersection Capacity Utilization	20.7%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	26	0	0	69	0
Future Volume (vph)	0	26	0	0	69	0
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					0.950	
Satd. Flow (prot)	1611	0	0	1863	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	1611	0	0	1863	1770	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	321.2			52.5	137.0	
Travel Time (s)	23.1			3.8	9.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	28	0	0	75	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	28	0	0	0	75	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	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

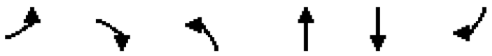
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	26	0	0	69	0
Future Volume (Veh/h)	0	26	0	0	69	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	28	0	0	75	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			28		14	14
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			28		14	14
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		93	100
cM capacity (veh/h)			1585		1005	1066

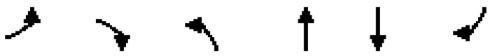
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	28	0	75
Volume Left	0	0	75
Volume Right	28	0	0
cSH	1700	1700	1005
Volume to Capacity	0.02	0.00	0.07
Queue Length 95th (m)	0.0	0.0	1.9
Control Delay (s/veh)	0.0	0.0	8.9
Lane LOS			A
Approach Delay (s/veh)	0.0	0.0	8.9
Approach LOS			A

Intersection Summary			
Average Delay	6.5		
Intersection Capacity Utilization	13.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	1	3	93	33	0
Future Volume (vph)	0	1	3	93	33	0
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				0.999		
Satd. Flow (prot)	1611	0	0	1861	1863	0
Flt Permitted				0.999		
Satd. Flow (perm)	1611	0	0	1861	1863	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	329.1			155.9	137.0	
Travel Time (s)	23.7			11.2	9.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1	3	101	36	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	0	0	104	36	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

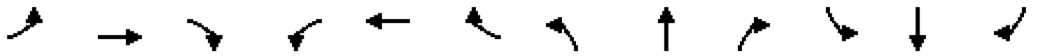
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1	3	93	33	0
Future Volume (Veh/h)	0	1	3	93	33	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	3	101	36	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	143	36	36			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	143	36	36			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	848	1037	1575			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	1	104	36
Volume Left	0	3	0
Volume Right	1	0	0
cSH	1037	1575	1700
Volume to Capacity	0.00	0.00	0.02
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s/veh)	8.5	0.2	0.0
Lane LOS	A	A	
Approach Delay (s/veh)	8.5	0.2	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	17.3%	ICU Level of Service	A
Analysis Period (min)	15		

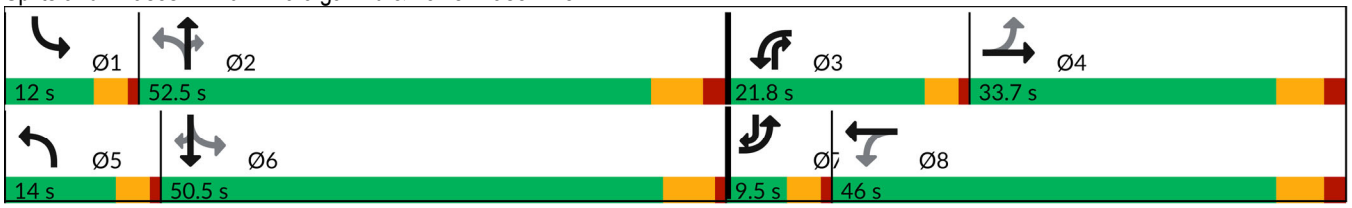


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	250	48	300	317	340	233	2228	447	192	1812	65
Future Volume (vph)	70	250	48	300	317	340	233	2228	447	192	1812	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		90.0	90.0		90.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.966			0.924				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1835	0	1770	1738	0	1805	5036	1599	1752	5085	1615
Flt Permitted	0.143			0.150			0.087			0.089		
Satd. Flow (perm)	266	1835	0	279	1738	0	165	5036	1599	164	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			46				169			102
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			728.6			888.2	
Travel Time (s)		38.5			41.4			32.8			40.0	
Peak Hour Factor	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Adj. Flow (vph)	91	298	89	316	401	415	262	2321	532	216	1991	103
Shared Lane Traffic (%)												
Lane Group Flow (vph)	91	387	0	316	816	0	262	2321	532	216	1991	103
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	7	4		3	8		5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		7.0	10.0		5.0	25.0	7.0	7.0	25.0	5.0
Minimum Split (s)	9.5	22.5		11.5	22.5		9.5	31.6	11.5	11.5	30.6	9.5
Total Split (s)	9.5	33.7		21.8	46.0		14.0	52.5	21.8	12.0	50.5	9.5
Total Split (%)	7.9%	28.1%		18.2%	38.3%		11.7%	43.8%	18.2%	10.0%	42.1%	7.9%
Maximum Green (s)	5.5	27.5		17.8	39.8		10.0	45.9	17.8	8.0	44.9	5.5
Yellow Time (s)	3.0	4.2		3.0	4.2		3.0	4.6	3.0	3.0	4.6	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.2		4.0	6.2		4.0	6.6	4.0	4.0	5.6	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0		0.2	5.0		3.0	5.0	0.2	0.2	5.0	3.0
Recall Mode	None	None		None	None		None	Max	None	Max	Max	None
Act Effct Green (s)	35.7	28.0		51.5	39.8		58.5	45.9	69.8	54.5	44.9	56.0
Actuated g/C Ratio	0.30	0.23		0.43	0.33		0.49	0.38	0.58	0.45	0.37	0.47
v/c Ratio	0.62	0.89		0.95	1.34		1.21	1.21	0.53	1.20	1.05	0.13
Control Delay (s/veh)	42.5	66.3		66.8	197.7		156.3	131.5	11.9	158.1	71.0	3.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	42.5	66.3		66.8	197.7		156.3	131.5	11.9	158.1	71.0	3.9
LOS	D	E		E	F		F	F	B	F	E	A
Approach Delay (s/veh)		61.7			161.2			113.1			76.2	
Approach LOS		E			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.34			
Intersection Signal Delay (s/veh): 105.2		Intersection LOS: F	
Intersection Capacity Utilization 112.7%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line



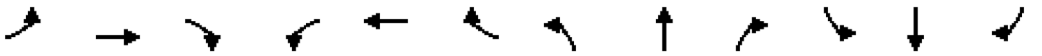


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	91	387	316	816	262	2321	532	216	1991	103
v/c Ratio	0.62	0.89	0.95	1.34	1.21	1.21	0.53	1.20	1.05	0.13
Control Delay (s/veh)	42.5	66.3	66.8	197.7	156.3	131.5	11.9	158.1	71.0	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	42.5	66.3	66.8	197.7	156.3	131.5	11.9	158.1	71.0	3.9
Queue Length 50th (m)	13.4	91.1	56.8	~257.9	~61.8	~256.5	49.5	~48.3	~196.4	0.1
Queue Length 95th (m)	20.5	#131.6	#112.7	#274.7	#114.7	#286.5	68.4	#97.6	#227.2	2.6
Internal Link Dist (m)		725.3		666.6		704.6			864.2	
Turn Bay Length (m)	45.0		110.0		90.0		90.0	90.0		90.0
Base Capacity (vph)	147	437	340	607	217	1926	1006	180	1902	808
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	0.62	0.89	0.93	1.34	1.21	1.21	0.53	1.20	1.05	0.13

Intersection Summary

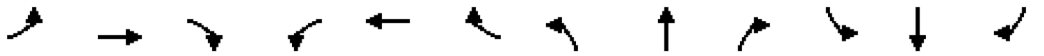
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	250	48	300	317	340	233	2228	447	192	1812	65
Future Volume (vph)	70	250	48	300	317	340	233	2228	447	192	1812	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.2		4.0	6.2		4.0	6.6	4.0	4.0	5.6	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.97		1.00	0.92		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1834		1770	1738		1805	5036	1599	1752	5085	1615
Flt Permitted	0.14	1.00		0.15	1.00		0.09	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	266	1834		279	1738		166	5036	1599	164	5085	1615
Peak-hour factor, PHF	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Adj. Flow (vph)	91	298	89	316	401	415	262	2321	532	216	1991	103
RTOR Reduction (vph)	0	9	0	0	31	0	0	0	80	0	0	59
Lane Group Flow (vph)	91	378	0	316	785	0	262	2321	452	216	1991	44
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	33.5	28.0		49.3	39.8		55.9	45.9	63.2	52.9	44.9	50.4
Effective Green, g (s)	33.5	28.0		49.3	39.8		55.9	45.9	63.2	52.9	44.9	50.4
Actuated g/C Ratio	0.28	0.23		0.41	0.33		0.47	0.38	0.53	0.44	0.37	0.42
Clearance Time (s)	4.0	6.2		4.0	6.2		4.0	6.6	4.0	4.0	5.6	4.0
Vehicle Extension (s)	3.0	5.0		0.2	5.0		3.0	5.0	0.2	0.2	5.0	3.0
Lane Grp Cap (vph)	143	427		329	576		213	1926	842	178	1902	678
v/s Ratio Prot	0.03	0.21		c0.14	c0.45		c0.10	0.46	0.08	0.08	0.39	0.00
v/s Ratio Perm	0.15			0.26			c0.47		0.21	0.45		0.02
v/c Ratio	0.64	0.88		0.96	1.36		1.23	1.21	0.54	1.21	1.05	0.06
Uniform Delay, d1	35.4	44.4		31.2	40.1		33.8	37.1	18.7	30.7	37.6	20.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.9	20.4		38.8	174.5		137.5	97.5	0.3	136.5	34.1	0.0
Delay (s)	44.3	64.8		70.0	214.6		171.4	134.5	19.1	167.3	71.7	20.8
Level of Service	D	E		E	F		F	F	B	F	E	C
Approach Delay (s/veh)		60.9			174.2			117.9			78.3	
Approach LOS		E			F			F			E	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	110.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.30		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	112.7%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

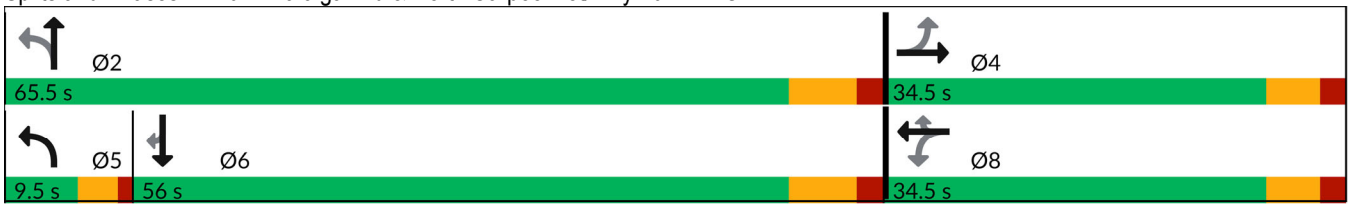


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	22	601	4	33	14	2870	0	0	2154	5
Future Volume (vph)	4	0	22	601	4	33	14	2870	0	0	2154	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.897			0.998	0.850						0.850
Flt Protected		0.988		0.950	0.954		0.950					
Satd. Flow (prot)	0	1532	0	1681	1597	1408	1641	5085	0	0	5085	1615
Flt Permitted		0.871		0.727	0.702		0.070					
Satd. Flow (perm)	0	1351	0	1287	1175	1408	121	5085	0	0	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		87			1	87						76
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			728.6	
Travel Time (s)		9.6			41.3			26.2			52.5	
Peak Hour Factor	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Adj. Flow (vph)	11	0	35	675	11	40	28	3053	0	0	2367	10
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	0	46	0	344	346	36	28	3053	0	0	2367	10
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	4.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	27.0			27.0	27.0
Total Split (s)	34.5	34.5		34.5	34.5	34.5	9.5	65.5			56.0	56.0
Total Split (%)	34.5%	34.5%		34.5%	34.5%	34.5%	9.5%	65.5%			56.0%	56.0%
Maximum Green (s)	28.5	28.5		28.5	28.5	28.5	5.5	58.5			49.0	49.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0			2.0	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	4.0	7.0			7.0	7.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	None	Max			Max	Max
Act Effct Green (s)		28.5		28.5	28.5	28.5	61.5	58.5			52.8	52.8
Actuated g/C Ratio		0.29		0.29	0.29	0.29	0.62	0.59			0.53	0.53
v/c Ratio		0.10		0.94	1.03	0.08	0.18	1.03			0.88	0.01
Control Delay (s/veh)		1.7		70.7	94.7	0.3	10.1	45.4			26.8	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		1.7		70.7	94.7	0.3	10.1	45.4			26.8	0.0
LOS		A		E	F	A	B	D			C	A
Approach Delay (s/veh)		1.7			78.7			45.0			26.7	
Approach LOS		A			E			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Natural Cycle: 130			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay (s/veh): 41.7		Intersection LOS: D	
Intersection Capacity Utilization 90.0%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off



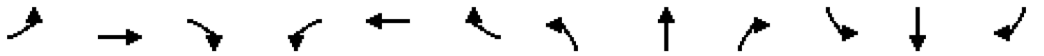


Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	46	344	346	36	28	3053	2367	10
v/c Ratio	0.10	0.94	1.03	0.08	0.18	1.03	0.88	0.01
Control Delay (s/veh)	1.7	70.7	94.7	0.3	10.1	45.4	26.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	1.7	70.7	94.7	0.3	10.1	45.4	26.8	0.0
Queue Length 50th (m)	0.0	71.8	~83.5	0.0	2.1	~244.8	162.3	0.0
Queue Length 95th (m)	0.0	#128.3	38.5	0.0	3.0	#273.7	#205.8	0.0
Internal Link Dist (m)	110.0		550.1			339.6	704.6	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	447	366	335	463	158	2974	2684	888
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.94	1.03	0.08	0.18	1.03	0.88	0.01

Intersection Summary

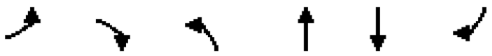
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

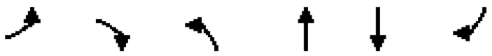


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	22	601	4	33	14	2870	0	0	2154	5
Future Volume (vph)	4	0	22	601	4	33	14	2870	0	0	2154	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.91			0.91	1.00
Frt		0.90		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1533		1681	1598	1408	1641	5085			5085	1615
Flt Permitted		0.87		0.73	0.70	1.00	0.07	1.00			1.00	1.00
Satd. Flow (perm)		1351		1287	1175	1408	122	5085			5085	1615
Peak-hour factor, PHF	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Adj. Flow (vph)	11	0	35	675	11	40	28	3053	0	0	2367	10
RTOR Reduction (vph)	0	33	0	0	1	26	0	0	0	0	0	5
Lane Group Flow (vph)	0	13	0	344	345	10	28	3053	0	0	2367	5
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		28.5		28.5	28.5	28.5	60.1	60.1			52.8	52.8
Effective Green, g (s)		28.5		28.5	28.5	28.5	60.1	60.1			52.8	52.8
Actuated g/C Ratio		0.28		0.28	0.28	0.28	0.59	0.59			0.52	0.52
Clearance Time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Lane Grp Cap (vph)		378		361	329	394	121	3007			2642	839
v/s Ratio Prot							0.01	c0.60			0.47	
v/s Ratio Perm		0.01		0.27	c0.29	0.01	0.13					0.00
v/c Ratio		0.03		0.95	1.05	0.03	0.23	1.02			0.90	0.01
Uniform Delay, d1		26.6		35.9	36.6	26.5	18.0	20.7			21.9	11.8
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2		0.0		35.2	63.2	0.0	0.7	20.3			5.3	0.0
Delay (s)		26.6		71.1	99.7	26.5	18.7	41.1			27.2	11.8
Level of Service		C		E	F	C	B	D			C	B
Approach Delay (s/veh)		26.6			82.5			40.9			27.1	
Approach LOS		C			F			D			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	40.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	101.6	Sum of lost time (s)	17.0
Intersection Capacity Utilization	90.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



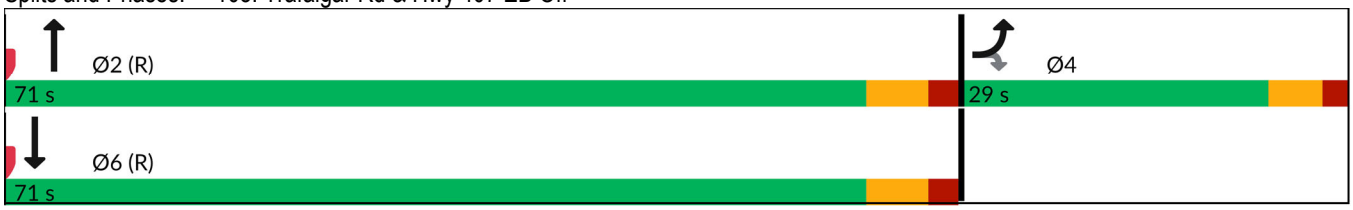
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	47	305	0	3204	2575	0
Future Volume (vph)	47	305	0	3204	2575	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1703	1429	0	5085	5085	0
Flt Permitted	0.950					
Satd. Flow (perm)	1703	1429	0	5085	5085	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		2				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			479.2	363.6	
Travel Time (s)	39.9			34.5	26.2	
Peak Hour Factor	0.75	0.94	0.25	0.94	0.92	0.25
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Adj. Flow (vph)	63	324	0	3409	2799	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	63	324	0	3409	2799	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			7.2	7.2	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	29.0	29.0		24.9	24.9	
Total Split (s)	29.0	29.0		71.0	71.0	
Total Split (%)	29.0%	29.0%		71.0%	71.0%	
Maximum Green (s)	23.0	23.0		64.1	64.1	
Yellow Time (s)	4.0	4.0		4.6	4.6	
All-Red Time (s)	2.0	2.0		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.9	6.9	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	23.0	23.0		64.1	64.1	
Actuated g/C Ratio	0.23	0.23		0.64	0.64	
v/c Ratio	0.16	0.98		1.05	0.86	
Control Delay (s/veh)	32.2	84.9		48.7	17.9	
Queue Delay	0.0	0.0		0.0	0.0	



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay (s/veh)	32.2	84.9		48.7	17.9	
LOS	C	F		D	B	
Approach Delay (s/veh)	76.4			48.7	17.9	
Approach LOS	E			D	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 120			
Control Type: Pretimed			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay (s/veh): 37.3		Intersection LOS: D	
Intersection Capacity Utilization 79.4%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off



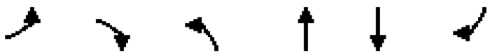


Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	63	324	3409	2799
v/c Ratio	0.16	0.98	1.05	0.86
Control Delay (s/veh)	32.2	84.9	48.7	17.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	32.2	84.9	48.7	17.9
Queue Length 50th (m)	10.3	65.7	~278.2	151.6
Queue Length 95th (m)	17.8	#123.2	#306.0	176.7
Internal Link Dist (m)	530.6		455.2	339.6
Turn Bay Length (m)				
Base Capacity (vph)	391	330	3259	3259
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	0.98	1.05	0.86

Intersection Summary

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

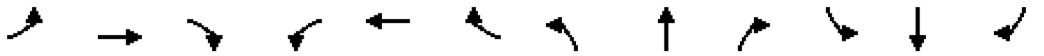
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	47	305	0	3204	2575	0
Future Volume (vph)	47	305	0	3204	2575	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.9	6.9	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1703	1429		5085	5085	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1703	1429		5085	5085	
Peak-hour factor, PHF	0.75	0.94	0.25	0.94	0.92	0.25
Adj. Flow (vph)	63	324	0	3409	2799	0
RTOR Reduction (vph)	0	2	0	0	0	0
Lane Group Flow (vph)	63	322	0	3409	2799	0
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	23.0	23.0		64.1	64.1	
Effective Green, g (s)	23.0	23.0		64.1	64.1	
Actuated g/C Ratio	0.23	0.23		0.64	0.64	
Clearance Time (s)	6.0	6.0		6.9	6.9	
Lane Grp Cap (vph)	391	328		3259	3259	
v/s Ratio Prot	0.04			c0.67	0.55	
v/s Ratio Perm		c0.23				
v/c Ratio	0.16	0.98		1.05	0.86	
Uniform Delay, d1	30.8	38.3		18.0	14.3	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.9	45.6		29.5	3.2	
Delay (s)	31.7	83.9		47.5	17.5	
Level of Service	C	F		D	B	
Approach Delay (s/veh)	75.4			47.5	17.5	
Approach LOS	E			D	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	36.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	79.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

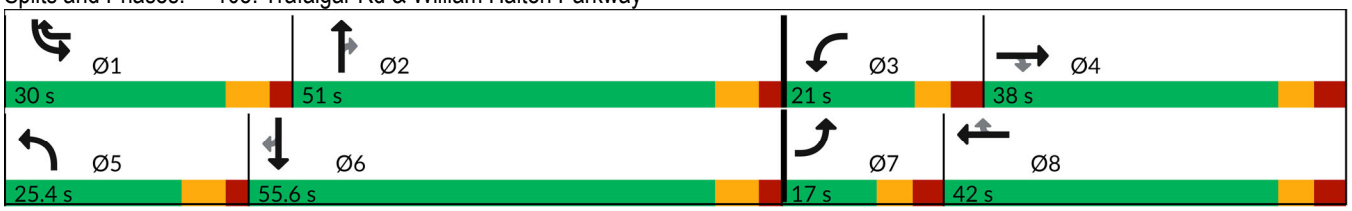


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	730	919	308	441	1012	1133	446	1953	268	609	1709	562
Future Volume (vph)	730	919	308	441	1012	1133	446	1953	268	609	1709	562
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		100.0	150.0		150.0	150.0		75.0	150.0		150.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			278			85			186			185
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		165.7			161.0			258.3			479.2	
Travel Time (s)		11.9			11.6			18.6			34.5	
Peak Hour Factor	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
Adj. Flow (vph)	811	947	338	621	1177	1333	551	2170	425	662	1987	611
Shared Lane Traffic (%)												
Lane Group Flow (vph)	811	947	338	621	1177	1333	551	2170	425	662	1987	611
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	1	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	1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	7.0	7.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	14.0	38.0	38.0	14.0	38.0	13.9	13.9	42.9	42.9	13.9	42.9	42.9
Total Split (s)	17.0	38.0	38.0	21.0	42.0	30.0	25.4	51.0	51.0	30.0	55.6	55.6
Total Split (%)	12.1%	27.1%	27.1%	15.0%	30.0%	21.4%	18.1%	36.4%	36.4%	21.4%	39.7%	39.7%
Maximum Green (s)	10.0	31.0	31.0	14.0	35.0	23.1	18.5	44.1	44.1	23.1	48.7	48.7
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	4.6	4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	3.3	3.3	3.3	3.3	3.3	2.3	2.3	2.3	2.3	2.3	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)	7.0	7.0	7.0	7.0	7.0	6.9	6.9	6.9	6.9	6.9	6.9	6.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	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	3.0	3.0	5.0	5.0	3.0	5.0	5.0
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
Flash Don't Walk (s)		24.0	24.0		24.0			29.0	29.0		29.0	29.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effct Green (s)	10.0	31.0	31.0	14.0	35.0	65.1	18.5	44.1	44.1	23.1	48.7	48.7
Actuated g/C Ratio	0.07	0.22	0.22	0.10	0.25	0.47	0.13	0.32	0.32	0.17	0.35	0.35
v/c Ratio	3.31	1.21	0.59	1.77	1.30	1.71	1.20	1.36	0.67	1.20	1.12	0.90
Control Delay (s/veh)	Error	151.8	14.6	394.6	186.8	349.5	160.8	201.8	28.5	156.7	105.8	48.1
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 (s/veh)	Error	151.8	14.6	394.6	186.8	349.5	160.8	201.8	28.5	156.7	105.8	48.1
LOS	F	F	B	F	F	F	F	F	C	F	F	D
Approach Delay (s/veh)		484.4			297.3			171.2			105.3	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 3.31			
Intersection Signal Delay (s/veh): 243.1		Intersection LOS: F	
Intersection Capacity Utilization 146.0%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	811	947	338	621	1177	1333	551	2170	425	662	1987	611
v/c Ratio	3.31	1.21	0.59	1.77	1.30	1.71	1.20	1.36	0.67	1.20	1.12	0.90
Control Delay (s/veh)	Error	151.8	14.6	394.6	186.8	349.5	160.8	201.8	28.5	156.7	105.8	48.1
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 (s/veh)	Error	151.8	14.6	394.6	186.8	349.5	160.8	201.8	28.5	156.7	105.8	48.1
Queue Length 50th (m)	~214.5	~176.6	14.3	~138.9	~230.9	~560.4	~100.3	~303.2	61.5	~120.5	~244.2	126.7
Queue Length 95th (m)	#256.0	#220.3	46.8	#129.0	#256.7	#596.6	#117.1	#332.7	46.3	#160.1	#253.5	#202.8
Internal Link Dist (m)		141.7			137.0			234.3			455.2	
Turn Bay Length (m)	150.0		100.0	150.0		150.0	150.0		75.0	150.0		150.0
Base Capacity (vph)	245	783	570	350	902	781	458	1601	636	550	1768	676
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	3.31	1.21	0.59	1.77	1.30	1.71	1.20	1.36	0.67	1.20	1.12	0.90

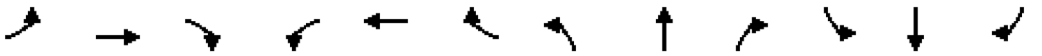
Intersection Summary

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	730	919	308	441	1012	1133	446	1953	268	609	1709	562
Future Volume (vph)	730	919	308	441	1012	1133	446	1953	268	609	1709	562
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	6.9	6.9	6.9	6.9	6.9	6.9	6.9
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
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)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
Peak-hour factor, PHF	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Adj. Flow (vph)	811	947	338	621	1177	1333	551	2170	425	662	1987	611
RTOR Reduction (vph)	0	0	216	0	0	50	0	0	127	0	0	121
Lane Group Flow (vph)	811	947	122	621	1177	1283	551	2170	298	662	1987	490
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	10.0	31.0	31.0	14.0	35.0	58.1	18.5	44.1	44.1	23.1	48.7	48.7
Effective Green, g (s)	10.0	31.0	31.0	14.0	35.0	58.1	18.5	44.1	44.1	23.1	48.7	48.7
Actuated g/C Ratio	0.07	0.22	0.22	0.10	0.25	0.42	0.13	0.32	0.32	0.17	0.35	0.35
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	6.9	6.9	6.9	6.9	6.9	6.9	6.9
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	245	783	354	350	902	656	458	1601	508	550	1768	556
v/s Ratio Prot	c0.24	0.27		0.18	0.33	c0.32	0.16	c0.43		0.20	c0.39	
v/s Ratio Perm			0.08			0.49			0.18			0.31
v/c Ratio	3.31	1.21	0.34	1.77	1.30	1.96	1.20	1.36	0.59	1.20	1.12	0.88
Uniform Delay, d1	65.0	54.5	45.9	63.0	52.5	40.9	60.8	48.0	40.3	58.5	45.7	42.9
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	1050.0	106.1	1.2	359.8	145.3	435.8	110.6	164.1	4.9	108.0	63.8	18.1
Delay (s)	1115.0	160.6	47.1	422.8	197.8	476.8	171.4	212.1	45.2	166.5	109.5	61.0
Level of Service	F	F	D	F	F	F	F	F	D	F	F	E
Approach Delay (s/veh)		511.6			361.2			182.4			112.0	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	270.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.86		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	27.8
Intersection Capacity Utilization	146.0%	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)	301	467	24	245	447	388	306	2104	156	318	1760	205
Future Volume (vph)	301	467	24	245	447	388	306	2104	156	318	1760	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		60.0	60.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	70.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.994			0.934				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1889	0	1805	1775	0	1805	5036	1615	1480	5085	1599
Flt Permitted	0.093			0.098			0.100			0.091		
Satd. Flow (perm)	173	1889	0	186	1775	0	190	5036	1615	142	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			32				126			121
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		277.8			989.6			1941.0			203.1	
Travel Time (s)		16.7			59.4			87.3			9.1	
Peak Hour Factor	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	1%
Adj. Flow (vph)	358	667	30	310	621	485	392	2475	229	497	2000	238
Shared Lane Traffic (%)												
Lane Group Flow (vph)	358	697	0	310	1106	0	392	2475	229	497	2000	238
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	pm+pt	NA		pm+pt	NA		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			8			2		2	6		6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	9.5	24.0		9.5	24.0		9.5	26.0	26.0	11.5	26.0	26.0
Total Split (s)	15.0	49.0		13.0	47.0		16.0	46.0	46.0	22.0	52.0	52.0
Total Split (%)	11.5%	37.7%		10.0%	36.2%		12.3%	35.4%	35.4%	16.9%	40.0%	40.0%
Maximum Green (s)	11.0	43.0		9.0	41.0		12.0	40.0	40.0	18.0	46.0	46.0
Yellow Time (s)	3.0	3.7		3.0	3.7		3.0	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	1.0	2.3		1.0	2.3		1.0	1.4	1.4	1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		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
Recall Mode	None	None		None	None		None	Max	Max	None	Max	Max
Act Effct Green (s)	56.0	43.0		52.0	41.0		54.0	40.0	42.0	64.0	46.0	48.0
Actuated g/C Ratio	0.43	0.33		0.40	0.32		0.42	0.31	0.32	0.49	0.35	0.37
v/c Ratio	1.71	1.11		1.67	1.90		1.72	1.60	0.38	1.95	1.11	0.36
Control Delay (s/veh)	365.4	111.7		347.0	439.6		367.7	303.7	16.7	465.7	98.1	15.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	365.4	111.7		347.0	439.6		367.7	303.7	16.7	465.7	98.1	15.8
LOS	F	F		F	F		F	F	B	F	F	B
Approach Delay (s/veh)		197.8			419.3			290.6			157.8	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.95			
Intersection Signal Delay (s/veh): 257.0		Intersection LOS: F	
Intersection Capacity Utilization 138.9%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burnhamthorpe Rd



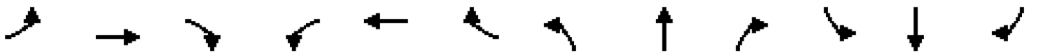


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	358	697	310	1106	392	2475	229	497	2000	238
v/c Ratio	1.71	1.11	1.67	1.90	1.72	1.60	0.38	1.95	1.11	0.36
Control Delay (s/veh)	365.4	111.7	347.0	439.6	367.7	303.7	16.7	465.7	98.1	15.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	365.4	111.7	347.0	439.6	367.7	303.7	16.7	465.7	98.1	15.8
Queue Length 50th (m)	~125.8	~215.3	~104.8	~455.0	~139.5	~348.9	20.1	~194.6	~225.7	21.4
Queue Length 95th (m)	#171.4	#187.5	#136.0	#396.9	#166.2	#347.8	23.6	#163.3	#246.5	40.0
Internal Link Dist (m)		253.8		965.6		1917.0			179.1	
Turn Bay Length (m)	30.0		15.0		60.0		60.0	60.0		60.0
Base Capacity (vph)	209	626	186	581	228	1549	607	255	1799	666
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.71	1.11	1.67	1.90	1.72	1.60	0.38	1.95	1.11	0.36

Intersection Summary

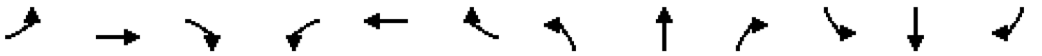
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



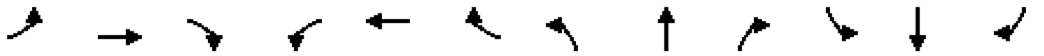
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	301	467	24	245	447	388	306	2104	156	318	1760	205
Future Volume (vph)	301	467	24	245	447	388	306	2104	156	318	1760	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.99		1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1888		1805	1775		1805	5036	1615	1480	5085	1599
Flt Permitted	0.09	1.00		0.10	1.00		0.10	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	173	1888		185	1775		190	5036	1615	142	5085	1599
Peak-hour factor, PHF	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Adj. Flow (vph)	358	667	30	310	621	485	392	2475	229	497	2000	238
RTOR Reduction (vph)	0	1	0	0	22	0	0	0	85	0	0	76
Lane Group Flow (vph)	358	696	0	310	1084	0	392	2475	144	497	2000	162
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	54.0	43.0		50.0	41.0		52.0	40.0	40.0	62.0	46.0	46.0
Effective Green, g (s)	54.0	43.0		50.0	41.0		52.0	40.0	42.0	62.0	46.0	48.0
Actuated g/C Ratio	0.42	0.33		0.38	0.32		0.40	0.31	0.32	0.48	0.35	0.37
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	206	624		183	559		225	1549	521	252	1799	590
v/s Ratio Prot	c0.15	0.37		0.12	c0.61		0.16	0.49		c0.27	0.39	
v/s Ratio Perm	0.57			0.53			0.54		0.09	c0.67		0.10
v/c Ratio	1.74	1.11		1.69	1.94		1.74	1.60	0.28	1.97	1.11	0.27
Uniform Delay, d1	36.2	43.5		33.3	44.5		36.7	45.0	32.7	41.0	42.0	28.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	351.5	71.8		334.7	429.3		351.8	272.1	1.3	451.5	58.8	1.1
Delay (s)	387.7	115.3		368.0	473.8		388.5	317.1	34.0	492.5	100.8	29.9
Level of Service	F	F		F	F		F	F	C	F	F	C
Approach Delay (s/veh)		207.8			450.6			305.2			165.8	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	271.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.98		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	138.9%	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	1697	99	0	2215	13	0	0	37	0	0	371
Future Volume (vph)	0	1697	99	0	2215	13	0	0	37	0	0	371
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
Frt		0.992			0.999				0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3511	0	0	3536	0	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3511	0	0	3536	0	0	0	1611	0	0	1611
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		161.0			234.1			145.8			194.6	
Travel Time (s)		11.6			16.9			10.5			14.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1845	108	0	2408	14	0	0	40	0	0	403
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1953	0	0	2422	0	0	0	40	0	0	403
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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 91.3%		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	1697	99	0	2215	13	0	0	37	0	0	371
Future Volume (Veh/h)	0	1697	99	0	2215	13	0	0	37	0	0	371
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1845	108	0	2408	14	0	0	40	0	0	403
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		161			234							
pX, platoon unblocked	0.60			0.79			0.71	0.71	0.79	0.71	0.71	0.60
vC, conflicting volume	2422			1953			3506	4321	977	3378	4368	1211
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2040			1666			2350	3499	423	2169	3565	30
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	91	100	100	36
cM capacity (veh/h)	164			300			5	4	455	17	4	625

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	1230	723	1605	817	40	403
Volume Left	0	0	0	0	0	0
Volume Right	0	108	0	14	40	403
cSH	1700	1700	1700	1700	455	625
Volume to Capacity	0.72	0.43	0.94	0.48	0.09	0.64
Queue Length 95th (m)	0.0	0.0	0.0	0.0	2.3	37.3
Control Delay (s/veh)	0.0	0.0	0.0	0.0	13.7	20.6
Lane LOS					B	C
Approach Delay (s/veh)	0.0		0.0		13.7	20.6
Approach LOS					B	C

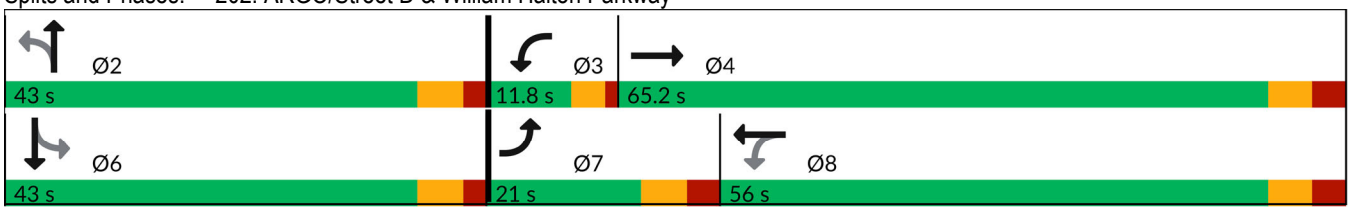
Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	91.3%	ICU Level of Service		F
Analysis Period (min)	15			

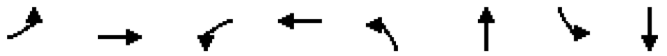
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	558	1077	99	111	1731	9	248	10	37	77	10	249
Future Volume (vph)	558	1077	99	111	1731	9	248	10	37	77	10	249
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0		0.0	55.0		0.0	115.0		0.0	0.0		0.0
Storage Lanes	2		0	1		0	1		0	1		0
Taper Length (m)	100.0			100.0			85.0			50.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.999			0.882			0.856	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3493	0	1770	3536	0	1770	1643	0	1770	1595	0
Flt Permitted	0.950			0.127			0.437			0.724		
Satd. Flow (perm)	3433	3493	0	237	3536	0	814	1643	0	1349	1595	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			1			40			186	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		234.1			330.7			147.6			128.4	
Travel Time (s)		16.9			23.8			10.6			9.2	
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
Adj. Flow (vph)	607	1171	108	121	1882	10	270	11	40	84	11	271
Shared Lane Traffic (%)												
Lane Group Flow (vph)	607	1279	0	121	1892	0	270	51	0	84	282	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)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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	Prot	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases				8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	12.0	32.0		9.5	32.0		42.0	42.0		42.0	42.0	
Total Split (s)	21.0	65.2		11.8	56.0		43.0	43.0		43.0	43.0	
Total Split (%)	17.5%	54.3%		9.8%	46.7%		35.8%	35.8%		35.8%	35.8%	
Maximum Green (s)	14.0	58.2		7.8	49.0		37.0	37.0		37.0	37.0	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		1.0	3.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		4.0	7.0		6.0	6.0		6.0	6.0	
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	Min	Min		None	Min		None	None		None	None	
Walk Time (s)		10.0			10.0		14.0	14.0		14.0	14.0	
Flash Don't Walk (s)		15.0			15.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	14.0	58.4		59.6	49.0		37.0	37.0		37.0	37.0	
Actuated g/C Ratio	0.12	0.49		0.50	0.41		0.31	0.31		0.31	0.31	
v/c Ratio	1.52	0.75		0.57	1.31		1.08	0.10		0.20	0.45	
Control Delay (s/veh)	281.9	28.2		23.3	176.2		120.1	12.4		32.3	13.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	281.9	28.2		23.3	176.2		120.1	12.4		32.3	13.9	
LOS	F	C		C	F		F	B		C	B	
Approach Delay (s/veh)		109.8			167.0			103.0			18.1	
Approach LOS		F			F			F			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.52			
Intersection Signal Delay (s/veh): 127.1		Intersection LOS: F	
Intersection Capacity Utilization 115.4%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 202: ARGO/Street D & William Halton Parkway





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	607	1279	121	1892	270	51	84	282
v/c Ratio	1.52	0.75	0.57	1.31	1.08	0.10	0.20	0.45
Control Delay (s/veh)	281.9	28.2	23.3	176.2	120.1	12.4	32.3	13.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	281.9	28.2	23.3	176.2	120.1	12.4	32.3	13.9
Queue Length 50th (m)	~108.1	130.4	11.9	~319.5	~74.5	1.9	15.3	17.5
Queue Length 95th (m)	#145.1	158.7	21.6	#364.7	#129.2	11.4	28.9	43.0
Internal Link Dist (m)		210.1		306.7		123.6		104.4
Turn Bay Length (m)	120.0		55.0		115.0			
Base Capacity (vph)	400	1706	217	1444	250	534	415	620
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	1.52	0.75	0.56	1.31	1.08	0.10	0.20	0.45

Intersection Summary

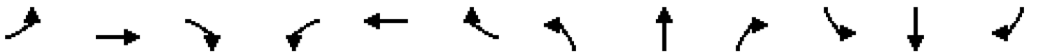
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	558	1077	99	111	1731	9	248	10	37	77	10	249
Future Volume (vph)	558	1077	99	111	1731	9	248	10	37	77	10	249
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		4.0	7.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.88		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3494		1770	3536		1770	1644		1770	1594	
Flt Permitted	0.95	1.00		0.13	1.00		0.44	1.00		0.72	1.00	
Satd. Flow (perm)	3433	3494		236	3536		815	1644		1348	1594	
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)	607	1171	108	121	1882	10	270	11	40	84	11	271
RTOR Reduction (vph)	0	6	0	0	1	0	0	28	0	0	129	0
Lane Group Flow (vph)	607	1273	0	121	1891	0	270	23	0	84	153	0
Turn Type	Prot	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases				8			2			6		
Actuated Green, G (s)	14.0	58.4		56.6	49.0		37.0	37.0		37.0	37.0	
Effective Green, g (s)	14.0	58.4		56.6	49.0		37.0	37.0		37.0	37.0	
Actuated g/C Ratio	0.12	0.49		0.47	0.41		0.31	0.31		0.31	0.31	
Clearance Time (s)	7.0	7.0		4.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	400	1700		208	1443		251	506		415	491	
v/s Ratio Prot	c0.18	0.36		0.04	c0.53			0.01			0.10	
v/s Ratio Perm				0.24			c0.33			0.06		
v/c Ratio	1.52	0.75		0.58	1.31		1.08	0.05		0.20	0.31	
Uniform Delay, d1	53.0	24.9		20.5	35.5		41.5	29.1		30.6	31.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	245.4	1.9		4.1	144.9		78.4	0.0		0.2	0.4	
Delay (s)	298.4	26.7		24.6	180.4		119.9	29.2		30.9	32.1	
Level of Service	F	C		C	F		F	C		C	C	
Approach Delay (s/veh)		114.2			171.0			105.5			31.8	
Approach LOS		F			F			F			C	

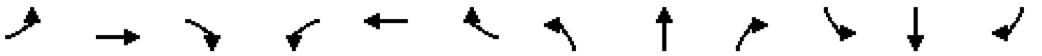
Intersection Summary			
HCM 2000 Control Delay (s/veh)	132.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	115.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1879	59	0	1622	398	0	0	78	0	0	357
Future Volume (vph)	0	1879	59	0	1622	398	0	0	78	0	0	357
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		50.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.995				0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3522	0	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3522	0	0	3539	1583	0	0	1611	0	0	1611
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		226.3			165.7			202.5			251.2	
Travel Time (s)		16.3			11.9			14.6			18.1	
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
Adj. Flow (vph)	0	2042	64	0	1763	433	0	0	85	0	0	388
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2106	0	0	1763	433	0	0	85	0	0	388
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

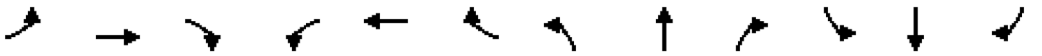
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 73.6%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1879	59	0	1622	398	0	0	78	0	0	357
Future Volume (Veh/h)	0	1879	59	0	1622	398	0	0	78	0	0	357
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2042	64	0	1763	433	0	0	85	0	0	388
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		226			166							
pX, platoon unblocked	0.76			0.56			0.68	0.68	0.56	0.68	0.68	0.76
vC, conflicting volume	2196			2106			3344	4270	1053	2869	3869	882
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1937			1396			1892	3257	0	1193	2666	200
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	37
cM capacity (veh/h)	227			271			11	6	604	83	15	611

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1361	745	882	882	433	85	388
Volume Left	0	0	0	0	0	0	0
Volume Right	0	64	0	0	433	85	388
cSH	1700	1700	1700	1700	1700	604	611
Volume to Capacity	0.80	0.44	0.52	0.52	0.25	0.14	0.63
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	3.9	35.9
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	11.9	20.6
Lane LOS						B	C
Approach Delay (s/veh)	0.0		0.0			11.9	20.6
Approach LOS						B	C

Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	73.6%	ICU Level of Service	D	
Analysis Period (min)	15			

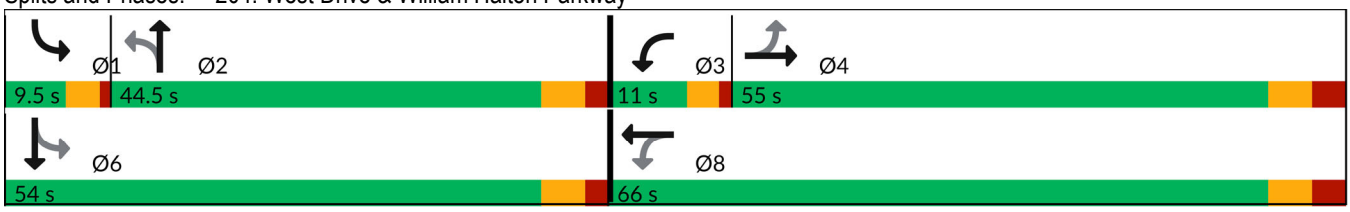


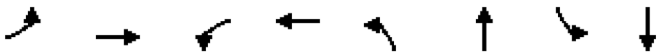
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	1476	56	164	1744	71	32	40	352	110	1	6
Future Volume (vph)	16	1476	56	164	1744	71	32	40	352	110	1	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	100.0		0.0	50.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	100.0			100.0			50.0			50.0		
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
Frt		0.995			0.994			0.865			0.869	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3522	0	1770	3518	0	1770	1611	0	1770	1619	0
Flt Permitted	0.083			0.076			0.752			0.140		
Satd. Flow (perm)	155	3522	0	142	3518	0	1401	1611	0	261	1619	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			5			150			5	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		824.7			226.3			176.0			195.5	
Travel Time (s)		59.4			16.3			12.7			14.1	
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
Adj. Flow (vph)	17	1604	61	178	1896	77	35	43	383	120	1	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	1665	0	178	1973	0	35	426	0	120	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)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		3	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	20.0	20.0		5.0	20.0		10.0	10.0		5.0	10.0	
Minimum Split (s)	27.0	27.0		9.5	27.0		42.0	42.0		9.5	42.0	
Total Split (s)	55.0	55.0		11.0	66.0		44.5	44.5		9.5	54.0	
Total Split (%)	45.8%	45.8%		9.2%	55.0%		37.1%	37.1%		7.9%	45.0%	
Maximum Green (s)	48.0	48.0		7.0	59.0		38.5	38.5		5.5	48.0	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		1.0	3.0		2.0	2.0		1.0	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)	7.0	7.0		4.0	7.0		6.0	6.0		4.0	6.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes		Yes		
Vehicle Extension (s)	0.2	0.2		3.0	0.2		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Walk Time (s)	7.0	7.0			7.0		14.0	14.0			14.0	
Flash Don't Walk (s)	11.0	11.0			11.0		22.0	22.0			22.0	
Pedestrian Calls (#/hr)	0	0			0		0	0			0	
Act Effct Green (s)	48.3	48.3		62.4	59.4		24.4	24.4		36.0	33.9	
Actuated g/C Ratio	0.45	0.45		0.59	0.56		0.23	0.23		0.34	0.32	
v/c Ratio	0.24	1.04		0.93	1.00		0.11	0.88		0.72	0.02	
Control Delay (s/veh)	33.2	63.8		73.5	46.4		31.4	44.8		50.3	16.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	33.2	63.8		73.5	46.4		31.4	44.8		50.3	16.1	
LOS	C	E		E	D		C	D		D	B	
Approach Delay (s/veh)		63.5			48.7			43.8			48.2	
Approach LOS		E			D			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 106.4			
Natural Cycle: 140			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.04			
Intersection Signal Delay (s/veh): 53.8		Intersection LOS: D	
Intersection Capacity Utilization 117.1%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 204: West Drive & William Halton Parkway





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	17	1665	178	1973	35	426	120	8
v/c Ratio	0.24	1.04	0.93	1.00	0.11	0.88	0.72	0.02
Control Delay (s/veh)	33.2	63.8	73.5	46.4	31.4	44.8	50.3	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	33.2	63.8	73.5	46.4	31.4	44.8	50.3	16.1
Queue Length 50th (m)	2.2	~205.7	21.5	~215.5	6.0	60.3	18.3	0.5
Queue Length 95th (m)	10.5	#306.8	#78.4	#346.2	14.0	99.3	#36.8	3.7
Internal Link Dist (m)		800.7		202.3		152.0		171.5
Turn Bay Length (m)	100.0		100.0		50.0		50.0	
Base Capacity (vph)	70	1600	191	1965	510	682	166	737
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	1.04	0.93	1.00	0.07	0.62	0.72	0.01

Intersection Summary

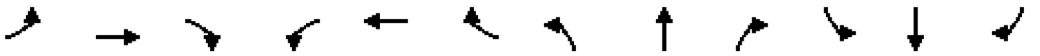
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	1476	56	164	1744	71	32	40	352	110	1	6
Future Volume (vph)	16	1476	56	164	1744	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)	7.0	7.0		4.0	7.0		6.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.87		1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3520		1770	3518		1770	1612		1770	1618	
Flt Permitted	0.08	1.00		0.08	1.00		0.75	1.00		0.14	1.00	
Satd. Flow (perm)	154	3520		142	3518		1402	1612		261	1618	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	1604	61	178	1896	77	35	43	383	120	1	7
RTOR Reduction (vph)	0	2	0	0	2	0	0	115	0	0	3	0
Lane Group Flow (vph)	17	1663	0	178	1971	0	35	311	0	120	5	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	48.4	48.4		59.4	59.4		24.5	24.5		34.0	34.0	
Effective Green, g (s)	48.4	48.4		59.4	59.4		24.5	24.5		34.0	34.0	
Actuated g/C Ratio	0.45	0.45		0.56	0.56		0.23	0.23		0.32	0.32	
Clearance Time (s)	7.0	7.0		4.0	7.0		6.0	6.0		4.0	6.0	
Vehicle Extension (s)	0.2	0.2		3.0	0.2		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	70	1601		186	1963		322	371		161	517	
v/s Ratio Prot		0.47		0.06	c0.56			c0.19		c0.04	0.00	
v/s Ratio Perm	0.11			0.47			0.02			0.20		
v/c Ratio	0.24	1.04		0.96	1.00		0.11	0.84		0.75	0.01	
Uniform Delay, d1	17.8	29.0		28.9	23.5		32.3	39.0		29.2	24.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	33.2		53.0	21.3		0.1	15.1		17.0	0.0	
Delay (s)	18.4	62.2		81.9	44.8		32.5	54.1		46.2	24.7	
Level of Service	B	E		F	D		C	D		D	C	
Approach Delay (s/veh)		61.8			47.8			52.5			44.9	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	53.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	106.4	Sum of lost time (s)	21.0
Intersection Capacity Utilization	117.1%	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)	95	30	10	3	36	250	23	62	167	52	150	12
Future Volume (vph)	95	30	10	3	36	250	23	62	167	52	150	12
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		0.990			0.883			0.910			0.992	
Flt Protected		0.966						0.995			0.988	
Satd. Flow (prot)	0	1781	0	0	1645	0	0	1687	0	0	1826	0
Flt Permitted		0.966						0.995			0.988	
Satd. Flow (perm)	0	1781	0	0	1645	0	0	1687	0	0	1826	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		276.8			164.9			130.3			140.1	
Travel Time (s)		19.9			11.9			9.4			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
Adj. Flow (vph)	103	33	11	3	39	272	25	67	182	57	163	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	147	0	0	314	0	0	274	0	0	233	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)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

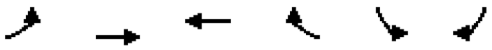
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.9%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	30	10	3	36	250	23	62	167	52	150	12
Future Volume (Veh/h)	95	30	10	3	36	250	23	62	167	52	150	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	103	33	11	3	39	272	25	67	182	57	163	13
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	311			44			520	562	39	641	431	175
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	311			44			520	562	39	641	431	175
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			100			92	83	82	78	66	99
cM capacity (veh/h)	1249			1564			317	399	1033	261	474	868

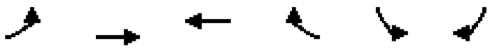
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	147	314	274	233
Volume Left	103	3	25	57
Volume Right	11	272	182	13
cSH	1249	1564	648	403
Volume to Capacity	0.08	0.00	0.42	0.58
Queue Length 95th (m)	2.2	0.0	16.8	28.2
Control Delay (s/veh)	5.9	0.1	14.6	25.4
Lane LOS	A	A	B	D
Approach Delay (s/veh)	5.9	0.1	14.6	25.4
Approach LOS			B	D

Intersection Summary				
Average Delay	11.2			
Intersection Capacity Utilization	57.9%	ICU Level of Service	B	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	114	149	119	238	87	147
Future Volume (vph)	114	149	119	238	87	147
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			0.910		0.915	
Flt Protected		0.979			0.982	
Satd. Flow (prot)	0	1824	1695	0	1674	0
Flt Permitted		0.979			0.982	
Satd. Flow (perm)	0	1824	1695	0	1674	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		164.9	188.6		202.5	
Travel Time (s)		11.9	13.6		14.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	124	162	129	259	95	160
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	286	388	0	255	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.9%		ICU Level of Service B	
Analysis Period (min) 15			



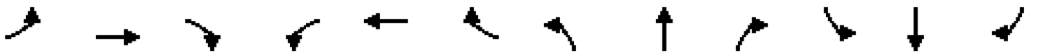
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	114	149	119	238	87	147
Future Volume (Veh/h)	114	149	119	238	87	147
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	124	162	129	259	95	160
Pedestrians						
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	388				669	259
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	388				669	259
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	89				75	79
cM capacity (veh/h)	1170				378	780

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	286	388	255
Volume Left	124	0	95
Volume Right	0	259	160
cSH	1170	1700	559
Volume to Capacity	0.11	0.23	0.46
Queue Length 95th (m)	2.8	0.0	19.0
Control Delay (s/veh)	4.2	0.0	16.7
Lane LOS	A		C
Approach Delay (s/veh)	4.2	0.0	16.7
Approach LOS			C

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	58.9%	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)	0	0	198	0	0	66	0	2600	193	0	2085	373
Future Volume (vph)	0	0	198	0	0	66	0	2600	193	0	2085	373
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		50.0	0.0		50.0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.865			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	1611	0	0	1611	0	5085	1583	0	5085	1583
Flt Permitted												
Satd. Flow (perm)	0	0	1611	0	0	1611	0	5085	1583	0	5085	1583
Link Speed (k/h)		50			50			50			80	
Link Distance (m)		188.6			84.7			203.1			258.3	
Travel Time (s)		13.6			6.1			14.6			11.6	
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
Adj. Flow (vph)	0	0	215	0	0	72	0	2826	210	0	2266	405
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	215	0	0	72	0	2826	210	0	2266	405
Enter Blocked Intersection	No	No	No	No	No	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			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

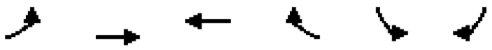
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	198	0	0	66	0	2600	193	0	2085	373
Future Volume (Veh/h)	0	0	198	0	0	66	0	2600	193	0	2085	373
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	215	0	0	72	0	2826	210	0	2266	405
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								203			258	
pX, platoon unblocked	0.82	0.82	0.67	0.82	0.82	0.71	0.67			0.71		
vC, conflicting volume	3280	5302	755	3796	5497	942	2671			3036		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	578	3048	0	1209	3286	0	1775			2423		
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	70	100	100	91	100			100		
cM capacity (veh/h)	296	10	728	80	7	764	233			136		

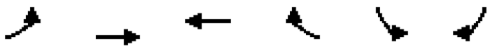
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	215	72	942	942	942	210	755	755	755	405
Volume Left	0	0	0	0	0	0	0	0	0	0
Volume Right	215	72	0	0	0	210	0	0	0	405
cSH	728	764	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.30	0.09	0.55	0.55	0.55	0.12	0.44	0.44	0.44	0.24
Queue Length 95th (m)	9.9	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s/veh)	12.0	10.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	B								
Approach Delay (s/veh)	12.0	10.2	0.0				0.0			
Approach LOS	B	B								

Intersection Summary					
Average Delay	0.6				
Intersection Capacity Utilization	61.0%	ICU Level of Service		B	
Analysis Period (min)	15				



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	7	645	718	240	151	12
Future Volume (vph)	7	645	718	240	151	12
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			0.966		0.990	
Flt Protected		0.999			0.956	
Satd. Flow (prot)	0	1861	1799	0	1763	0
Flt Permitted		0.999			0.956	
Satd. Flow (perm)	0	1861	1799	0	1763	0
Link Speed (k/h)		60	50		50	
Link Distance (m)		550.9	277.8		134.0	
Travel Time (s)		33.1	20.0		9.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	701	780	261	164	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	709	1041	0	177	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

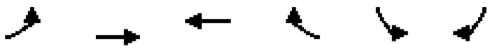
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.2%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	645	718	240	151	12
Future Volume (Veh/h)	7	645	718	240	151	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	701	780	261	164	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)			278			
pX, platoon unblocked	0.54				0.54	0.54
vC, conflicting volume	1041				1628	911
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	651				1736	410
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				0	96
cM capacity (veh/h)	506				51	347

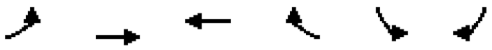
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	709	1041	177
Volume Left	8	0	164
Volume Right	0	261	13
cSH	506	1700	55
Volume to Capacity	0.02	0.61	3.24
Queue Length 95th (m)	0.4	0.0	Err
Control Delay (s/veh)	0.5	0.0	Err
Lane LOS	A		F
Approach Delay (s/veh)	0.5	0.0	Err
Approach LOS			F

Intersection Summary			
Average Delay	918.6		
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	41	1150	1755	2	20	96
Future Volume (vph)	41	1150	1755	2	20	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Frt					0.889	
Flt Protected		0.998			0.991	
Satd. Flow (prot)	0	3532	3539	0	1641	0
Flt Permitted		0.998			0.991	
Satd. Flow (perm)	0	3532	3539	0	1641	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		330.7	856.4		123.9	
Travel Time (s)		23.8	61.7		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	1250	1908	2	22	104
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1295	1910	0	126	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 75.3%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	41	1150	1755	2	20	96
Future Volume (Veh/h)	41	1150	1755	2	20	96
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)	45	1250	1908	2	22	104
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		331				
pX, platoon unblocked					0.71	
vC, conflicting volume	1910				2624	955
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1910				2469	955
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	85				0	60
cM capacity (veh/h)	307				15	259

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	462	833	1272	638	126
Volume Left	45	0	0	0	22
Volume Right	0	0	0	2	104
cSH	307	1700	1700	1700	68
Volume to Capacity	0.15	0.49	0.75	0.38	1.86
Queue Length 95th (m)	4.1	0.0	0.0	0.0	91.5
Control Delay (s/veh)	5.1	0.0	0.0	0.0	540.3
Lane LOS	A				F
Approach Delay (s/veh)	1.8		0.0		540.3
Approach LOS					F

Intersection Summary			
Average Delay	21.1		
Intersection Capacity Utilization	75.3%	ICU Level of Service	D
Analysis Period (min)	15		



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	56	0	232	0	0	169
Future Volume (vph)	56	0	232	0	0	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1770	0	3539	0	0	3539
Flt Permitted	0.950					
Satd. Flow (perm)	1770	0	3539	0	0	3539
Link Speed (k/h)	50		50			50
Link Distance (m)	317.0		128.4			111.8
Travel Time (s)	22.8		9.2			8.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	61	0	252	0	0	184
Shared Lane Traffic (%)						
Lane Group Flow (vph)	61	0	252	0	0	184
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 16.4%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	56	0	232	0	0	169
Future Volume (Veh/h)	56	0	232	0	0	169
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	61	0	252	0	0	184
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			128			
pX, platoon unblocked						
vC, conflicting volume	344	126			252	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	344	126			252	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	90	100			100	
cM capacity (veh/h)	626	901			1310	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	61	168	84	61	123
Volume Left	61	0	0	0	0
Volume Right	0	0	0	0	0
cSH	626	1700	1700	1310	1700
Volume to Capacity	0.10	0.10	0.05	0.00	0.07
Queue Length 95th (m)	2.6	0.0	0.0	0.0	0.0
Control Delay (s/veh)	11.4	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s/veh)	11.4	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	16.4%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	169	0	116	116
Future Volume (vph)	0	0	169	0	116	116
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						0.850
Flt Protected				0.950	0.950	
Satd. Flow (prot)	1863	0	0	1770	1770	1583
Flt Permitted				0.950	0.950	
Satd. Flow (perm)	1863	0	0	1770	1770	1583
Link Speed (k/h)	50			50	50	
Link Distance (m)	241.4			309.3	111.8	
Travel Time (s)	17.4			22.3	8.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	184	0	126	126
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	184	126	126
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.5%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	169	0	116	116
Future Volume (Veh/h)	0	0	169	0	116	116
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	184	0	126	126
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			0		368	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		368	0
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			89		78	88
cM capacity (veh/h)			1623		560	1085

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	0	184	126	126
Volume Left	0	184	126	0
Volume Right	0	0	0	126
cSH	1700	1623	560	1085
Volume to Capacity	0.00	0.11	0.22	0.12
Queue Length 95th (m)	0.0	3.1	6.9	3.1
Control Delay (s/veh)	0.0	7.5	13.3	8.8
Lane LOS		A	B	A
Approach Delay (s/veh)	0.0	7.5	11.0	
Approach LOS			B	

Intersection Summary			
Average Delay	9.5		
Intersection Capacity Utilization	22.5%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	81	0	31	0
Future Volume (vph)	0	0	81	0	31	0
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						
Flt Protected				0.950	0.950	
Satd. Flow (prot)	1863	0	0	1770	1770	0
Flt Permitted				0.950	0.950	
Satd. Flow (perm)	1863	0	0	1770	1770	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	309.3			139.4	106.2	
Travel Time (s)	22.3			10.0	7.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	88	0	34	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	88	34	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	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

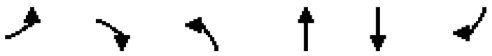
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.5%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	81	0	31	0
Future Volume (Veh/h)	0	0	81	0	31	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	88	0	34	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			0		176	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		176	0
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		96	100
cM capacity (veh/h)			1623		770	1085

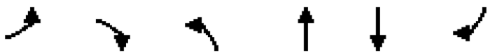
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	0	88	34
Volume Left	0	88	34
Volume Right	0	0	0
cSH	1700	1623	770
Volume to Capacity	0.00	0.05	0.04
Queue Length 95th (m)	0.0	1.4	1.1
Control Delay (s/veh)	0.0	7.3	9.9
Lane LOS		A	A
Approach Delay (s/veh)	0.0	7.3	9.9
Approach LOS			A

Intersection Summary			
Average Delay	8.1		
Intersection Capacity Utilization	14.5%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	35	1	41	81	0
Future Volume (vph)	0	35	1	41	81	0
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				0.999		
Satd. Flow (prot)	1611	0	0	1861	1863	0
Flt Permitted				0.999		
Satd. Flow (perm)	1611	0	0	1861	1863	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	317.0			123.9	106.2	
Travel Time (s)	22.8			8.9	7.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	38	1	45	88	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	0	0	46	88	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

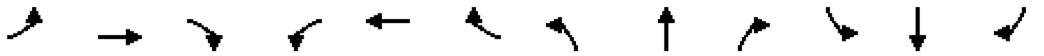
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	14.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	35	1	41	81	0
Future Volume (Veh/h)	0	35	1	41	81	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	38	1	45	88	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	135	88	88			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	135	88	88			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	96	100			
cM capacity (veh/h)	858	970	1508			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	38	46	88
Volume Left	0	1	0
Volume Right	38	0	0
cSH	970	1508	1700
Volume to Capacity	0.04	0.00	0.05
Queue Length 95th (m)	1.0	0.0	0.0
Control Delay (s/veh)	8.9	0.2	0.0
Lane LOS	A	A	
Approach Delay (s/veh)	8.9	0.2	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	14.3%	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)	115	332	95	319	114	147	35	1580	349	347	1890	66
Future Volume (vph)	115	332	95	319	114	147	35	1580	349	347	1890	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		90.0	90.0		90.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.963			0.912				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3450	0	1736	3166	0	1597	4848	1568	1752	4988	1553
Flt Permitted	0.553			0.175			0.083			0.075		
Satd. Flow (perm)	1010	3450	0	320	3166	0	140	4848	1568	138	4988	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31			193				326			138
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			728.7			434.3	
Travel Time (s)		38.5			41.4			32.8			19.5	
Peak Hour Factor	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Adj. Flow (vph)	137	431	140	437	137	193	49	1927	392	394	2224	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	137	571	0	437	330	0	49	1927	392	394	2224	93
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	pm+pt	NA		pm+pt	NA		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			8			2		2	6		6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		7.0	10.0		5.0	25.0	25.0	7.0	25.0	25.0
Minimum Split (s)	9.5	22.5		11.5	22.5		9.5	31.6	31.6	11.5	30.6	30.6
Total Split (s)	12.2	25.0		20.0	32.8		9.5	54.0	54.0	21.0	65.5	65.5
Total Split (%)	10.2%	20.8%		16.7%	27.3%		7.9%	45.0%	45.0%	17.5%	54.6%	54.6%
Maximum Green (s)	8.2	18.8		16.0	26.6		5.5	47.4	47.4	17.0	59.9	59.9
Yellow Time (s)	3.0	4.2		3.0	4.2		3.0	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0	2.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.2		4.0	6.2		4.0	6.6	6.6	4.0	5.6	5.6
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0		0.2	5.0		3.0	5.0	5.0	0.2	5.0	5.0
Recall Mode	None	None		None	None		None	Max	Max	Max	Max	Max
Act Effct Green (s)	29.2	18.8		41.0	26.6		55.5	47.4	47.4	71.0	61.8	61.8
Actuated g/C Ratio	0.24	0.16		0.34	0.22		0.46	0.40	0.40	0.59	0.52	0.52
v/c Ratio	0.47	1.01		1.47	0.39		0.37	1.01	0.48	1.27	0.87	0.11
Control Delay (s/veh)	35.7	87.7		255.2	17.5		20.8	58.6	7.2	176.4	30.6	1.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	35.7	87.7		255.2	17.5		20.8	58.6	7.2	176.4	30.6	1.0
LOS	D	F		F	B		C	E	A	F	C	A
Approach Delay (s/veh)		77.7			152.9			49.3			50.8	
Approach LOS		E			F			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 130			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.47			
Intersection Signal Delay (s/veh): 65.1		Intersection LOS: E	
Intersection Capacity Utilization 97.0%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line



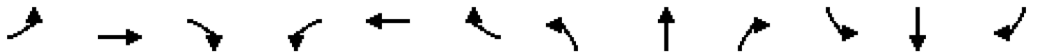


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	137	571	437	330	49	1927	392	394	2224	93
v/c Ratio	0.47	1.01	1.47	0.39	0.37	1.01	0.48	1.27	0.87	0.11
Control Delay (s/veh)	35.7	87.7	255.2	17.5	20.8	58.6	7.2	176.4	30.6	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	35.7	87.7	255.2	17.5	20.8	58.6	7.2	176.4	30.6	1.0
Queue Length 50th (m)	24.1	~72.5	~132.0	14.6	4.8	~175.2	10.2	~107.4	176.7	0.0
Queue Length 95th (m)	37.3	#83.8	#141.9	23.9	8.2	170.1	33.2	#165.1	180.8	0.0
Internal Link Dist (m)		725.3		666.6		704.7			410.3	
Turn Bay Length (m)	45.0		110.0		90.0		90.0	90.0		90.0
Base Capacity (vph)	295	566	298	853	131	1914	816	310	2568	866
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	1.01	1.47	0.39	0.37	1.01	0.48	1.27	0.87	0.11

Intersection Summary

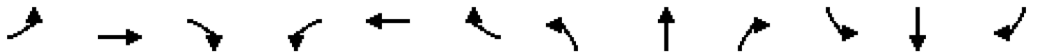
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	332	95	319	114	147	35	1580	349	347	1890	66
Future Volume (vph)	115	332	95	319	114	147	35	1580	349	347	1890	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.2		4.0	6.2		4.0	6.6	6.6	4.0	5.6	5.6
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	3451		1736	3167		1597	4848	1568	1752	4988	1553
Flt Permitted	0.55	1.00		0.18	1.00		0.08	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	1009	3451		321	3167		140	4848	1568	139	4988	1553
Peak-hour factor, PHF	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Adj. Flow (vph)	137	431	140	437	137	193	49	1927	392	394	2224	93
RTOR Reduction (vph)	0	26	0	0	151	0	0	0	196	0	0	45
Lane Group Flow (vph)	137	545	0	437	179	0	49	1927	196	394	2224	48
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	27.0	18.8		38.8	26.6		52.6	48.2	48.2	70.2	61.8	61.8
Effective Green, g (s)	27.0	18.8		38.8	26.6		52.6	48.2	48.2	70.2	61.8	61.8
Actuated g/C Ratio	0.22	0.16		0.32	0.22		0.44	0.40	0.40	0.58	0.51	0.51
Clearance Time (s)	4.0	6.2		4.0	6.2		4.0	6.6	6.6	4.0	5.6	5.6
Vehicle Extension (s)	3.0	5.0		0.2	5.0		3.0	5.0	5.0	0.2	5.0	5.0
Lane Grp Cap (vph)	274	537		290	697		114	1934	625	307	2551	794
v/s Ratio Prot	0.03	0.16		c0.20	0.06		0.02	0.40		c0.18	0.45	
v/s Ratio Perm	0.08			c0.28			0.17		0.13	c0.57		0.03
v/c Ratio	0.50	1.01		1.51	0.26		0.43	1.00	0.31	1.28	0.87	0.06
Uniform Delay, d1	39.5	51.0		35.5	38.9		24.3	36.2	24.9	39.2	26.0	14.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.4	42.5		245.3	0.4		2.6	19.6	1.3	150.1	4.5	0.1
Delay (s)	41.0	93.5		280.8	39.3		26.9	55.8	26.2	189.3	30.5	15.0
Level of Service	D	F		F	D		C	E	C	F	C	B
Approach Delay (s/veh)		83.4			176.9			50.3			53.0	
Approach LOS		F			F			D			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	69.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.45		
Actuated Cycle Length (s)	120.8	Sum of lost time (s)	20.8
Intersection Capacity Utilization	97.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

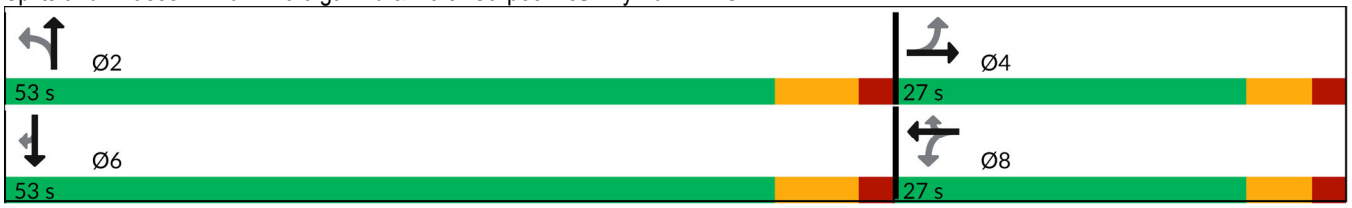


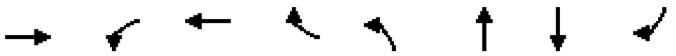
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	10	339	3	7	8	1953	0	0	2301	3
Future Volume (vph)	4	0	10	339	3	7	8	1953	0	0	2301	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.899			0.999	0.850						0.850
Flt Protected		0.988		0.950	0.954		0.950					
Satd. Flow (prot)	0	1497	0	1545	1472	1534	1543	4893	0	0	4988	1615
Flt Permitted		0.901		0.728	0.701		0.087					
Satd. Flow (perm)	0	1365	0	1184	1082	1534	141	4893	0	0	4988	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		55			1	55						41
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			728.7	
Travel Time (s)		9.6			41.3			26.2			52.5	
Peak Hour Factor	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Adj. Flow (vph)	11	0	33	440	6	17	27	2123	0	0	2645	12
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	0	44	0	224	224	15	27	2123	0	0	2645	12
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	Perm	NA			NA	Perm
Protected Phases		4			8			2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	2	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	20.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	27.0	27.0			27.0	27.0
Total Split (s)	27.0	27.0		27.0	27.0	27.0	53.0	53.0			53.0	53.0
Total Split (%)	33.8%	33.8%		33.8%	33.8%	33.8%	66.3%	66.3%			66.3%	66.3%
Maximum Green (s)	21.0	21.0		21.0	21.0	21.0	46.0	46.0			46.0	46.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	5.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0			2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)		6.0		6.0	6.0	6.0	7.0	7.0			7.0	7.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	7.0	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	Max	Max			Max	Max
Act Effct Green (s)		19.0		19.0	19.0	19.0	46.0	46.0			46.0	46.0
Actuated g/C Ratio		0.24		0.24	0.24	0.24	0.59	0.59			0.59	0.59
v/c Ratio		0.12		0.78	0.85	0.04	0.33	0.74			0.90	0.01
Control Delay (s/veh)		6.2		47.5	57.3	0.2	22.3	14.0			20.1	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		6.2		47.5	57.3	0.2	22.3	14.0			20.1	0.0
LOS		A		D	E	A	C	B			C	A
Approach Delay (s/veh)		6.2			50.7			14.1			20.0	
Approach LOS		A			D			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 78.1			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay (s/veh): 20.2		Intersection LOS: C	
Intersection Capacity Utilization 71.5%		ICU Level of Service C	
Analysis Period (min) 15			

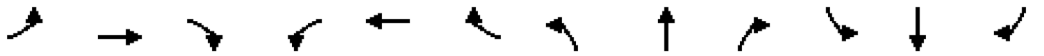
Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off





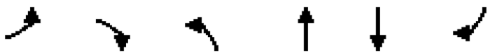
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	44	224	224	15	27	2123	2645	12
v/c Ratio	0.12	0.78	0.85	0.04	0.33	0.74	0.90	0.01
Control Delay (s/veh)	6.2	47.5	57.3	0.2	22.3	14.0	20.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	6.2	47.5	57.3	0.2	22.3	14.0	20.1	0.0
Queue Length 50th (m)	0.0	34.2	36.4	0.0	2.1	85.6	128.6	0.0
Queue Length 95th (m)	0.0	49.8	30.6	0.0	1.9	104.5	145.2	0.0
Internal Link Dist (m)	110.0		550.1			339.6	704.7	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	407	318	291	453	83	2884	2940	969
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	0.70	0.77	0.03	0.33	0.74	0.90	0.01

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	10	339	3	7	8	1953	0	0	2301	3
Future Volume (vph)	4	0	10	339	3	7	8	1953	0	0	2301	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0	6.0	7.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.91			0.91	1.00
Frt		0.90		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1496		1545	1471	1534	1543	4893			4988	1615
Flt Permitted		0.90		0.73	0.70	1.00	0.09	1.00			1.00	1.00
Satd. Flow (perm)		1364		1184	1082	1534	141	4893			4988	1615
Peak-hour factor, PHF	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Adj. Flow (vph)	11	0	33	440	6	17	27	2123	0	0	2645	12
RTOR Reduction (vph)	0	33	0	0	1	11	0	0	0	0	0	5
Lane Group Flow (vph)	0	11	0	224	223	4	27	2123	0	0	2645	7
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA			NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		19.1		19.1	19.1	19.1	46.1	46.1			46.1	46.1
Effective Green, g (s)		19.1		19.1	19.1	19.1	46.1	46.1			46.1	46.1
Actuated g/C Ratio		0.24		0.24	0.24	0.24	0.59	0.59			0.59	0.59
Clearance Time (s)		6.0		6.0	6.0	6.0	7.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	7.0	7.0			7.0	7.0
Lane Grp Cap (vph)		333		289	264	374	83	2884			2940	952
v/s Ratio Prot								0.43			c0.53	
v/s Ratio Perm		0.01		0.19	c0.21	0.00	0.19					0.00
v/c Ratio		0.03		0.78	0.85	0.01	0.33	0.74			0.90	0.01
Uniform Delay, d1		22.5		27.5	28.1	22.4	8.2	11.6			14.0	6.6
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2		0.0		12.6	21.7	0.0	10.1	1.7			4.9	0.0
Delay (s)		22.6		40.1	49.9	22.4	18.3	13.4			19.0	6.6
Level of Service		C		D	D	C	B	B			B	A
Approach Delay (s/veh)		22.6			44.3			13.4			18.9	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	18.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	78.2	Sum of lost time (s)	13.0
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

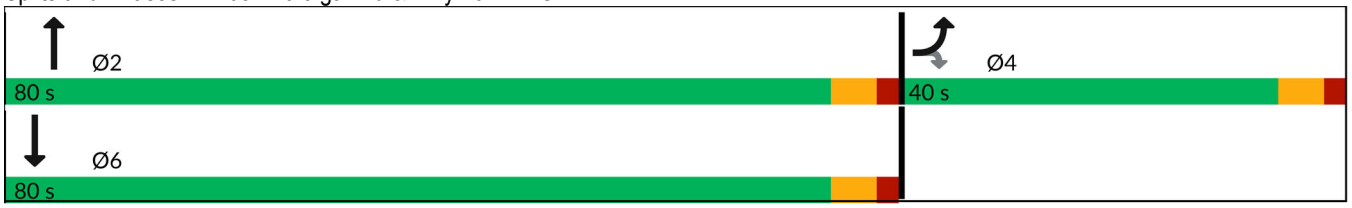


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	82	297	0	2090	2542	0
Future Volume (vph)	82	297	0	2090	2542	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1671	1392	0	4848	4940	0
Flt Permitted	0.950					
Satd. Flow (perm)	1671	1392	0	4848	4940	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		1				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			485.1	363.6	
Travel Time (s)	39.9			34.9	26.2	
Peak Hour Factor	0.79	0.78	0.25	0.85	0.86	0.25
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Adj. Flow (vph)	104	381	0	2459	2956	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	104	381	0	2459	2956	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			7.2	7.2	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
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)	5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0	
Total Split (s)	40.0	40.0		80.0	80.0	
Total Split (%)	33.3%	33.3%		66.7%	66.7%	
Maximum Green (s)	34.0	34.0		74.0	74.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	33.7	33.7		74.0	74.0	
Actuated g/C Ratio	0.28	0.28		0.62	0.62	
v/c Ratio	0.22	0.97		0.82	0.97	
Control Delay (s/veh)	34.5	81.7		20.8	32.6	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	34.5	81.7		20.8	32.6	
LOS	C	F		C	C	
Approach Delay (s/veh)	71.5			20.8	32.6	
Approach LOS	E			C	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 119.7			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay (s/veh): 30.9		Intersection LOS: C	
Intersection Capacity Utilization 77.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off

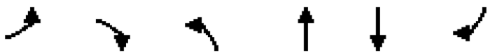




Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	104	381	2459	2956
v/c Ratio	0.22	0.97	0.82	0.97
Control Delay (s/veh)	34.5	81.7	20.8	32.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	34.5	81.7	20.8	32.6
Queue Length 50th (m)	19.7	93.1	162.6	239.7
Queue Length 95th (m)	30.4	#122.1	164.1	241.6
Internal Link Dist (m)	530.6		461.1	339.6
Turn Bay Length (m)				
Base Capacity (vph)	474	396	2996	3053
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.22	0.96	0.82	0.97

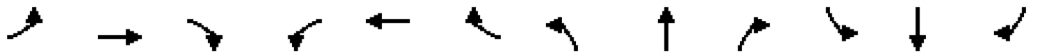
Intersection Summary

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



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	82	297	0	2090	2542	0
Future Volume (vph)	82	297	0	2090	2542	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1671	1392		4848	4940	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1671	1392		4848	4940	
Peak-hour factor, PHF	0.79	0.78	0.25	0.85	0.86	0.25
Adj. Flow (vph)	104	381	0	2459	2956	0
RTOR Reduction (vph)	0	1	0	0	0	0
Lane Group Flow (vph)	104	380	0	2459	2956	0
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	33.7	33.7		74.0	74.0	
Effective Green, g (s)	33.7	33.7		74.0	74.0	
Actuated g/C Ratio	0.28	0.28		0.62	0.62	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	470	391		2997	3053	
v/s Ratio Prot	0.06			0.51	c0.60	
v/s Ratio Perm		c0.27				
v/c Ratio	0.22	0.97		0.82	0.97	
Uniform Delay, d1	32.9	42.5		17.7	21.7	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	38.1		2.7	10.4	
Delay (s)	33.2	80.6		20.4	32.1	
Level of Service	C	F		C	C	
Approach Delay (s/veh)	70.4			20.4	32.1	
Approach LOS	E			C	C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	30.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	119.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

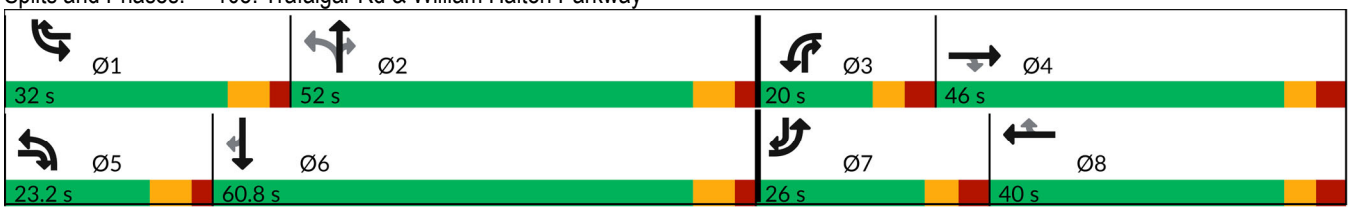


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	609	1064	288	323	738	530	407	1544	302	764	1548	528
Future Volume (vph)	609	1064	288	323	738	530	407	1544	302	764	1548	528
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	150.0		150.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3467	3574	1599	3273	3574	1429	3303	4988	1615	3433	4893	1538
Flt Permitted	0.950			0.950			0.089			0.950		
Satd. Flow (perm)	3467	3574	1599	3273	3574	1429	309	4988	1615	3433	4893	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			129			79			129			79
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		148.9			165.2			209.3			485.1	
Travel Time (s)		10.7			11.9			15.1			34.9	
Peak Hour Factor	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
Adj. Flow (vph)	716	1169	347	431	946	707	473	1716	360	932	1720	614
Shared Lane Traffic (%)												
Lane Group Flow (vph)	716	1169	347	431	946	707	473	1716	360	932	1720	614
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8	2		2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	20.0	7.0	7.0	20.0	7.0	7.0	20.0	7.0	7.0	20.0	7.0
Minimum Split (s)	14.0	38.0	13.9	14.0	38.0	13.9	13.9	42.9	14.0	13.9	42.9	14.0
Total Split (s)	26.0	46.0	23.2	20.0	40.0	32.0	23.2	52.0	20.0	32.0	60.8	26.0
Total Split (%)	17.3%	30.7%	15.5%	13.3%	26.7%	21.3%	15.5%	34.7%	13.3%	21.3%	40.5%	17.3%
Maximum Green (s)	19.0	39.0	16.3	13.0	33.0	25.1	16.3	45.1	13.0	25.1	53.9	19.0
Yellow Time (s)	3.7	3.7	4.6	3.7	3.7	4.6	4.6	4.6	3.7	4.6	4.6	3.7
All-Red Time (s)	3.3	3.3	2.3	3.3	3.3	2.3	2.3	2.3	3.3	2.3	2.3	3.3
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)	7.0	7.0	6.9	7.0	7.0	6.9	6.9	6.9	7.0	6.9	6.9	7.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0
Recall Mode	None	None	Max	None	None	Max	Max	Max	None	Max	Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		24.0			24.0			29.0			29.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	19.0	39.0	62.3	13.0	33.0	65.1	61.4	45.1	65.0	25.1	53.9	79.8
Actuated g/C Ratio	0.13	0.26	0.42	0.09	0.22	0.43	0.41	0.30	0.43	0.17	0.36	0.53
v/c Ratio	1.63	1.26	0.47	1.52	1.20	1.06	1.05	1.14	0.47	1.62	0.98	0.72
Control Delay (s/veh)	333.0	169.8	21.6	295.6	152.3	89.6	99.0	120.1	20.8	326.5	64.1	28.6
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 (s/veh)	333.0	169.8	21.6	295.6	152.3	89.6	99.0	120.1	20.8	326.5	64.1	28.6
LOS	F	F	C	F	F	F	F	F	C	F	E	C
Approach Delay (s/veh)		199.1			160.7			102.2			132.3	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.63			
Intersection Signal Delay (s/veh): 145.3		Intersection LOS: F	
Intersection Capacity Utilization 113.4%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway



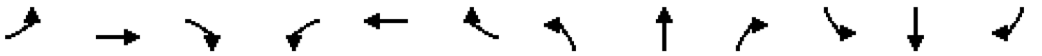


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	716	1169	347	431	946	707	473	1716	360	932	1720	614
v/c Ratio	1.63	1.26	0.47	1.52	1.20	1.06	1.05	1.14	0.47	1.62	0.98	0.72
Control Delay (s/veh)	333.0	169.8	21.6	295.6	152.3	89.6	99.0	120.1	20.8	326.5	64.1	28.6
Queue Delay	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 (s/veh)	333.0	169.8	21.6	295.6	152.3	89.6	99.0	120.1	20.8	326.5	64.1	28.6
Queue Length 50th (m)	~166.0	~240.6	48.3	~96.7	~188.8	~228.6	~66.8	~229.7	50.0	~215.7	194.5	125.4
Queue Length 95th (m)	#191.5	#285.7	67.2	#102.7	#183.7	#218.1	#95.3	#260.4	69.9	#227.1	#230.6	160.9
Internal Link Dist (m)		124.9			141.2			185.3			461.1	
Turn Bay Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	150.0		150.0
Base Capacity (vph)	439	929	739	283	786	664	451	1499	772	574	1758	855
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	1.63	1.26	0.47	1.52	1.20	1.06	1.05	1.14	0.47	1.62	0.98	0.72

Intersection Summary

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	609	1064	288	323	738	530	407	1544	302	764	1548	528
Future Volume (vph)	609	1064	288	323	738	530	407	1544	302	764	1548	528
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	6.9	7.0	7.0	6.9	6.9	6.9	7.0	6.9	6.9	7.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3467	3574	1599	3273	3574	1429	3303	4988	1615	3433	4893	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.09	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3273	3574	1429	308	4988	1615	3433	4893	1538
Peak-hour factor, PHF	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Adj. Flow (vph)	716	1169	347	431	946	707	473	1716	360	932	1720	614
RTOR Reduction (vph)	0	0	81	0	0	48	0	0	79	0	0	41
Lane Group Flow (vph)	716	1169	266	431	946	659	473	1716	281	932	1720	573
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8	2		2			6
Actuated Green, G (s)	19.0	39.0	55.3	13.0	33.0	58.1	61.4	45.1	58.1	25.1	53.9	72.9
Effective Green, g (s)	19.0	39.0	55.3	13.0	33.0	58.1	61.4	45.1	58.1	25.1	53.9	72.9
Actuated g/C Ratio	0.13	0.26	0.37	0.09	0.22	0.39	0.41	0.30	0.39	0.17	0.36	0.49
Clearance Time (s)	7.0	7.0	6.9	7.0	7.0	6.9	6.9	6.9	7.0	6.9	6.9	7.0
Vehicle Extension (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0
Lane Grp Cap (vph)	439	929	589	283	786	553	451	1499	625	574	1758	747
v/s Ratio Prot	c0.21	c0.33	0.05	0.13	0.26	0.20	0.11	c0.34	0.04	c0.27	0.35	0.10
v/s Ratio Perm			0.12			0.26	0.31		0.14			0.28
v/c Ratio	1.63	1.26	0.45	1.52	1.20	1.19	1.05	1.14	0.45	1.62	0.98	0.77
Uniform Delay, d1	65.5	55.5	35.9	68.5	58.5	46.0	46.0	52.5	34.1	62.5	47.5	31.6
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	294.2	125.0	1.1	252.6	103.6	102.9	55.7	73.6	0.5	288.6	16.9	4.8
Delay (s)	359.7	180.5	37.0	321.1	162.1	148.8	101.8	126.0	34.6	351.1	64.4	36.4
Level of Service	F	F	D	F	F	F	F	F	C	F	E	D
Approach Delay (s/veh)		215.7			190.5			108.6			140.9	
Approach LOS		F			F			F			F	

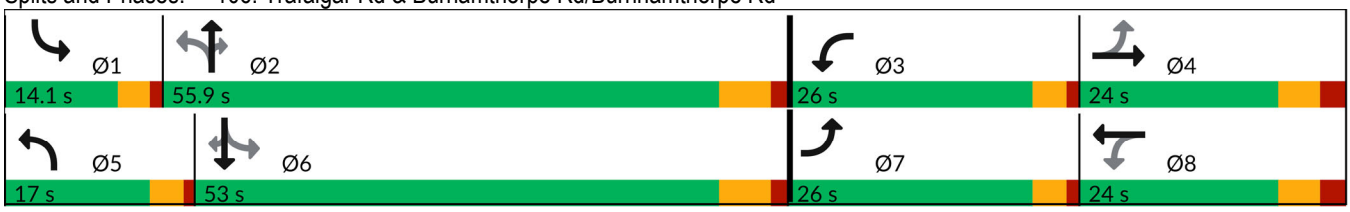
Intersection Summary			
HCM 2000 Control Delay (s/veh)	159.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.39		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	27.8
Intersection Capacity Utilization	113.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	415	345	146	212	148	68	201	1830	124	134	1938	65
Future Volume (vph)	415	345	146	212	148	68	201	1830	124	134	1938	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		60.0	60.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	70.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Ped Bike Factor	1.00											
Frt		0.955			0.934				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	3417	0	1770	3372	0	1703	4988	1615	1752	4940	1495
Flt Permitted	0.295			0.233			0.080			0.085		
Satd. Flow (perm)	543	3417	0	434	3372	0	143	4988	1615	157	4940	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		46			140				100			100
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		258.9			989.6			1077.8			246.4	
Travel Time (s)		15.5			59.4			48.5			11.1	
Confl. Peds. (#/hr)	6											
Peak Hour Factor	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
Adj. Flow (vph)	494	437	185	348	218	170	291	1989	144	206	2084	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	494	622	0	348	388	0	291	1989	144	206	2084	77
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	9.5	24.0		9.5	24.0		9.5	26.0	26.0	11.5	26.0	26.0
Total Split (s)	26.0	24.0		26.0	24.0		17.0	55.9	55.9	14.1	53.0	53.0
Total Split (%)	21.7%	20.0%		21.7%	20.0%		14.2%	46.6%	46.6%	11.8%	44.2%	44.2%
Maximum Green (s)	22.0	18.0		22.0	18.0		13.0	49.9	49.9	10.1	47.0	47.0
Yellow Time (s)	3.0	3.7		3.0	3.7		3.0	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	1.0	2.3		1.0	2.3		1.0	1.4	1.4	1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		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
Recall Mode	None	None		None	None		None	Max	Max	None	Max	Max
Act Effct Green (s)	42.0	18.0		40.4	17.2		64.9	49.9	51.9	59.1	47.0	49.0
Actuated g/C Ratio	0.35	0.15		0.34	0.14		0.54	0.42	0.44	0.50	0.39	0.41
v/c Ratio	1.19	1.12		0.91	0.64		1.17	0.95	0.19	0.97	1.07	0.11
Control Delay (s/veh)	139.0	119.1		58.6	35.6		143.6	45.3	8.0	84.7	77.6	2.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	139.0	119.1		58.6	35.6		143.6	45.3	8.0	84.7	77.6	2.6
LOS	F	F		E	D		F	D	A	F	E	A
Approach Delay (s/veh)		127.9			46.5			54.9			75.7	
Approach LOS		F			D			D			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 119.2			
Natural Cycle: 130			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.19			
Intersection Signal Delay (s/veh): 73.7		Intersection LOS: E	
Intersection Capacity Utilization 96.6%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burhamthorpe Rd/Burnhamthorpe Rd



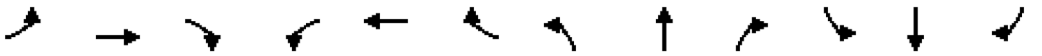


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	494	622	348	388	291	1989	144	206	2084	77
v/c Ratio	1.19	1.12	0.91	0.64	1.17	0.95	0.19	0.97	1.07	0.11
Control Delay (s/veh)	139.0	119.1	58.6	35.6	143.6	45.3	8.0	84.7	77.6	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	139.0	119.1	58.6	35.6	143.6	45.3	8.0	84.7	77.6	2.6
Queue Length 50th (m)	~124.2	~88.8	65.6	30.3	~70.5	172.6	6.3	34.5	~210.9	0.0
Queue Length 95th (m)	#171.9	#101.7	57.9	29.7	#78.9	#210.6	17.4	#40.8	#241.5	4.6
Internal Link Dist (m)		234.9		965.6		1053.8			222.4	
Turn Bay Length (m)	30.0		15.0		60.0		60.0	60.0		60.0
Base Capacity (vph)	414	554	396	627	248	2088	759	212	1947	673
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.19	1.12	0.88	0.62	1.17	0.95	0.19	0.97	1.07	0.11

Intersection Summary

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

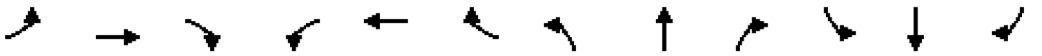
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	415	345	146	212	148	68	201	1830	124	134	1938	65
Future Volume (vph)	415	345	146	212	148	68	201	1830	124	134	1938	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		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
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1751	3418		1770	3373		1703	4988	1615	1752	4940	1495
Flt Permitted	0.29	1.00		0.23	1.00		0.08	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	543	3418		433	3373		144	4988	1615	157	4940	1495
Peak-hour factor, PHF	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Adj. Flow (vph)	494	437	185	348	218	170	291	1989	144	206	2084	77
RTOR Reduction (vph)	0	39	0	0	120	0	0	0	56	0	0	45
Lane Group Flow (vph)	494	583	0	348	268	0	291	1989	88	206	2084	32
Confl. Peds. (#/hr)	6											
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	40.0	18.0		38.4	17.2		62.9	49.9	49.9	57.1	47.0	47.0
Effective Green, g (s)	40.0	18.0		38.4	17.2		62.9	49.9	51.9	57.1	47.0	49.0
Actuated g/C Ratio	0.34	0.15		0.32	0.14		0.53	0.42	0.44	0.48	0.39	0.41
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	405	516		377	486		246	2088	703	210	1947	614
v/s Ratio Prot	c0.23	0.17		0.16	0.08		c0.13	0.40		0.08	0.42	
v/s Ratio Perm	c0.18			0.13			c0.50		0.05	0.39		0.02
v/c Ratio	1.22	1.13		0.92	0.55		1.18	0.95	0.12	0.98	1.07	0.05
Uniform Delay, d1	35.4	50.6		35.0	47.4		37.3	33.5	20.1	32.9	36.1	21.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	119.3	80.4		27.7	1.4		115.9	11.3	0.4	56.4	42.2	0.2
Delay (s)	154.8	131.0		62.7	48.8		153.2	44.8	20.5	89.3	78.3	21.3
Level of Service	F	F		E	D		F	D	C	F	E	C
Approach Delay (s/veh)		141.5			55.4			56.4			77.4	
Approach LOS		F			E			E			E	

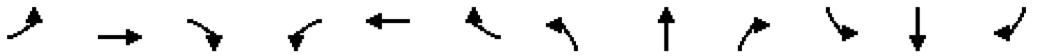
Intersection Summary			
HCM 2000 Control Delay (s/veh)	78.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	119.2	Sum of lost time (s)	20.0
Intersection Capacity Utilization	96.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	2053	77	0	1350	6	0	0	89	0	0	241
Future Volume (vph)	0	2053	77	0	1350	6	0	0	89	0	0	241
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
Frt		0.995			0.999				0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3522	0	0	3536	0	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3522	0	0	3536	0	0	0	1611	0	0	1611
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		165.2			220.0			185.6			207.5	
Travel Time (s)		11.9			15.8			13.4			14.9	
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
Adj. Flow (vph)	0	2232	84	0	1467	7	0	0	97	0	0	262
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2316	0	0	1474	0	0	0	97	0	0	262
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

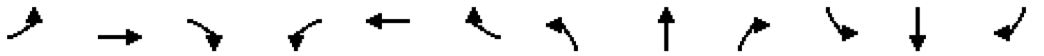
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 71.4%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2053	77	0	1350	6	0	0	89	0	0	241
Future Volume (Veh/h)	0	2053	77	0	1350	6	0	0	89	0	0	241
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2232	84	0	1467	7	0	0	97	0	0	262
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		165			220							
pX, platoon unblocked	0.72			0.75			0.85	0.85	0.75	0.85	0.85	0.72
vC, conflicting volume	1474			2316			3270	3748	1158	2684	3787	737
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	893			2083			1972	2534	530	1284	2580	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	74	100	100	67
cM capacity (veh/h)	547			196			21	23	368	76	21	785

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	1488	828	978	496	97	262
Volume Left	0	0	0	0	0	0
Volume Right	0	84	0	7	97	262
cSH	1700	1700	1700	1700	368	785
Volume to Capacity	0.88	0.49	0.58	0.29	0.26	0.33
Queue Length 95th (m)	0.0	0.0	0.0	0.0	8.3	11.8
Control Delay (s/veh)	0.0	0.0	0.0	0.0	18.2	11.9
Lane LOS					C	B
Approach Delay (s/veh)	0.0		0.0		18.2	11.9
Approach LOS					C	B

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	71.4%	ICU Level of Service	C	
Analysis Period (min)	15			

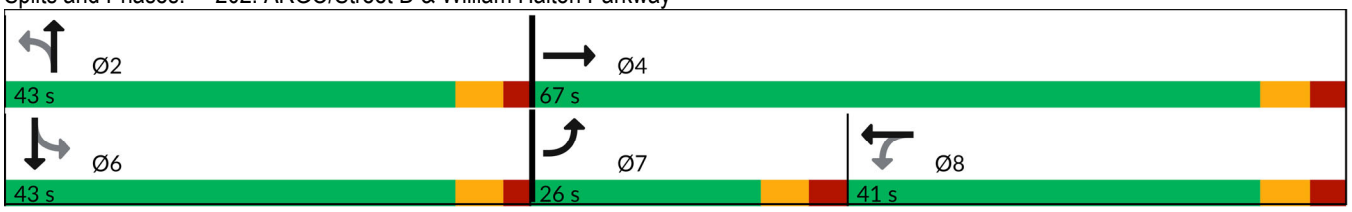


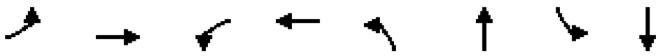
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	534	1531	77	54	924	14	293	10	89	49	10	139
Future Volume (vph)	534	1531	77	54	924	14	293	10	89	49	10	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	100.0		0.0	50.0		0.0	0.0		0.0
Storage Lanes	2		0	1		0	1		0	1		0
Taper Length (m)	100.0			100.0			100.0			7.5		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993			0.998			0.865			0.860	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3514	0	1770	3532	0	1770	1611	0	1770	1602	0
Flt Permitted	0.950			0.117			0.629			0.687		
Satd. Flow (perm)	3433	3514	0	218	3532	0	1172	1611	0	1280	1602	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			1			17			151	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		220.0			345.3			243.0			153.9	
Travel Time (s)		15.8			24.9			17.5			11.1	
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
Adj. Flow (vph)	580	1664	84	59	1004	15	318	11	97	53	11	151
Shared Lane Traffic (%)												
Lane Group Flow (vph)	580	1748	0	59	1019	0	318	108	0	53	162	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)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases				8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	15.0		15.0	15.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	12.0	25.0		25.0	25.0		42.0	42.0		42.0	42.0	
Total Split (s)	26.0	67.0		41.0	41.0		43.0	43.0		43.0	43.0	
Total Split (%)	23.6%	60.9%		37.3%	37.3%		39.1%	39.1%		39.1%	39.1%	
Maximum Green (s)	19.0	60.0		34.0	34.0		37.0	37.0		37.0	37.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	0.2		0.2	0.2		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		Max	Max		None	None		None	None	
Walk Time (s)		7.0		7.0	7.0		14.0	14.0		14.0	14.0	
Flash Don't Walk (s)		11.0		11.0	11.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	19.1	60.2		34.1	34.1		31.5	31.5		31.5	31.5	
Actuated g/C Ratio	0.18	0.57		0.33	0.33		0.30	0.30		0.30	0.30	
v/c Ratio	0.93	0.86		0.84	0.89		0.90	0.22		0.14	0.28	
Control Delay (s/veh)	66.1	25.7		109.0	45.0		64.4	23.4		27.5	6.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	66.1	25.7		109.0	45.0		64.4	23.4		27.5	6.7	
LOS	E	C		F	D		E	C		C	A	
Approach Delay (s/veh)		35.8			48.5			54.0			11.8	
Approach LOS		D			D			D			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 104.8			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay (s/veh): 39.8		Intersection LOS: D	
Intersection Capacity Utilization 104.3%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 202: ARGO/Street D & William Halton Parkway





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	580	1748	59	1019	318	108	53	162
v/c Ratio	0.93	0.86	0.84	0.89	0.90	0.22	0.14	0.28
Control Delay (s/veh)	66.1	25.7	109.0	45.0	64.4	23.4	27.5	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	66.1	25.7	109.0	45.0	64.4	23.4	27.5	6.7
Queue Length 50th (m)	66.3	170.2	12.2	113.7	65.0	14.4	8.3	1.6
Queue Length 95th (m)	#104.3	#220.8	#39.8	#159.3	#113.1	28.0	m17.9	m16.0
Internal Link Dist (m)		196.0		321.3		219.0		129.9
Turn Bay Length (m)	100.0		100.0		50.0			
Base Capacity (vph)	624	2021	70	1150	415	582	453	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	0.93	0.86	0.84	0.89	0.77	0.19	0.12	0.24

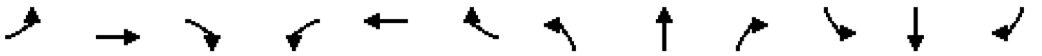
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	534	1531	77	54	924	14	293	10	89	49	10	139
Future Volume (vph)	534	1531	77	54	924	14	293	10	89	49	10	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.87		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3514		1770	3531		1770	1612		1770	1602	
Flt Permitted	0.95	1.00		0.12	1.00		0.63	1.00		0.69	1.00	
Satd. Flow (perm)	3433	3514		219	3531		1171	1612		1280	1602	
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)	580	1664	84	59	1004	15	318	11	97	53	11	151
RTOR Reduction (vph)	0	3	0	0	1	0	0	12	0	0	106	0
Lane Group Flow (vph)	580	1745	0	59	1018	0	318	96	0	53	56	0
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases				8			2			6		
Actuated Green, G (s)	19.1	60.2		34.1	34.1		31.5	31.5		31.5	31.5	
Effective Green, g (s)	19.1	60.2		34.1	34.1		31.5	31.5		31.5	31.5	
Actuated g/C Ratio	0.18	0.57		0.33	0.33		0.30	0.30		0.30	0.30	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	0.2		0.2	0.2		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	626	2020		71	1150		352	484		385	481	
v/s Ratio Prot	0.17	c0.50			0.29			0.06			0.04	
v/s Ratio Perm				0.27			c0.27			0.04		
v/c Ratio	0.93	0.86		0.83	0.89		0.90	0.20		0.14	0.12	
Uniform Delay, d1	42.1	18.8		32.6	33.5		35.1	27.2		26.7	26.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.02	1.05	
Incremental Delay, d2	19.8	4.0		66.5	10.1		25.4	0.2		0.2	0.1	
Delay (s)	61.9	22.8		99.1	43.6		60.5	27.4		27.5	28.1	
Level of Service	E	C		F	D		E	C		C	C	
Approach Delay (s/veh)		32.5			46.6			52.1			27.9	
Approach LOS		C			D			D			C	

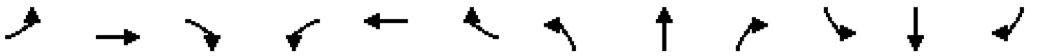
Intersection Summary			
HCM 2000 Control Delay (s/veh)	38.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	104.7	Sum of lost time (s)	20.0
Intersection Capacity Utilization	104.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1879	18	0	1399	274	0	0	82	0	0	391
Future Volume (vph)	0	1879	18	0	1399	274	0	0	82	0	0	391
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		50.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.999				0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3536	0	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3536	0	0	3539	1583	0	0	1611	0	0	1611
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		249.0			148.9			206.9			234.9	
Travel Time (s)		17.9			10.7			14.9			16.9	
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
Adj. Flow (vph)	0	2042	20	0	1521	298	0	0	89	0	0	425
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2062	0	0	1521	298	0	0	89	0	0	425
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

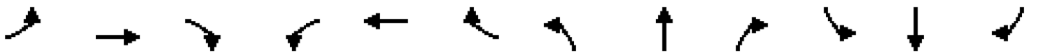
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 69.5%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1879	18	0	1399	274	0	0	82	0	0	391
Future Volume (Veh/h)	0	1879	18	0	1399	274	0	0	82	0	0	391
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2042	20	0	1521	298	0	0	89	0	0	425
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		249			149							
pX, platoon unblocked	0.70			0.55			0.69	0.69	0.55	0.69	0.69	0.70
vC, conflicting volume	1819			2062			3238	3871	1031	2631	3583	761
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1323			1279			1423	2337	0	548	1922	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	85	100	100	44
cM capacity (veh/h)	365			294			30	25	591	247	46	764

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1361	701	761	761	298	89	425
Volume Left	0	0	0	0	0	0	0
Volume Right	0	20	0	0	298	89	425
cSH	1700	1700	1700	1700	1700	591	764
Volume to Capacity	0.80	0.41	0.45	0.45	0.18	0.15	0.56
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	4.2	27.8
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	12.2	15.5
Lane LOS						B	C
Approach Delay (s/veh)	0.0		0.0			12.2	15.5
Approach LOS						B	C

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	69.5%	ICU Level of Service		C
Analysis Period (min)	15			

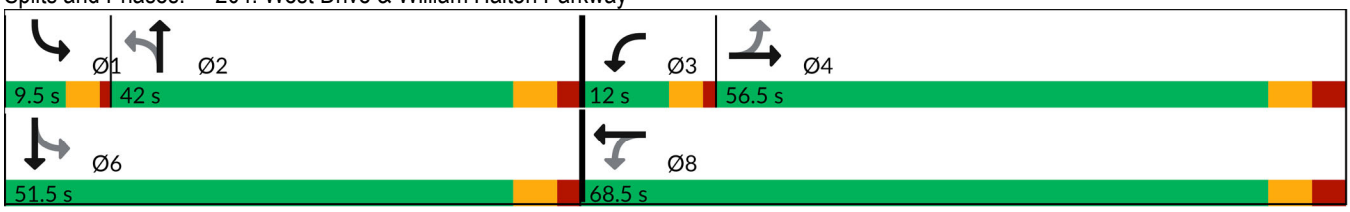


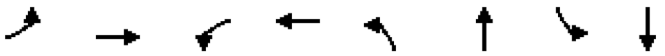
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1483	45	231	1508	51	29	31	317	97	3	5
Future Volume (vph)	11	1483	45	231	1508	51	29	31	317	97	3	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	100.0		0.0	50.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	100.0			100.0			50.0			50.0		
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
Frt		0.996			0.995			0.863			0.906	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3525	0	1770	3522	0	1770	1608	0	1770	1688	0
Flt Permitted	0.080			0.074			0.752			0.168		
Satd. Flow (perm)	149	3525	0	138	3522	0	1401	1608	0	313	1688	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			4			169			5	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		825.3			249.0			160.5			291.6	
Travel Time (s)		59.4			17.9			11.6			21.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	1612	49	251	1639	55	32	34	345	105	3	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	1661	0	251	1694	0	32	379	0	105	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)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		3	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		5.0	15.0		10.0	10.0		5.0	10.0	
Minimum Split (s)	42.0	42.0		9.5	42.0		42.0	42.0		9.5	42.0	
Total Split (s)	56.5	56.5		12.0	68.5		42.0	42.0		9.5	51.5	
Total Split (%)	47.1%	47.1%		10.0%	57.1%		35.0%	35.0%		7.9%	42.9%	
Maximum Green (s)	49.5	49.5		8.0	61.5		36.0	36.0		5.5	45.5	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		1.0	3.0		2.0	2.0		1.0	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)	7.0	7.0		4.0	7.0		6.0	6.0		4.0	6.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes		Yes		
Vehicle Extension (s)	0.2	0.2		3.0	0.2		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Walk Time (s)	7.0	7.0			7.0		14.0	14.0			14.0	
Flash Don't Walk (s)	11.0	11.0			11.0		22.0	22.0			22.0	
Pedestrian Calls (#/hr)	0	0			0		0	0			0	
Act Effct Green (s)	49.8	49.8		64.8	61.8		19.8	19.8		31.3	29.3	
Actuated g/C Ratio	0.48	0.48		0.62	0.59		0.19	0.19		0.30	0.28	
v/c Ratio	0.17	0.99		1.19	0.81		0.12	0.86		0.61	0.02	
Control Delay (s/veh)	26.6	47.3		146.9	22.0		34.3	41.0		42.8	18.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	26.6	47.3		146.9	22.0		34.3	41.0		42.8	18.0	
LOS	C	D		F	C		C	D		D	B	
Approach Delay (s/veh)		47.1			38.2			40.5			41.0	
Approach LOS		D			D			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 104.2			
Natural Cycle: 145			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.19			
Intersection Signal Delay (s/veh): 42.1		Intersection LOS: D	
Intersection Capacity Utilization 102.4%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 204: West Drive & William Halton Parkway





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	12	1661	251	1694	32	379	105	8
v/c Ratio	0.17	0.99	1.19	0.81	0.12	0.86	0.61	0.02
Control Delay (s/veh)	26.6	47.3	146.9	22.0	34.3	41.0	42.8	18.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	26.6	47.3	146.9	22.0	34.3	41.0	42.8	18.0
Queue Length 50th (m)	1.4	176.1	~47.1	137.2	5.7	44.7	16.5	0.5
Queue Length 95th (m)	7.4	#284.2	#114.5	224.8	14.0	80.3	29.4	4.0
Internal Link Dist (m)		801.3		225.0		136.5		267.6
Turn Bay Length (m)	100.0		100.0		50.0		50.0	
Base Capacity (vph)	71	1684	211	2091	486	668	171	743
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	0.99	1.19	0.81	0.07	0.57	0.61	0.01

Intersection Summary

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1483	45	231	1508	51	29	31	317	97	3	5
Future Volume (vph)	11	1483	45	231	1508	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)	7.0	7.0		4.0	7.0		6.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.86		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3524		1770	3522		1770	1608		1770	1688	
Flt Permitted	0.08	1.00		0.07	1.00		0.75	1.00		0.17	1.00	
Satd. Flow (perm)	150	3524		138	3522		1402	1608		313	1688	
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)	12	1612	49	251	1639	55	32	34	345	105	3	5
RTOR Reduction (vph)	0	2	0	0	2	0	0	137	0	0	4	0
Lane Group Flow (vph)	12	1659	0	251	1692	0	32	242	0	105	4	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	49.8	49.8		61.8	61.8		19.8	19.8		29.3	29.3	
Effective Green, g (s)	49.8	49.8		61.8	61.8		19.8	19.8		29.3	29.3	
Actuated g/C Ratio	0.48	0.48		0.59	0.59		0.19	0.19		0.28	0.28	
Clearance Time (s)	7.0	7.0		4.0	7.0		6.0	6.0		4.0	6.0	
Vehicle Extension (s)	0.2	0.2		3.0	0.2		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	71	1685		207	2090		266	305		165	475	
v/s Ratio Prot		0.47		c0.09	0.48			c0.15		c0.03	0.00	
v/s Ratio Perm	0.08			c0.62			0.02			0.15		
v/c Ratio	0.17	0.98		1.21	0.81		0.12	0.79		0.64	0.01	
Uniform Delay, d1	15.4	26.8		31.1	16.5		34.9	40.2		30.6	26.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	18.2		131.7	2.3		0.2	13.2		7.8	0.0	
Delay (s)	15.8	45.0		162.8	18.8		35.1	53.5		38.4	27.0	
Level of Service	B	D		F	B		D	D		D	C	
Approach Delay (s/veh)		44.8			37.4			52.0			37.6	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	41.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	104.1	Sum of lost time (s)	21.0
Intersection Capacity Utilization	102.4%	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)	31	9	3	6	73	281	45	49	77	76	178	22
Future Volume (vph)	31	9	3	6	73	281	45	49	77	76	178	22
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		0.991			0.895			0.939			0.989	
Flt Protected		0.965			0.999			0.987			0.986	
Satd. Flow (prot)	0	1781	0	0	1665	0	0	1726	0	0	1816	0
Flt Permitted		0.965			0.999			0.987			0.986	
Satd. Flow (perm)	0	1781	0	0	1665	0	0	1726	0	0	1816	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		333.0			150.5			112.8			152.1	
Travel Time (s)		24.0			10.8			8.1			11.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	10	3	7	79	305	49	53	84	83	193	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	47	0	0	391	0	0	186	0	0	300	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)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

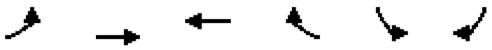
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 48.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	9	3	6	73	281	45	49	77	76	178	22
Future Volume (Veh/h)	31	9	3	6	73	281	45	49	77	76	178	22
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	10	3	7	79	305	49	53	84	83	193	24
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	384			13			446	478	12	436	327	232
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	384			13			446	478	12	436	327	232
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			87	89	92	81	66	97
cM capacity (veh/h)	1174			1606			366	471	1069	436	572	808

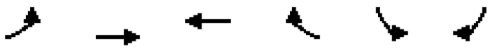
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	47	391	186	300
Volume Left	34	7	49	83
Volume Right	3	305	84	24
cSH	1174	1606	572	538
Volume to Capacity	0.03	0.00	0.33	0.56
Queue Length 95th (m)	0.7	0.1	11.2	27.1
Control Delay (s/veh)	6.0	0.2	14.3	19.8
Lane LOS	A	A	B	C
Approach Delay (s/veh)	6.0	0.2	14.3	19.8
Approach LOS			B	C

Intersection Summary				
Average Delay	9.7			
Intersection Capacity Utilization	48.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	33	122	203	97	96	191
Future Volume (vph)	33	122	203	97	96	191
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			0.957		0.910	
Flt Protected		0.989			0.984	
Satd. Flow (prot)	0	1842	1783	0	1668	0
Flt Permitted		0.989			0.984	
Satd. Flow (perm)	0	1842	1783	0	1668	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		24.2	152.6		206.9	
Travel Time (s)		1.7	11.0		14.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	133	221	105	104	208
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	169	326	0	312	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 51.9%		ICU Level of Service A	
Analysis Period (min) 15			



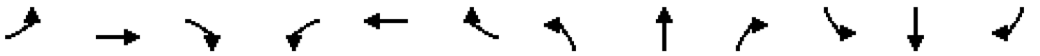
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	33	122	203	97	96	191
Future Volume (Veh/h)	33	122	203	97	96	191
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	36	133	221	105	104	208
Pedestrians						
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	326				479	274
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	326				479	274
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				80	73
cM capacity (veh/h)	1234				530	765

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	169	326	312
Volume Left	36	0	104
Volume Right	0	105	208
cSH	1234	1700	667
Volume to Capacity	0.03	0.19	0.47
Queue Length 95th (m)	0.7	0.0	20.0
Control Delay (s/veh)	1.9	0.0	15.1
Lane LOS	A		C
Approach Delay (s/veh)	1.9	0.0	15.1
Approach LOS			C

Intersection Summary			
Average Delay	6.2		
Intersection Capacity Utilization	51.9%	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)	0	0	210	0	0	80	0	2172	141	0	1927	233
Future Volume (vph)	0	0	210	0	0	80	0	2172	141	0	1927	233
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		100.0	0.0		100.0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.865			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	1611	0	0	1611	0	5085	1583	0	5085	1583
Flt Permitted												
Satd. Flow (perm)	0	0	1611	0	0	1611	0	5085	1583	0	5085	1583
Link Speed (k/h)		50			50			50			80	
Link Distance (m)		152.6			80.3			246.4			209.3	
Travel Time (s)		11.0			5.8			17.7			9.4	
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
Adj. Flow (vph)	0	0	228	0	0	87	0	2361	153	0	2095	253
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	228	0	0	87	0	2361	153	0	2095	253
Enter Blocked Intersection	No	No	No	No	No	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			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

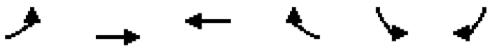
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 56.9%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	210	0	0	80	0	2172	141	0	1927	233
Future Volume (Veh/h)	0	0	210	0	0	80	0	2172	141	0	1927	233
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	228	0	0	87	0	2361	153	0	2095	253
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								246			209	
pX, platoon unblocked	0.80	0.80	0.67	0.80	0.80	0.63	0.67			0.63		
vC, conflicting volume	2969	4609	698	3287	4709	787	2348			2514		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	1818	0	157	1944	0	1277			1345		
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	69	100	100	87	100			100		
cM capacity (veh/h)	710	61	724	433	51	682	360			320		

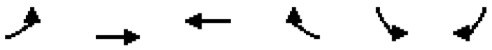
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	228	87	787	787	787	153	698	698	698	253
Volume Left	0	0	0	0	0	0	0	0	0	0
Volume Right	228	87	0	0	0	153	0	0	0	253
cSH	724	682	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.31	0.13	0.46	0.46	0.46	0.09	0.41	0.41	0.41	0.15
Queue Length 95th (m)	10.8	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s/veh)	12.2	11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	B								
Approach Delay (s/veh)	12.2	11.0	0.0				0.0			
Approach LOS	B	B								

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	56.9%	ICU Level of Service	B	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	12	735	257	157	171	16
Future Volume (vph)	12	735	257	157	171	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	50.0				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.943		0.989	
Flt Protected	0.950				0.956	
Satd. Flow (prot)	1770	3539	3337	0	1761	0
Flt Permitted	0.950				0.956	
Satd. Flow (perm)	1770	3539	3337	0	1761	0
Link Speed (k/h)		60	50		50	
Link Distance (m)		569.8	258.9		157.5	
Travel Time (s)		34.2	18.6		11.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	799	279	171	186	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	799	450	0	203	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

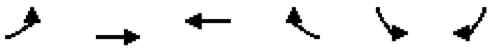
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 37.4%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	735	257	157	171	16
Future Volume (Veh/h)	12	735	257	157	171	16
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	799	279	171	186	17
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			259			
pX, platoon unblocked						
vC, conflicting volume	450				790	225
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	450				790	225
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				42	98
cM capacity (veh/h)	1107				323	778

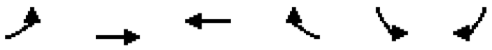
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	13	400	400	186	264	203
Volume Left	13	0	0	0	0	186
Volume Right	0	0	0	0	171	17
cSH	1107	1700	1700	1700	1700	340
Volume to Capacity	0.01	0.24	0.24	0.11	0.16	0.60
Queue Length 95th (m)	0.3	0.0	0.0	0.0	0.0	29.3
Control Delay (s/veh)	8.3	0.0	0.0	0.0	0.0	30.1
Lane LOS	A					D
Approach Delay (s/veh)	0.1			0.0		30.1
Approach LOS						D

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	37.4%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	89	1580	963	7	5	29
Future Volume (vph)	89	1580	963	7	5	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	100.0				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.999		0.883	
Flt Protected	0.950				0.993	
Satd. Flow (prot)	1770	3539	3536	0	1633	0
Flt Permitted	0.950				0.993	
Satd. Flow (perm)	1770	3539	3536	0	1633	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		345.3	755.6		140.8	
Travel Time (s)		24.9	54.4		10.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	97	1717	1047	8	5	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	97	1717	1055	0	37	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.7%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	89	1580	963	7	5	29
Future Volume (Veh/h)	89	1580	963	7	5	29
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)	97	1717	1047	8	5	32
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		345				
pX, platoon unblocked					0.56	
vC, conflicting volume	1055				2104	528
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1055				1394	528
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	85				92	94
cM capacity (veh/h)	656				63	495

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	97	859	859	698	357	37
Volume Left	97	0	0	0	0	5
Volume Right	0	0	0	0	8	32
cSH	656	1700	1700	1700	1700	257
Volume to Capacity	0.15	0.51	0.51	0.41	0.21	0.14
Queue Length 95th (m)	4.1	0.0	0.0	0.0	0.0	4.0
Control Delay (s/veh)	11.4	0.0	0.0	0.0	0.0	21.3
Lane LOS	B					C
Approach Delay (s/veh)	0.6			0.0		21.3
Approach LOS						C

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	14	0	352	52	0	56
Future Volume (vph)	14	0	352	52	0	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Frt			0.981			
Flt Protected	0.950					
Satd. Flow (prot)	1770	0	3472	0	0	3539
Flt Permitted	0.950					
Satd. Flow (perm)	1770	0	3472	0	0	3539
Link Speed (k/h)	50		50			50
Link Distance (m)	329.1		153.9			115.0
Travel Time (s)	23.7		11.1			8.3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	0	383	57	0	61
Shared Lane Traffic (%)						
Lane Group Flow (vph)	15	0	440	0	0	61
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 21.4%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	14	0	352	52	0	56
Future Volume (Veh/h)	14	0	352	52	0	56
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	0	383	57	0	61
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			154			
pX, platoon unblocked						
vC, conflicting volume	442	220			440	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	442	220			440	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	100			100	
cM capacity (veh/h)	544	784			1116	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	15	255	185	20	41
Volume Left	15	0	0	0	0
Volume Right	0	0	57	0	0
cSH	544	1700	1700	1116	1700
Volume to Capacity	0.03	0.15	0.11	0.00	0.02
Queue Length 95th (m)	0.7	0.0	0.0	0.0	0.0
Control Delay (s/veh)	11.8	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s/veh)	11.8	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	21.4%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	56	0	0	171	171
Future Volume (vph)	0	56	0	0	171	171
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					0.850
Flt Protected					0.950	
Satd. Flow (prot)	1611	0	0	1863	1770	1583
Flt Permitted					0.950	
Satd. Flow (perm)	1611	0	0	1863	1770	1583
Link Speed (k/h)	50			50	50	
Link Distance (m)	229.4			321.2	115.0	
Travel Time (s)	16.5			23.1	8.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	61	0	0	186	186
Shared Lane Traffic (%)						
Lane Group Flow (vph)	61	0	0	0	186	186
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.7%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	56	0	0	171	171
Future Volume (Veh/h)	0	56	0	0	171	171
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	61	0	0	186	186
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			61		31	31
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			61		31	31
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		81	82
cM capacity (veh/h)			1542		984	1044

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	61	0	186	186
Volume Left	0	0	186	0
Volume Right	61	0	0	186
cSH	1700	1700	984	1044
Volume to Capacity	0.04	0.00	0.19	0.18
Queue Length 95th (m)	0.0	0.0	5.6	5.2
Control Delay (s/veh)	0.0	0.0	9.5	9.2
Lane LOS			A	A
Approach Delay (s/veh)	0.0	0.0	9.4	
Approach LOS			A	

Intersection Summary			
Average Delay	8.0		
Intersection Capacity Utilization	20.7%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	26	0	0	69	0
Future Volume (vph)	0	26	0	0	69	0
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					0.950	
Satd. Flow (prot)	1611	0	0	1863	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	1611	0	0	1863	1770	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	321.2			52.5	137.0	
Travel Time (s)	23.1			3.8	9.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	28	0	0	75	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	28	0	0	0	75	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	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

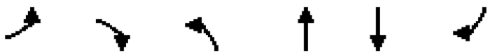
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	26	0	0	69	0
Future Volume (Veh/h)	0	26	0	0	69	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	28	0	0	75	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			28		14	14
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			28		14	14
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		93	100
cM capacity (veh/h)			1585		1005	1066

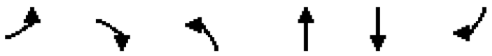
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	28	0	75
Volume Left	0	0	75
Volume Right	28	0	0
cSH	1700	1700	1005
Volume to Capacity	0.02	0.00	0.07
Queue Length 95th (m)	0.0	0.0	1.9
Control Delay (s/veh)	0.0	0.0	8.9
Lane LOS			A
Approach Delay (s/veh)	0.0	0.0	8.9
Approach LOS			A

Intersection Summary			
Average Delay	6.5		
Intersection Capacity Utilization	13.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	1	3	93	33	0
Future Volume (vph)	0	1	3	93	33	0
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				0.999		
Satd. Flow (prot)	1611	0	0	1861	1863	0
Flt Permitted				0.999		
Satd. Flow (perm)	1611	0	0	1861	1863	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	329.1			140.8	137.0	
Travel Time (s)	23.7			10.1	9.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1	3	101	36	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	0	0	104	36	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

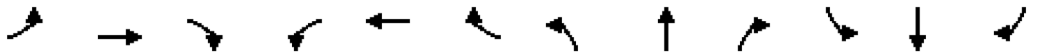
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1	3	93	33	0
Future Volume (Veh/h)	0	1	3	93	33	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	3	101	36	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	143	36	36			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	143	36	36			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	848	1037	1575			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	1	104	36
Volume Left	0	3	0
Volume Right	1	0	0
cSH	1037	1575	1700
Volume to Capacity	0.00	0.00	0.02
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s/veh)	8.5	0.2	0.0
Lane LOS	A	A	
Approach Delay (s/veh)	8.5	0.2	0.0
Approach LOS	A		

Intersection Summary			
Average Delay		0.2	
Intersection Capacity Utilization		17.3%	ICU Level of Service
Analysis Period (min)		15	

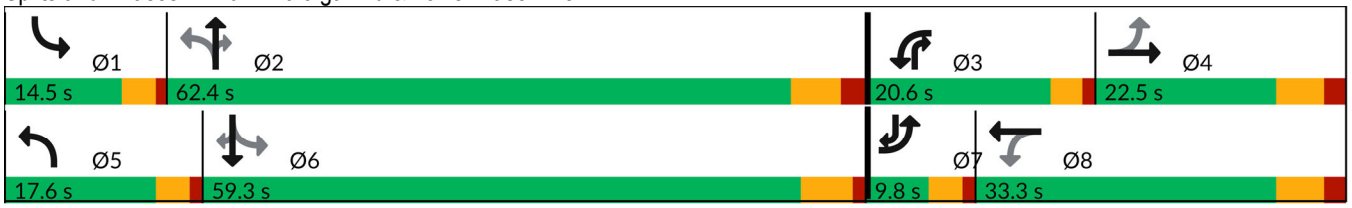


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	250	48	300	317	340	233	2228	447	192	1812	65
Future Volume (vph)	70	250	48	300	317	340	233	2228	447	192	1812	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		90.0	90.0		90.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.966			0.924				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3487	0	1770	3303	0	1805	5036	1599	1752	5085	1615
Flt Permitted	0.247			0.237			0.072			0.074		
Satd. Flow (perm)	460	3487	0	441	3303	0	137	5036	1599	137	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27			191				77			103
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			728.6			888.2	
Travel Time (s)		38.5			41.4			32.8			40.0	
Peak Hour Factor	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Adj. Flow (vph)	91	298	89	316	401	415	262	2321	532	216	1991	103
Shared Lane Traffic (%)												
Lane Group Flow (vph)	91	387	0	316	816	0	262	2321	532	216	1991	103
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	7	4		3	8		5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		7.0	10.0		5.0	25.0	7.0	7.0	25.0	5.0
Minimum Split (s)	9.5	22.5		11.5	22.5		9.5	31.6	11.5	11.5	30.6	9.5
Total Split (s)	9.8	22.5		20.6	33.3		17.6	62.4	20.6	14.5	59.3	9.8
Total Split (%)	8.2%	18.8%		17.2%	27.8%		14.7%	52.0%	17.2%	12.1%	49.4%	8.2%
Maximum Green (s)	5.8	16.3		16.6	27.1		13.6	55.8	16.6	10.5	53.7	5.8
Yellow Time (s)	3.0	4.2		3.0	4.2		3.0	4.6	3.0	3.0	4.6	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.2		4.0	6.2		4.0	6.6	4.0	4.0	5.6	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0		0.2	5.0		3.0	5.0	0.2	0.2	5.0	3.0
Recall Mode	None	None		None	None		None	Max	None	Max	Max	None
Act Effct Green (s)	24.2	16.2		39.0	27.0		72.0	55.8	79.0	65.8	53.7	65.1
Actuated g/C Ratio	0.20	0.14		0.33	0.23		0.60	0.47	0.66	0.55	0.45	0.54
v/c Ratio	0.58	0.78		0.97	0.92		0.97	0.99	0.49	1.00	0.87	0.11
Control Delay (s/veh)	47.2	58.8		77.8	50.5		78.9	48.5	10.4	93.0	35.4	2.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	47.2	58.8		77.8	50.5		78.9	48.5	10.4	93.0	35.4	2.8
LOS	D	E		E	D		E	D	B	F	D	A
Approach Delay (s/veh)		56.6			58.1			44.6			39.4	
Approach LOS		E			E			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 119.9			
Natural Cycle: 120			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay (s/veh): 45.9		Intersection LOS: D	
Intersection Capacity Utilization 96.1%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line

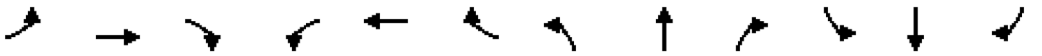




Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	91	387	316	816	262	2321	532	216	1991	103
v/c Ratio	0.58	0.78	0.97	0.92	0.97	0.99	0.49	1.00	0.87	0.11
Control Delay (s/veh)	47.2	58.8	77.8	50.5	78.9	48.5	10.4	93.0	35.4	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	47.2	58.8	77.8	50.5	78.9	48.5	10.4	93.0	35.4	2.8
Queue Length 50th (m)	16.0	46.1	64.1	82.6	47.6	203.9	51.4	37.5	160.5	0.0
Queue Length 95th (m)	24.5	58.8	#114.1	88.0	#100.3	#247.3	67.7	#88.1	183.4	2.1
Internal Link Dist (m)		725.3		666.6		704.6			864.2	
Turn Bay Length (m)	45.0		110.0		90.0		90.0	90.0		90.0
Base Capacity (vph)	156	497	327	894	271	2343	1079	216	2277	924
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.78	0.97	0.91	0.97	0.99	0.49	1.00	0.87	0.11

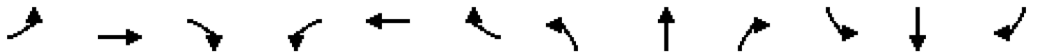
Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	250	48	300	317	340	233	2228	447	192	1812	65
Future Volume (vph)	70	250	48	300	317	340	233	2228	447	192	1812	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.2		4.0	6.2		4.0	6.6	4.0	4.0	5.6	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.97		1.00	0.92		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3485		1770	3302		1805	5036	1599	1752	5085	1615
Flt Permitted	0.25	1.00		0.24	1.00		0.07	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	460	3485		442	3302		136	5036	1599	137	5085	1615
Peak-hour factor, PHF	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Adj. Flow (vph)	91	298	89	316	401	415	262	2321	532	216	1991	103
RTOR Reduction (vph)	0	23	0	0	148	0	0	0	31	0	0	52
Lane Group Flow (vph)	91	364	0	316	668	0	262	2321	501	216	1991	51
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	22.0	16.2		36.8	27.0		69.4	55.8	72.4	64.2	53.7	59.5
Effective Green, g (s)	22.0	16.2		36.8	27.0		69.4	55.8	72.4	64.2	53.7	59.5
Actuated g/C Ratio	0.18	0.14		0.31	0.23		0.58	0.47	0.60	0.54	0.45	0.50
Clearance Time (s)	4.0	6.2		4.0	6.2		4.0	6.6	4.0	4.0	5.6	4.0
Vehicle Extension (s)	3.0	5.0		0.2	5.0		3.0	5.0	0.2	0.2	5.0	3.0
Lane Grp Cap (vph)	147	470		319	743		268	2343	965	214	2277	801
v/s Ratio Prot	0.03	0.10		c0.14	0.20		c0.11	c0.46	0.07	0.09	0.39	0.00
v/s Ratio Perm	0.08			c0.17			0.45		0.24	0.45		0.03
v/c Ratio	0.62	0.77		0.99	0.90		0.98	0.99	0.52	1.01	0.87	0.06
Uniform Delay, d1	42.8	50.1		36.8	45.1		37.5	31.8	13.7	36.3	30.0	15.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.5	9.0		47.6	14.5		48.2	16.5	0.2	63.9	5.1	0.0
Delay (s)	50.3	59.1		84.4	59.6		85.8	48.3	13.9	100.2	35.1	15.7
Level of Service	D	E		F	E		F	D	B	F	D	B
Approach Delay (s/veh)		57.4			66.6			45.6			40.3	
Approach LOS		E			E			D			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	48.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	119.9	Sum of lost time (s)	20.8
Intersection Capacity Utilization	96.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

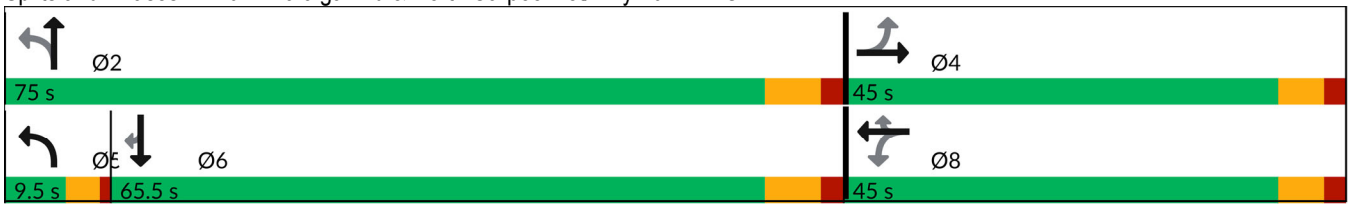


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	22	601	4	33	14	2870	0	0	2154	5
Future Volume (vph)	4	0	22	601	4	33	14	2870	0	0	2154	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.897			0.998	0.850						0.850
Flt Protected		0.988		0.950	0.954		0.950					
Satd. Flow (prot)	0	1532	0	1681	1597	1408	1641	5085	0	0	5085	1615
Flt Permitted		0.895		0.727	0.702		0.060					
Satd. Flow (perm)	0	1388	0	1287	1175	1408	104	5085	0	0	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		73			1	73						64
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			728.6	
Travel Time (s)		9.6			41.3			26.2			52.5	
Peak Hour Factor	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Adj. Flow (vph)	11	0	35	675	11	40	28	3053	0	0	2367	10
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	0	46	0	344	346	36	28	3053	0	0	2367	10
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	4.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	27.0			27.0	27.0
Total Split (s)	45.0	45.0		45.0	45.0	45.0	9.5	75.0			65.5	65.5
Total Split (%)	37.5%	37.5%		37.5%	37.5%	37.5%	7.9%	62.5%			54.6%	54.6%
Maximum Green (s)	39.0	39.0		39.0	39.0	39.0	5.5	68.0			58.5	58.5
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0			2.0	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	4.0	7.0			7.0	7.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	None	Max			Max	Max
Act Effct Green (s)		37.0		37.0	37.0	37.0	71.1	68.1			62.5	62.5
Actuated g/C Ratio		0.31		0.31	0.31	0.31	0.60	0.58			0.53	0.53
v/c Ratio		0.10		0.85	0.94	0.07	0.21	1.04			0.88	0.01
Control Delay (s/veh)		2.9		58.9	74.0	1.0	13.9	54.4			30.7	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		2.9		58.9	74.0	1.0	13.9	54.4			30.7	0.0
LOS		A		E	E	A	B	D			C	A
Approach Delay (s/veh)		2.9			63.2			54.0			30.6	
Approach LOS		A			E			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 118.1			
Natural Cycle: 130			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.04			
Intersection Signal Delay (s/veh): 45.8		Intersection LOS: D	
Intersection Capacity Utilization 90.0%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off



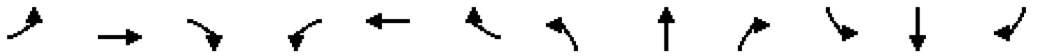


Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	46	344	346	36	28	3053	2367	10
v/c Ratio	0.10	0.85	0.94	0.07	0.21	1.04	0.88	0.01
Control Delay (s/veh)	2.9	58.9	74.0	1.0	13.9	54.4	30.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	2.9	58.9	74.0	1.0	13.9	54.4	30.7	0.0
Queue Length 50th (m)	0.0	82.3	89.5	0.0	2.7	~304.6	200.2	0.0
Queue Length 95th (m)	0.0	#133.4	42.6	0.2	3.7	#331.6	#242.8	0.0
Internal Link Dist (m)	110.0		550.1			339.6	704.6	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	507	425	389	514	133	2932	2690	884
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	0.81	0.89	0.07	0.21	1.04	0.88	0.01

Intersection Summary

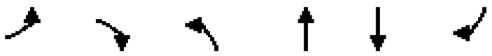
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	0	22	601	4	33	14	2870	0	0	2154	5
Future Volume (vph)	4	0	22	601	4	33	14	2870	0	0	2154	5
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	4.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.91			0.91	1.00
Frt		0.90		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1533		1681	1598	1408	1641	5085			5085	1615
Flt Permitted		0.89		0.73	0.70	1.00	0.06	1.00			1.00	1.00
Satd. Flow (perm)		1388		1287	1175	1408	104	5085			5085	1615
Peak-hour factor, PHF	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Adj. Flow (vph)	11	0	35	675	11	40	28	3053	0	0	2367	10
RTOR Reduction (vph)	0	32	0	0	1	25	0	0	0	0	0	5
Lane Group Flow (vph)	0	14	0	344	345	11	28	3053	0	0	2367	5
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		37.0		37.0	37.0	37.0	69.7	69.7			62.5	62.5
Effective Green, g (s)		37.0		37.0	37.0	37.0	69.7	69.7			62.5	62.5
Actuated g/C Ratio		0.31		0.31	0.31	0.31	0.58	0.58			0.52	0.52
Clearance Time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Lane Grp Cap (vph)		429		397	363	435	101	2960			2655	843
v/s Ratio Prot							0.01	c0.60			0.47	
v/s Ratio Perm		0.01		0.27	c0.29	0.01	0.15					0.00
v/c Ratio		0.03		0.87	0.95	0.03	0.28	1.03			0.89	0.01
Uniform Delay, d1		28.9		39.0	40.5	28.8	21.9	25.0			25.6	13.7
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2		0.0		18.0	34.8	0.0	1.1	25.3			5.0	0.0
Delay (s)		28.9		57.0	75.3	28.8	23.0	50.3			30.6	13.7
Level of Service		C		E	E	C	C	D			C	B
Approach Delay (s/veh)		28.9			64.3			50.0			30.5	
Approach LOS		C			E			D			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	44.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	119.7	Sum of lost time (s)	17.0
Intersection Capacity Utilization	90.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

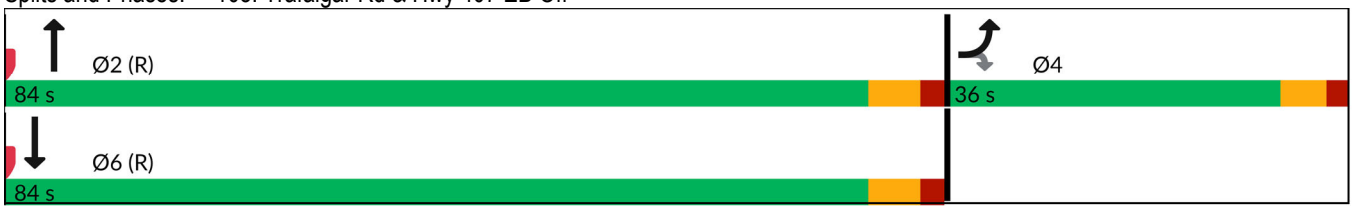


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	47	305	0	3204	2575	0
Future Volume (vph)	47	305	0	3204	2575	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1703	1429	0	5085	5085	0
Flt Permitted	0.950					
Satd. Flow (perm)	1703	1429	0	5085	5085	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		2				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			479.2	363.6	
Travel Time (s)	39.9			34.5	26.2	
Peak Hour Factor	0.75	0.94	0.25	0.94	0.92	0.25
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Adj. Flow (vph)	63	324	0	3409	2799	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	63	324	0	3409	2799	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			7.2	7.2	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	29.0	29.0		24.9	24.9	
Total Split (s)	36.0	36.0		84.0	84.0	
Total Split (%)	30.0%	30.0%		70.0%	70.0%	
Maximum Green (s)	30.0	30.0		77.1	77.1	
Yellow Time (s)	4.0	4.0		4.6	4.6	
All-Red Time (s)	2.0	2.0		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.9	6.9	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	30.0	30.0		77.1	77.1	
Actuated g/C Ratio	0.25	0.25		0.64	0.64	
v/c Ratio	0.15	0.91		1.04	0.86	
Control Delay (s/veh)	36.3	72.8		50.8	20.6	
Queue Delay	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay (s/veh)	36.3	72.8		50.8	20.6	
LOS	D	E		D	C	
Approach Delay (s/veh)	66.9			50.8	20.6	
Approach LOS	E			D	C	

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: 120			
Control Type: Pretimed			
Maximum v/c Ratio: 1.04			
Intersection Signal Delay (s/veh): 38.9		Intersection LOS: D	
Intersection Capacity Utilization 79.4%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off



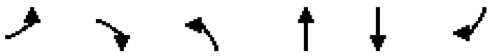


Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	63	324	3409	2799
v/c Ratio	0.15	0.91	1.04	0.86
Control Delay (s/veh)	36.3	72.8	50.8	20.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	36.3	72.8	50.8	20.6
Queue Length 50th (m)	12.2	77.8	~335.4	187.1
Queue Length 95th (m)	20.0	#133.2	#360.5	210.8
Internal Link Dist (m)	530.6		455.2	339.6
Turn Bay Length (m)				
Base Capacity (vph)	425	358	3267	3267
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	0.91	1.04	0.86

Intersection Summary

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

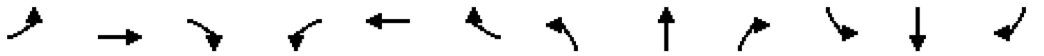
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	47	305	0	3204	2575	0
Future Volume (vph)	47	305	0	3204	2575	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.9	6.9	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1703	1429		5085	5085	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1703	1429		5085	5085	
Peak-hour factor, PHF	0.75	0.94	0.25	0.94	0.92	0.25
Adj. Flow (vph)	63	324	0	3409	2799	0
RTOR Reduction (vph)	0	2	0	0	0	0
Lane Group Flow (vph)	63	323	0	3409	2799	0
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	30.0	30.0		77.1	77.1	
Effective Green, g (s)	30.0	30.0		77.1	77.1	
Actuated g/C Ratio	0.25	0.25		0.64	0.64	
Clearance Time (s)	6.0	6.0		6.9	6.9	
Lane Grp Cap (vph)	425	357		3267	3267	
v/s Ratio Prot	0.04			c0.67	0.55	
v/s Ratio Perm		c0.23				
v/c Ratio	0.15	0.90		1.04	0.86	
Uniform Delay, d1	35.0	43.6		21.5	17.1	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	28.5		28.6	3.1	
Delay (s)	35.8	72.1		50.1	20.2	
Level of Service	D	E		D	C	
Approach Delay (s/veh)	66.2			50.1	20.2	
Approach LOS	E			D	C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	38.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	79.4%	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)	730	919	308	441	1012	1133	446	1953	268	609	1709	562
Future Volume (vph)	730	919	308	441	1012	1133	446	1953	268	609	1709	562
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		100.0	150.0		150.0	150.0		75.0	150.0		150.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			85			85			85			85
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		177.3			161.0			258.3			479.2	
Travel Time (s)		12.8			11.6			18.6			34.5	
Peak Hour Factor	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
Adj. Flow (vph)	811	947	338	621	1177	1333	551	2170	425	662	1987	611
Shared Lane Traffic (%)												
Lane Group Flow (vph)	811	947	338	621	1177	1333	551	2170	425	662	1987	611
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	20.0	7.0	7.0	20.0	7.0	7.0	20.0	7.0	7.0	20.0	7.0
Minimum Split (s)	14.0	38.0	13.9	14.0	38.0	13.9	13.9	42.9	14.0	13.9	42.9	14.0
Total Split (s)	23.0	45.0	19.0	20.0	42.0	23.0	19.0	52.0	20.0	23.0	56.0	23.0
Total Split (%)	16.4%	32.1%	13.6%	14.3%	30.0%	16.4%	13.6%	37.1%	14.3%	16.4%	40.0%	16.4%
Maximum Green (s)	16.0	38.0	12.1	13.0	35.0	16.1	12.1	45.1	13.0	16.1	49.1	16.0
Yellow Time (s)	3.7	3.7	4.6	3.7	3.7	4.6	4.6	4.6	3.7	4.6	4.6	3.7
All-Red Time (s)	3.3	3.3	2.3	3.3	3.3	2.3	2.3	2.3	3.3	2.3	2.3	3.3
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)	7.0	7.0	6.9	7.0	7.0	6.9	6.9	6.9	7.0	6.9	6.9	7.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0
Recall Mode	None	None	None	None	None	None	None	Max	None	None	Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		24.0			24.0			29.0			29.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	16.0	38.0	57.1	13.0	35.0	58.1	12.1	45.1	65.0	16.1	49.1	72.0
Actuated g/C Ratio	0.11	0.27	0.41	0.09	0.25	0.42	0.09	0.32	0.46	0.12	0.35	0.51
v/c Ratio	2.07	0.99	0.48	1.91	1.30	1.89	1.84	1.32	0.53	1.73	1.11	0.71
Control Delay (s/veh)	519.2	76.4	25.0	453.5	186.8	430.0	425.7	188.6	23.8	374.0	102.0	27.4
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 (s/veh)	519.2	76.4	25.0	453.5	186.8	430.0	425.7	188.6	23.8	374.0	102.0	27.4
LOS	F	E	C	F	F	F	F	F	C	F	F	C
Approach Delay (s/veh)		239.4			343.3			207.9			143.2	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 2.07			
Intersection Signal Delay (s/veh): 231.9		Intersection LOS: F	
Intersection Capacity Utilization 146.0%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway



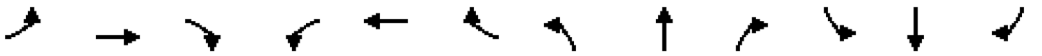


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	811	947	338	621	1177	1333	551	2170	425	662	1987	611
v/c Ratio	2.07	0.99	0.48	1.91	1.30	1.89	1.84	1.32	0.53	1.73	1.11	0.71
Control Delay (s/veh)	519.2	76.4	25.0	453.5	186.8	430.0	425.7	188.6	23.8	374.0	102.0	27.4
Queue Delay	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 (s/veh)	519.2	76.4	25.0	453.5	186.8	430.0	425.7	188.6	23.8	374.0	102.0	27.4
Queue Length 50th (m)	~191.6	145.1	53.4	~142.8	~230.9	~582.4	~125.0	~299.2	69.3	~146.5	~242.6	115.5
Queue Length 95th (m)	#233.0	#192.1	82.7	#132.9	#256.7	#618.6	#141.8	#328.6	56.7	#186.1	#251.9	163.8
Internal Link Dist (m)		153.3			137.0			234.3			455.2	
Turn Bay Length (m)	150.0		100.0	150.0		150.0	150.0		75.0	150.0		150.0
Base Capacity (vph)	392	960	702	325	902	706	299	1638	795	383	1783	863
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	2.07	0.99	0.48	1.91	1.30	1.89	1.84	1.32	0.53	1.73	1.11	0.71

Intersection Summary

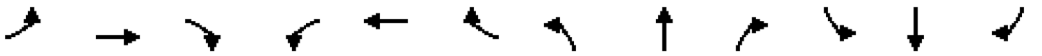
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	730	919	308	441	1012	1133	446	1953	268	609	1709	562
Future Volume (vph)	730	919	308	441	1012	1133	446	1953	268	609	1709	562
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	6.9	7.0	7.0	6.9	6.9	6.9	7.0	6.9	6.9	7.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
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)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
Peak-hour factor, PHF	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Adj. Flow (vph)	811	947	338	621	1177	1333	551	2170	425	662	1987	611
RTOR Reduction (vph)	0	0	55	0	0	54	0	0	50	0	0	45
Lane Group Flow (vph)	811	947	283	621	1177	1279	551	2170	375	662	1987	566
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	16.0	38.0	50.1	13.0	35.0	51.1	12.1	45.1	58.1	16.1	49.1	65.1
Effective Green, g (s)	16.0	38.0	50.1	13.0	35.0	51.1	12.1	45.1	58.1	16.1	49.1	65.1
Actuated g/C Ratio	0.11	0.27	0.36	0.09	0.25	0.37	0.09	0.32	0.42	0.12	0.35	0.47
Clearance Time (s)	7.0	7.0	6.9	7.0	7.0	6.9	6.9	6.9	7.0	6.9	6.9	7.0
Vehicle Extension (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0
Lane Grp Cap (vph)	392	960	572	325	902	577	299	1638	670	383	1783	743
v/s Ratio Prot	c0.24	c0.27	0.04	0.18	0.33	c0.25	0.16	c0.43	0.05	0.20	c0.39	0.09
v/s Ratio Perm			0.13			0.55			0.18			0.27
v/c Ratio	2.07	0.99	0.50	1.91	1.30	2.22	1.84	1.32	0.56	1.73	1.11	0.76
Uniform Delay, d1	62.0	50.7	35.1	63.5	52.5	44.5	64.0	47.4	31.2	62.0	45.4	31.0
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	489.7	25.7	0.7	421.2	145.3	553.1	392.0	150.5	1.1	338.6	59.9	4.6
Delay (s)	551.7	76.4	35.8	484.7	197.8	597.6	455.9	198.0	32.3	400.6	105.4	35.6
Level of Service	F	E	D	F	F	F	F	F	C	F	F	D
Approach Delay (s/veh)		253.8			424.9			220.8			152.2	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	262.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.85		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	27.8
Intersection Capacity Utilization	146.0%	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)	301	467	24	245	447	388	306	2104	156	318	1760	205
Future Volume (vph)	301	467	24	245	447	388	306	2104	156	318	1760	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		60.0	60.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	70.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.994			0.934				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3588	0	1805	3372	0	1805	5036	1615	1480	5085	1599
Flt Permitted	0.167			0.167			0.091			0.083		
Satd. Flow (perm)	311	3588	0	317	3372	0	173	5036	1615	129	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			147				136			151
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		277.8			989.6			1941.0			203.1	
Travel Time (s)		16.7			59.4			87.3			9.1	
Peak Hour Factor	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	1%
Adj. Flow (vph)	358	667	30	310	621	485	392	2475	229	497	2000	238
Shared Lane Traffic (%)												
Lane Group Flow (vph)	358	697	0	310	1106	0	392	2475	229	497	2000	238
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	pm+pt	NA		pm+pt	NA		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			8			2		2	6		6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	9.5	24.0		9.5	24.0		9.5	26.0	26.0	11.5	26.0	26.0
Total Split (s)	15.0	30.0		15.0	30.0		17.0	50.0	50.0	25.0	58.0	58.0
Total Split (%)	12.5%	25.0%		12.5%	25.0%		14.2%	41.7%	41.7%	20.8%	48.3%	48.3%
Maximum Green (s)	11.0	24.0		11.0	24.0		13.0	44.0	44.0	21.0	52.0	52.0
Yellow Time (s)	3.0	3.7		3.0	3.7		3.0	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	1.0	2.3		1.0	2.3		1.0	1.4	1.4	1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		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
Recall Mode	None	None		None	None		None	Max	Max	None	Max	Max
Act Effct Green (s)	37.0	24.0		37.0	24.0		59.0	44.0	46.0	71.0	52.0	54.0
Actuated g/C Ratio	0.31	0.20		0.31	0.20		0.49	0.37	0.38	0.59	0.43	0.45
v/c Ratio	1.56	0.97		1.32	1.40		1.50	1.34	0.33	1.59	0.91	0.30
Control Delay (s/veh)	300.2	74.3		202.0	218.3		273.1	189.6	11.8	309.3	39.0	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 (s/veh)	300.2	74.3		202.0	218.3		273.1	189.6	11.8	309.3	39.0	8.7
LOS	F	E		F	F		F	F	B	F	D	A
Approach Delay (s/veh)		150.9			214.8			187.0			85.5	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 100			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.59			
Intersection Signal Delay (s/veh): 153.7		Intersection LOS: F	
Intersection Capacity Utilization 116.4%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burnhamthorpe Rd





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	358	697	310	1106	392	2475	229	497	2000	238
v/c Ratio	1.56	0.97	1.32	1.40	1.50	1.34	0.33	1.59	0.91	0.30
Control Delay (s/veh)	300.2	74.3	202.0	218.3	273.1	189.6	11.8	309.3	39.0	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 (s/veh)	300.2	74.3	202.0	218.3	273.1	189.6	11.8	309.3	39.0	8.7
Queue Length 50th (m)	~108.6	90.6	~80.9	~177.6	~118.1	~293.1	14.9	~163.0	166.4	12.3
Queue Length 95th (m)	#153.7	84.0	#113.9	#151.7	#145.9	#295.0	18.2	#136.8	182.9	26.4
Internal Link Dist (m)		253.8		965.6		1917.0			179.1	
Turn Bay Length (m)	30.0		15.0		60.0		60.0	60.0		60.0
Base Capacity (vph)	229	720	234	792	261	1846	702	312	2203	802
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.56	0.97	1.32	1.40	1.50	1.34	0.33	1.59	0.91	0.30

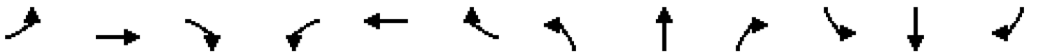
Intersection Summary

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

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

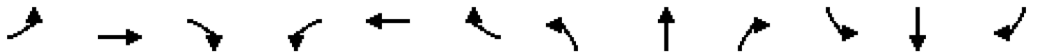
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	301	467	24	245	447	388	306	2104	156	318	1760	205
Future Volume (vph)	301	467	24	245	447	388	306	2104	156	318	1760	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.99		1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3587		1805	3373		1805	5036	1615	1480	5085	1599
Flt Permitted	0.17	1.00		0.17	1.00		0.09	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	310	3587		317	3373		173	5036	1615	130	5085	1599
Peak-hour factor, PHF	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Adj. Flow (vph)	358	667	30	310	621	485	392	2475	229	497	2000	238
RTOR Reduction (vph)	0	2	0	0	118	0	0	0	84	0	0	83
Lane Group Flow (vph)	358	695	0	310	988	0	392	2475	145	497	2000	155
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	35.0	24.0		35.0	24.0		57.0	44.0	44.0	69.0	52.0	52.0
Effective Green, g (s)	35.0	24.0		35.0	24.0		57.0	44.0	46.0	69.0	52.0	54.0
Actuated g/C Ratio	0.29	0.20		0.29	0.20		0.48	0.37	0.38	0.57	0.43	0.45
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	224	717		228	674		258	1846	619	311	2203	719
v/s Ratio Prot	c0.15	0.19		0.12	0.29		0.16	0.49		c0.28	0.39	
v/s Ratio Perm	c0.32			0.27			0.56		0.09	c0.64		0.10
v/c Ratio	1.60	0.97		1.36	1.47		1.52	1.34	0.23	1.60	0.91	0.22
Uniform Delay, d1	38.1	47.6		37.8	48.0		35.0	38.0	25.1	38.9	31.8	20.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	289.2	25.7		187.6	218.0		252.6	157.1	0.9	283.8	6.9	0.7
Delay (s)	327.3	73.4		225.4	266.0		287.6	195.1	26.0	322.7	38.7	20.8
Level of Service	F	E		F	F		F	F	C	F	D	C
Approach Delay (s/veh)		159.5			257.1			194.3			88.7	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	165.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.64		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	116.4%	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)	0	1697	99	0	2215	13	0	0	37	0	0	371
Future Volume (vph)	0	1697	99	0	2215	13	0	0	37	0	0	371
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.999				0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	5045	0	0	5080	0	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	5045	0	0	5080	0	0	0	1611	0	0	1611
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		161.0			234.1			145.8			194.6	
Travel Time (s)		11.6			16.9			10.5			14.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1845	108	0	2408	14	0	0	40	0	0	403
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1953	0	0	2422	0	0	0	40	0	0	403
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

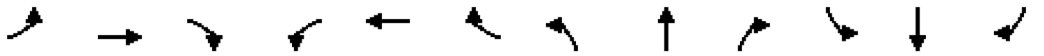
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 72.7%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1697	99	0	2215	13	0	0	37	0	0	371
Future Volume (Veh/h)	0	1697	99	0	2215	13	0	0	37	0	0	371
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1845	108	0	2408	14	0	0	40	0	0	403
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		161			234							
pX, platoon unblocked	0.65			0.78			0.76	0.76	0.78	0.76	0.76	0.65
vC, conflicting volume	2422			1953			3105	4321	669	3070	4368	810
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1300			1246			725	2330	0	679	2392	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	95	100	100	43
cM capacity (veh/h)	343			434			101	28	849	244	25	704

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	738	738	477	963	963	496	40	403
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	108	0	0	14	40	403
cSH	1700	1700	1700	1700	1700	1700	849	704
Volume to Capacity	0.43	0.43	0.28	0.57	0.57	0.29	0.05	0.57
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	1.2	29.3
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	0.0	9.5	16.7
Lane LOS							A	C
Approach Delay (s/veh)	0.0			0.0			9.5	16.7
Approach LOS							A	C

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	72.7%	ICU Level of Service		C
Analysis Period (min)	15			

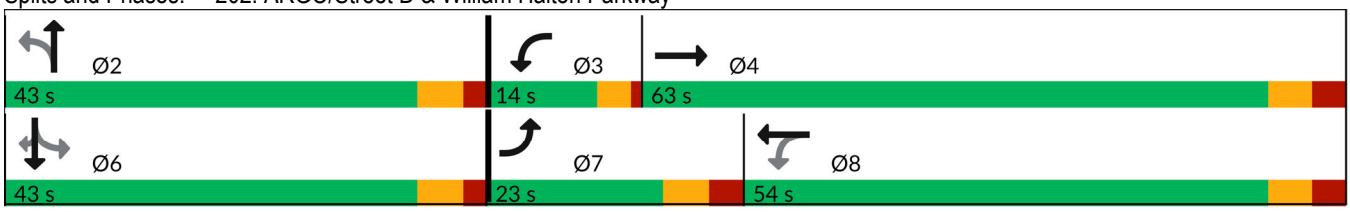


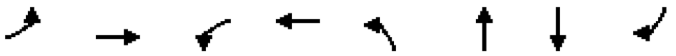
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	558	1077	99	111	1731	9	248	10	37	77	10	249
Future Volume (vph)	558	1077	99	111	1731	9	248	10	37	77	10	249
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0		0.0	55.0		0.0	115.0		0.0	0.0		0.0
Storage Lanes	2		0	1		0	1		0	0		1
Taper Length (m)	100.0			100.0			85.0			50.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.999			0.882				0.850
Flt Protected	0.950			0.950			0.950				0.958	
Satd. Flow (prot)	3433	3493	0	1770	3536	0	1770	1643	0	0	1785	1583
Flt Permitted	0.950			0.155			0.695				0.714	
Satd. Flow (perm)	3433	3493	0	289	3536	0	1295	1643	0	0	1330	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			1			40				223
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		234.1			330.7			147.6			128.4	
Travel Time (s)		16.9			23.8			10.6			9.2	
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
Adj. Flow (vph)	607	1171	108	121	1882	10	270	11	40	84	11	271
Shared Lane Traffic (%)												
Lane Group Flow (vph)	607	1279	0	121	1892	0	270	51	0	0	95	271
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	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
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	Prot	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases				8			2			6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	12.0	32.0		9.5	32.0		42.0	42.0		42.0	42.0	42.0
Total Split (s)	23.0	63.0		14.0	54.0		43.0	43.0		43.0	43.0	43.0
Total Split (%)	19.2%	52.5%		11.7%	45.0%		35.8%	35.8%		35.8%	35.8%	35.8%
Maximum Green (s)	16.0	56.0		10.0	47.0		37.0	37.0		37.0	37.0	37.0
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	3.0	3.0		1.0	3.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)	7.0	7.0		4.0	7.0		6.0	6.0			6.0	6.0
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	3.0
Recall Mode	Min	Min		None	Min		None	None		None	None	None
Walk Time (s)		10.0			10.0		12.0	12.0		12.0	12.0	12.0
Flash Don't Walk (s)		15.0			15.0		18.0	18.0		18.0	18.0	18.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	16.1	58.1		58.3	47.2		27.4	27.4			27.4	27.4
Actuated g/C Ratio	0.15	0.52		0.53	0.43		0.25	0.25			0.25	0.25
v/c Ratio	1.22	0.70		0.46	1.26		0.84	0.12			0.29	0.48
Control Delay (s/veh)	156.9	23.5		15.8	150.2		62.7	12.9			35.3	10.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay (s/veh)	156.9	23.5		15.8	150.2		62.7	12.9			35.3	10.4
LOS	F	C		B	F		E	B			D	B
Approach Delay (s/veh)		66.4			142.1			54.8			16.9	
Approach LOS		E			F			D			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 110.7			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.26			
Intersection Signal Delay (s/veh): 94.9		Intersection LOS: F	
Intersection Capacity Utilization 101.1%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 202: ARGO/Street D & William Halton Parkway



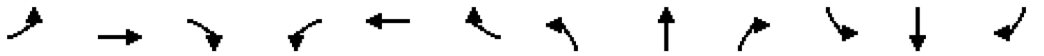


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	607	1279	121	1892	270	51	95	271
v/c Ratio	1.22	0.70	0.46	1.26	0.84	0.12	0.29	0.48
Control Delay (s/veh)	156.9	23.5	15.8	150.2	62.7	12.9	35.3	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	156.9	23.5	15.8	150.2	62.7	12.9	35.3	10.4
Queue Length 50th (m)	~88.1	110.4	9.3	~288.0	58.4	1.9	17.5	8.5
Queue Length 95th (m)	#137.4	165.1	20.4	#373.0	90.7	11.4	32.3	30.6
Internal Link Dist (m)		210.1		306.7		123.6	104.4	
Turn Bay Length (m)	120.0		55.0		115.0			
Base Capacity (vph)	498	1839	291	1507	434	578	446	679
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	1.22	0.70	0.42	1.26	0.62	0.09	0.21	0.40

Intersection Summary

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

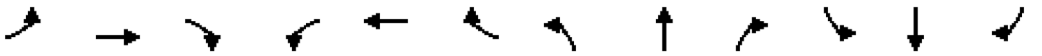
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	558	1077	99	111	1731	9	248	10	37	77	10	249
Future Volume (vph)	558	1077	99	111	1731	9	248	10	37	77	10	249
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		4.0	7.0		6.0	6.0			6.0	6.0
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00		1.00	0.88			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.96	1.00
Satd. Flow (prot)	3433	3494		1770	3536		1770	1644			1784	1583
Flt Permitted	0.95	1.00		0.16	1.00		0.70	1.00			0.71	1.00
Satd. Flow (perm)	3433	3494		290	3536		1295	1644			1331	1583
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)	607	1171	108	121	1882	10	270	11	40	84	11	271
RTOR Reduction (vph)	0	5	0	0	1	0	0	30	0	0	0	168
Lane Group Flow (vph)	607	1274	0	121	1891	0	270	21	0	0	95	103
Turn Type	Prot	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases				8			2			6		6
Actuated Green, G (s)	16.1	58.2		55.3	47.2		27.4	27.4			27.4	27.4
Effective Green, g (s)	16.1	58.2		55.3	47.2		27.4	27.4			27.4	27.4
Actuated g/C Ratio	0.15	0.53		0.50	0.43		0.25	0.25			0.25	0.25
Clearance Time (s)	7.0	7.0		4.0	7.0		6.0	6.0			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	499	1836		253	1507		320	406			329	391
v/s Ratio Prot	c0.18	0.36		0.03	c0.53			0.01				
v/s Ratio Perm				0.20			c0.21				0.07	0.07
v/c Ratio	1.22	0.69		0.48	1.26		0.84	0.05			0.29	0.26
Uniform Delay, d1	47.3	19.6		16.0	31.8		39.6	31.7			33.8	33.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	114.6	1.2		1.4	120.4		18.0	0.1			0.5	0.4
Delay (s)	161.9	20.8		17.5	152.1		57.6	31.8			34.2	33.9
Level of Service	F	C		B	F		E	C			C	C
Approach Delay (s/veh)		66.2			144.0			53.5			34.0	
Approach LOS		E			F			D			C	

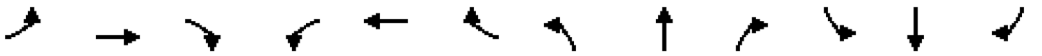
Intersection Summary			
HCM 2000 Control Delay (s/veh)	96.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	110.7	Sum of lost time (s)	20.0
Intersection Capacity Utilization	101.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1879	59	0	1622	398	0	0	78	0	0	357
Future Volume (vph)	0	1879	59	0	1622	398	0	0	78	0	0	357
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		50.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.995				0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3522	0	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3522	0	0	3539	1583	0	0	1611	0	0	1611
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		214.0			177.3			209.1			251.2	
Travel Time (s)		15.4			12.8			15.1			18.1	
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
Adj. Flow (vph)	0	2042	64	0	1763	433	0	0	85	0	0	388
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2106	0	0	1763	433	0	0	85	0	0	388
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

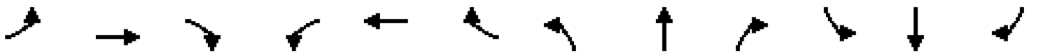
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 73.6%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1879	59	0	1622	398	0	0	78	0	0	357
Future Volume (Veh/h)	0	1879	59	0	1622	398	0	0	78	0	0	357
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2042	64	0	1763	433	0	0	85	0	0	388
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		214			177							
pX, platoon unblocked	0.76			0.64			0.76	0.76	0.64	0.76	0.76	0.76
vC, conflicting volume	2196			2106			3344	4270	1053	2869	3869	882
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1938			1595			2010	3233	0	1384	2703	201
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	88	100	100	36
cM capacity (veh/h)	227			259			10	7	690	68	16	610

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1361	745	882	882	433	85	388
Volume Left	0	0	0	0	0	0	0
Volume Right	0	64	0	0	433	85	388
cSH	1700	1700	1700	1700	1700	690	610
Volume to Capacity	0.80	0.44	0.52	0.52	0.25	0.12	0.64
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	3.4	36.1
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	10.9	20.6
Lane LOS						B	C
Approach Delay (s/veh)	0.0		0.0			10.9	20.6
Approach LOS						B	C

Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	73.6%	ICU Level of Service	D	
Analysis Period (min)	15			

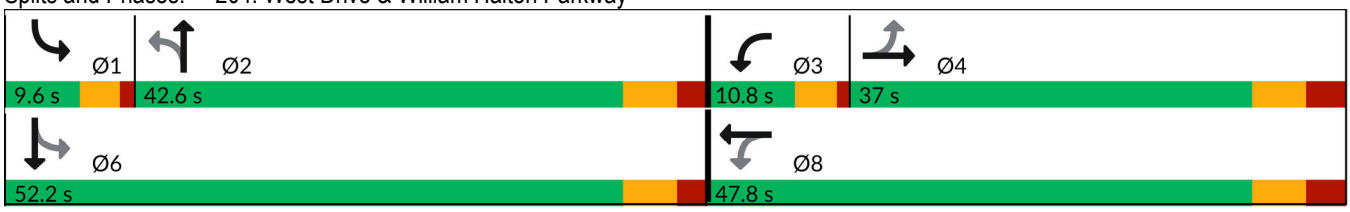


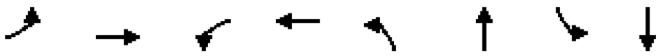
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	1476	56	164	1744	71	32	40	352	110	1	6
Future Volume (vph)	16	1476	56	164	1744	71	32	40	352	110	1	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	100.0		0.0	50.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	100.0			100.0			50.0			50.0		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.994			0.865			0.869	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5060	0	1770	5055	0	1770	1611	0	1770	1619	0
Flt Permitted	0.131			0.116			0.752			0.193		
Satd. Flow (perm)	244	5060	0	216	5055	0	1401	1611	0	360	1619	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			7			224			2	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		824.7			214.0			176.0			195.5	
Travel Time (s)		59.4			15.4			12.7			14.1	
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
Adj. Flow (vph)	17	1604	61	178	1896	77	35	43	383	120	1	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	1665	0	178	1973	0	35	426	0	120	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)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		3	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	20.0	20.0		5.0	20.0		10.0	10.0		5.0	10.0	
Minimum Split (s)	27.0	27.0		9.5	27.0		42.0	42.0		9.5	42.0	
Total Split (s)	37.0	37.0		10.8	47.8		42.6	42.6		9.6	52.2	
Total Split (%)	37.0%	37.0%		10.8%	47.8%		42.6%	42.6%		9.6%	52.2%	
Maximum Green (s)	30.0	30.0		6.8	40.8		36.6	36.6		5.6	46.2	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		1.0	3.0		2.0	2.0		1.0	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)	7.0	7.0		4.0	7.0		6.0	6.0		4.0	6.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes		Yes		
Vehicle Extension (s)	0.2	0.2		3.0	0.2		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Walk Time (s)	7.0	7.0			7.0		14.0	14.0			14.0	
Flash Don't Walk (s)	11.0	11.0			11.0		22.0	22.0			22.0	
Pedestrian Calls (#/hr)	0	0			0		0	0			0	
Act Effct Green (s)	30.4	30.4		44.4	41.4		16.7	16.7		26.1	24.1	
Actuated g/C Ratio	0.39	0.39		0.56	0.53		0.21	0.21		0.33	0.31	
v/c Ratio	0.18	0.85		0.69	0.74		0.12	0.82		0.54	0.02	
Control Delay (s/veh)	26.3	29.1		28.6	18.5		25.4	27.6		27.1	15.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	26.3	29.1		28.6	18.5		25.4	27.6		27.1	15.1	
LOS	C	C		C	B		C	C		C	B	
Approach Delay (s/veh)		29.1			19.3			27.4			26.4	
Approach LOS		C			B			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 78.6			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay (s/veh): 24.1		Intersection LOS: C	
Intersection Capacity Utilization 101.9%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 204: West Drive & William Halton Parkway





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	17	1665	178	1973	35	426	120	8
v/c Ratio	0.18	0.85	0.69	0.74	0.12	0.82	0.54	0.02
Control Delay (s/veh)	26.3	29.1	28.6	18.5	25.4	27.6	27.1	15.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	26.3	29.1	28.6	18.5	25.4	27.6	27.1	15.1
Queue Length 50th (m)	1.8	87.1	13.0	85.3	4.6	31.1	13.1	0.6
Queue Length 95th (m)	8.5	#148.3	#50.2	138.7	11.7	65.0	24.3	3.4
Internal Link Dist (m)		800.7		190.0		152.0		171.5
Turn Bay Length (m)	100.0		100.0		50.0		50.0	
Base Capacity (vph)	94	1961	258	2663	661	878	221	965
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	0.85	0.69	0.74	0.05	0.49	0.54	0.01

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	1476	56	164	1744	71	32	40	352	110	1	6
Future Volume (vph)	16	1476	56	164	1744	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)	7.0	7.0		4.0	7.0		6.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.87		1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5057		1770	5056		1770	1612		1770	1618	
Flt Permitted	0.13	1.00		0.12	1.00		0.75	1.00		0.19	1.00	
Satd. Flow (perm)	244	5057		216	5056		1402	1612		360	1618	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	1604	61	178	1896	77	35	43	383	120	1	7
RTOR Reduction (vph)	0	4	0	0	3	0	0	177	0	0	1	0
Lane Group Flow (vph)	17	1661	0	178	1970	0	35	249	0	120	7	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	30.5	30.5		41.4	41.4		16.7	16.7		25.0	25.0	
Effective Green, g (s)	30.5	30.5		41.4	41.4		16.7	16.7		25.0	25.0	
Actuated g/C Ratio	0.38	0.38		0.52	0.52		0.21	0.21		0.31	0.31	
Clearance Time (s)	7.0	7.0		4.0	7.0		6.0	6.0		4.0	6.0	
Vehicle Extension (s)	0.2	0.2		3.0	0.2		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	93	1942		247	2636		294	339		189	509	
v/s Ratio Prot		c0.33		0.06	c0.39			c0.15		c0.03	0.00	
v/s Ratio Perm	0.07			0.31			0.02			0.16		
v/c Ratio	0.18	0.86		0.72	0.75		0.12	0.73		0.63	0.01	
Uniform Delay, d1	16.2	22.4		14.5	14.9		25.4	29.3		21.9	18.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	3.8		9.9	1.0		0.2	8.0		6.8	0.0	
Delay (s)	16.5	26.2		24.4	15.9		25.6	37.3		28.7	18.7	
Level of Service	B	C		C	B		C	D		C	B	
Approach Delay (s/veh)		26.1			16.6			36.4			28.1	
Approach LOS		C			B			D			C	

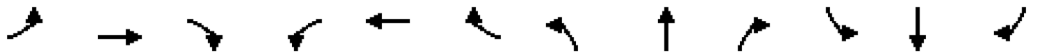
Intersection Summary			
HCM 2000 Control Delay (s/veh)	22.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	79.4	Sum of lost time (s)	21.0
Intersection Capacity Utilization	101.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	30	10	3	36	250	23	62	167	52	150	12
Future Volume (vph)	95	30	10	3	36	250	23	62	167	52	150	12
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		0.990			0.883			0.910			0.992	
Flt Protected		0.966						0.995			0.988	
Satd. Flow (prot)	0	1781	0	0	1645	0	0	1687	0	0	1826	0
Flt Permitted		0.966						0.995			0.988	
Satd. Flow (perm)	0	1781	0	0	1645	0	0	1687	0	0	1826	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		276.8			164.9			130.3			140.1	
Travel Time (s)		19.9			11.9			9.4			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
Adj. Flow (vph)	103	33	11	3	39	272	25	67	182	57	163	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	147	0	0	314	0	0	274	0	0	233	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)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

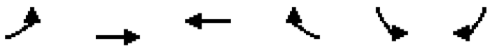
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.9%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	30	10	3	36	250	23	62	167	52	150	12
Future Volume (Veh/h)	95	30	10	3	36	250	23	62	167	52	150	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	103	33	11	3	39	272	25	67	182	57	163	13
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	311			44			520	562	39	641	431	175
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	311			44			520	562	39	641	431	175
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			100			92	83	82	78	66	99
cM capacity (veh/h)	1249			1564			317	399	1033	261	474	868

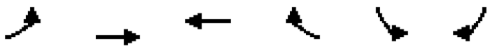
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	147	314	274	233
Volume Left	103	3	25	57
Volume Right	11	272	182	13
cSH	1249	1564	648	403
Volume to Capacity	0.08	0.00	0.42	0.58
Queue Length 95th (m)	2.2	0.0	16.8	28.2
Control Delay (s/veh)	5.9	0.1	14.6	25.4
Lane LOS	A	A	B	D
Approach Delay (s/veh)	5.9	0.1	14.6	25.4
Approach LOS			B	D

Intersection Summary				
Average Delay	11.2			
Intersection Capacity Utilization	57.9%	ICU Level of Service	B	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	114	149	119	238	87	147
Future Volume (vph)	114	149	119	238	87	147
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			0.910		0.915	
Flt Protected		0.979			0.982	
Satd. Flow (prot)	0	1824	1695	0	1674	0
Flt Permitted		0.979			0.982	
Satd. Flow (perm)	0	1824	1695	0	1674	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		164.9	188.6		209.1	
Travel Time (s)		11.9	13.6		15.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	124	162	129	259	95	160
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	286	388	0	255	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

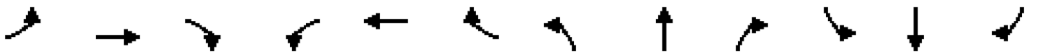
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.9%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	114	149	119	238	87	147
Future Volume (Veh/h)	114	149	119	238	87	147
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)	124	162	129	259	95	160
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	388				669	259
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	388				669	259
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	89				75	79
cM capacity (veh/h)	1170				378	780

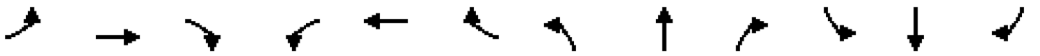
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	286	388	255
Volume Left	124	0	95
Volume Right	0	259	160
cSH	1170	1700	559
Volume to Capacity	0.11	0.23	0.46
Queue Length 95th (m)	2.8	0.0	19.0
Control Delay (s/veh)	4.2	0.0	16.7
Lane LOS	A		C
Approach Delay (s/veh)	4.2	0.0	16.7
Approach LOS			C

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	58.9%	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)	0	0	198	0	0	66	0	2600	193	0	2085	373
Future Volume (vph)	0	0	198	0	0	66	0	2600	193	0	2085	373
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		50.0	0.0		50.0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.865			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	1611	0	0	1611	0	5085	1583	0	5085	1583
Flt Permitted												
Satd. Flow (perm)	0	0	1611	0	0	1611	0	5085	1583	0	5085	1583
Link Speed (k/h)		50			50			50			80	
Link Distance (m)		188.6			84.7			203.1			258.3	
Travel Time (s)		13.6			6.1			14.6			11.6	
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
Adj. Flow (vph)	0	0	215	0	0	72	0	2826	210	0	2266	405
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	215	0	0	72	0	2826	210	0	2266	405
Enter Blocked Intersection	No	No	No	No	No	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			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

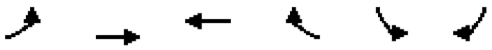
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	198	0	0	66	0	2600	193	0	2085	373
Future Volume (Veh/h)	0	0	198	0	0	66	0	2600	193	0	2085	373
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	215	0	0	72	0	2826	210	0	2266	405
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								203			258	
pX, platoon unblocked	0.81	0.81	0.67	0.81	0.81	0.65	0.67			0.65		
vC, conflicting volume	3280	5302	755	3796	5497	942	2671			3036		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	249	2738	0	885	2977	0	1766			2238		
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	70	100	100	90	100			100		
cM capacity (veh/h)	499	16	725	137	11	702	234			148		

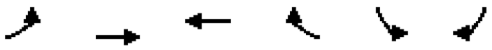
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	215	72	942	942	942	210	755	755	755	405
Volume Left	0	0	0	0	0	0	0	0	0	0
Volume Right	215	72	0	0	0	210	0	0	0	405
cSH	725	702	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.30	0.10	0.55	0.55	0.55	0.12	0.44	0.44	0.44	0.24
Queue Length 95th (m)	9.9	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s/veh)	12.0	10.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	B								
Approach Delay (s/veh)	12.0	10.7	0.0				0.0			
Approach LOS	B	B								

Intersection Summary					
Average Delay	0.6				
Intersection Capacity Utilization	61.0%	ICU Level of Service		B	
Analysis Period (min)	15				



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	7	645	718	240	151	12
Future Volume (vph)	7	645	718	240	151	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	50.0				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.962		0.990	
Flt Protected	0.950				0.956	
Satd. Flow (prot)	1770	3539	3405	0	1763	0
Flt Permitted	0.950				0.956	
Satd. Flow (perm)	1770	3539	3405	0	1763	0
Link Speed (k/h)		60	50		50	
Link Distance (m)		550.9	277.8		134.0	
Travel Time (s)		33.1	20.0		9.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	701	780	261	164	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	701	1041	0	177	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

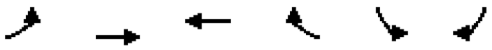
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	43.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	645	718	240	151	12
Future Volume (Veh/h)	7	645	718	240	151	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	701	780	261	164	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)			278			
pX, platoon unblocked	0.86				0.86	0.86
vC, conflicting volume	1041				1277	521
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	719				994	113
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				20	98
cM capacity (veh/h)	754				206	789

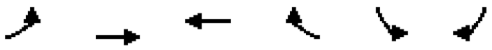
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	8	351	351	520	521	177
Volume Left	8	0	0	0	0	164
Volume Right	0	0	0	0	261	13
cSH	754	1700	1700	1700	1700	217
Volume to Capacity	0.01	0.21	0.21	0.31	0.31	0.81
Queue Length 95th (m)	0.3	0.0	0.0	0.0	0.0	48.0
Control Delay (s/veh)	9.8	0.0	0.0	0.0	0.0	68.2
Lane LOS	A					F
Approach Delay (s/veh)	0.1			0.0		68.2
Approach LOS						F

Intersection Summary			
Average Delay	6.3		
Intersection Capacity Utilization	43.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	41	1150	1755	2	20	96
Future Volume (vph)	41	1150	1755	2	20	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	100.0				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt					0.889	
Flt Protected	0.950				0.991	
Satd. Flow (prot)	1770	3539	3539	0	1641	0
Flt Permitted	0.950				0.991	
Satd. Flow (perm)	1770	3539	3539	0	1641	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		330.7	856.4		123.9	
Travel Time (s)		23.8	61.7		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	1250	1908	2	22	104
Shared Lane Traffic (%)						
Lane Group Flow (vph)	45	1250	1910	0	126	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 62.3%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	41	1150	1755	2	20	96
Future Volume (Veh/h)	41	1150	1755	2	20	96
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)	45	1250	1908	2	22	104
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		331				
pX, platoon unblocked					0.74	
vC, conflicting volume	1910				2624	955
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1910				2493	955
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	85				0	60
cM capacity (veh/h)	307				15	259

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	45	625	625	1272	638	126
Volume Left	45	0	0	0	0	22
Volume Right	0	0	0	0	2	104
cSH	307	1700	1700	1700	1700	68
Volume to Capacity	0.15	0.37	0.37	0.75	0.38	1.85
Queue Length 95th (m)	4.1	0.0	0.0	0.0	0.0	91.2
Control Delay (s/veh)	18.7	0.0	0.0	0.0	0.0	534.7
Lane LOS	C					F
Approach Delay (s/veh)	0.7			0.0		534.7
Approach LOS						F

Intersection Summary			
Average Delay	20.5		
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	56	0	232	0	0	169
Future Volume (vph)	56	0	232	0	0	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1770	0	3539	0	0	3539
Flt Permitted	0.950					
Satd. Flow (perm)	1770	0	3539	0	0	3539
Link Speed (k/h)	50		50			50
Link Distance (m)	317.0		128.4			111.8
Travel Time (s)	22.8		9.2			8.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	61	0	252	0	0	184
Shared Lane Traffic (%)						
Lane Group Flow (vph)	61	0	252	0	0	184
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 16.4%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	56	0	232	0	0	169
Future Volume (Veh/h)	56	0	232	0	0	169
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	61	0	252	0	0	184
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			128			
pX, platoon unblocked						
vC, conflicting volume	344	126			252	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	344	126			252	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	90	100			100	
cM capacity (veh/h)	626	901			1310	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	61	168	84	61	123
Volume Left	61	0	0	0	0
Volume Right	0	0	0	0	0
cSH	626	1700	1700	1310	1700
Volume to Capacity	0.10	0.10	0.05	0.00	0.07
Queue Length 95th (m)	2.6	0.0	0.0	0.0	0.0
Control Delay (s/veh)	11.4	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s/veh)	11.4	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	16.4%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	169	0	116	116
Future Volume (vph)	0	0	169	0	116	116
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						0.850
Flt Protected				0.950	0.950	
Satd. Flow (prot)	1863	0	0	1770	1770	1583
Flt Permitted				0.950	0.950	
Satd. Flow (perm)	1863	0	0	1770	1770	1583
Link Speed (k/h)	50			50	50	
Link Distance (m)	241.4			309.3	111.8	
Travel Time (s)	17.4			22.3	8.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	184	0	126	126
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	184	126	126
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.5%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	169	0	116	116
Future Volume (Veh/h)	0	0	169	0	116	116
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	184	0	126	126
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			0		368	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		368	0
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			89		78	88
cM capacity (veh/h)			1623		560	1085

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	0	184	126	126
Volume Left	0	184	126	0
Volume Right	0	0	0	126
cSH	1700	1623	560	1085
Volume to Capacity	0.00	0.11	0.22	0.12
Queue Length 95th (m)	0.0	3.1	6.9	3.1
Control Delay (s/veh)	0.0	7.5	13.3	8.8
Lane LOS		A	B	A
Approach Delay (s/veh)	0.0	7.5	11.0	
Approach LOS			B	

Intersection Summary			
Average Delay	9.5		
Intersection Capacity Utilization	22.5%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	81	0	31	0
Future Volume (vph)	0	0	81	0	31	0
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						
Flt Protected				0.950	0.950	
Satd. Flow (prot)	1863	0	0	1770	1770	0
Flt Permitted				0.950	0.950	
Satd. Flow (perm)	1863	0	0	1770	1770	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	309.3			139.4	106.2	
Travel Time (s)	22.3			10.0	7.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	88	0	34	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	88	34	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	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

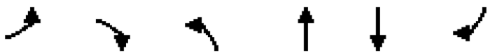
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.5%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	81	0	31	0
Future Volume (Veh/h)	0	0	81	0	31	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	88	0	34	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			0		176	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		176	0
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		96	100
cM capacity (veh/h)			1623		770	1085

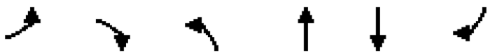
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	0	88	34
Volume Left	0	88	34
Volume Right	0	0	0
cSH	1700	1623	770
Volume to Capacity	0.00	0.05	0.04
Queue Length 95th (m)	0.0	1.4	1.1
Control Delay (s/veh)	0.0	7.3	9.9
Lane LOS		A	A
Approach Delay (s/veh)	0.0	7.3	9.9
Approach LOS			A

Intersection Summary			
Average Delay	8.1		
Intersection Capacity Utilization	14.5%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	35	1	41	81	0
Future Volume (vph)	0	35	1	41	81	0
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				0.999		
Satd. Flow (prot)	1611	0	0	1861	1863	0
Flt Permitted				0.999		
Satd. Flow (perm)	1611	0	0	1861	1863	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	317.0			123.9	106.2	
Travel Time (s)	22.8			8.9	7.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	38	1	45	88	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	0	0	46	88	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	14.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	35	1	41	81	0
Future Volume (Veh/h)	0	35	1	41	81	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	38	1	45	88	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	135	88	88			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	135	88	88			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	96	100			
cM capacity (veh/h)	858	970	1508			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	38	46	88
Volume Left	0	1	0
Volume Right	38	0	0
cSH	970	1508	1700
Volume to Capacity	0.04	0.00	0.05
Queue Length 95th (m)	1.0	0.0	0.0
Control Delay (s/veh)	8.9	0.2	0.0
Lane LOS	A	A	
Approach Delay (s/veh)	8.9	0.2	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	14.3%	ICU Level of Service	A
Analysis Period (min)	15		

Signal Justification Calculation for Forecast Volumes
(OTM Book 12 - Justification 7)

Horizon Year: Total - 2041
Municipality: Oakville, Halton Region
Project number: 210156

Major Street: Burnhamthorpe Road
Minor Street: West Drive
North/South?: N

Number of Approach Lanes: 1
Tee Intersection? Y
Flow Conditions: Restricted

PM Forecast Only? N

Justification Result		
200% Satisfied	No	Case 1: Signal is undoubtedly warranted
100% Satisfied	No	Case 2: Signal might be warranted
< 100 % Satisfied		Case 3: Signal warrant is unlikely

	Major Street						Minor Street						
	Burnhamthorpe Road						West Drive						
	Eastbound			Westbound			Northbound			Southbound			Peds
Time Period	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	Crossing
AM Peak Hour	12	735			257	157				171		16	10
PM Peak Hour	7	645			718	240				151		12	10
verage Hourly Volum	5	345	0	0	244	99	0	0	0	81	0	7	5

Warrant	AHV
1A - All	780
1B - Minor	88
2A - Major	693
2B - Cross	86

Warrant 1 - Minimum Vehicular Volume

	Approach Lanes	1		2 or more		Average Hourly Volume
1A	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	All Approaches	480	720	600	900	780
					% Fulfilled	108.4%

	Approach Lanes	1		2 or more		Average Hourly Volume
1B	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Minor Street Approaches	180	255	180	255	88
					% Fulfilled	34.3%

Warrant 2 - Delay To Cross Traffic

	Approach Lanes	1		2 or more		Average Hourly Volume
2A	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Major Street Approaches	480	720	600	900	693
					% Fulfilled	96.2%

	Approach Lanes	1		2 or more		Average Hourly Volume
2B	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Traffic Crossing Major Street	50	75	50	75	86
					% Fulfilled	114.0%

Signal Justification Calculation for Forecast Volumes
(OTM Book 12 - Justification 7)

Horizon Year: Total - 2041
Municipality: Oakville, Halton Region

Project number: 210156

Major Street: William Halton Parkway
Minor Street: Street E

North/South?: N

Number of Approach Lanes: 1
Tee Intersection? Y
Flow Conditions: Restricted

PM Forecast Only? N

Justification Result		
200% Satisfied	No	Case 1: Signal is undoubtedly warranted
100% Satisfied	No	Case 2: Signal might be warranted
< 100 % Satisfied		Case 3: Signal warrant is unlikely

	Major Street						Minor Street						
	William Halton Parkway						Street E						
	Eastbound			Westbound			Northbound			Southbound			Peds
Time Period	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	Crossing
AM Peak Hour	89	1580			963	7				5		29	10
PM Peak Hour	41	1150			1755	2				20		95	10
verage Hourly Volum	33	683	0	0	680	2	0	0	0	6	0	31	5

Warrant	AHV
1A - All	1434
1B - Minor	37
2A - Major	1397
2B - Cross	11

Warrant 1 - Minimum Vehicular Volume

	Approach Lanes	1		2 or more		Average Hourly Volume
1A	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	All Approaches	480	720	600	900	1434
					% Fulfilled	199.2%

	Approach Lanes	1		2 or more		Average Hourly Volume
1B	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Minor Street Approaches	180	255	180	255	37
					% Fulfilled	14.6%

Warrant 2 - Delay To Cross Traffic

	Approach Lanes	1		2 or more		Average Hourly Volume
2A	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Major Street Approaches	480	720	600	900	1397
					% Fulfilled	194.0%

	Approach Lanes	1		2 or more		Average Hourly Volume
2B	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Traffic Crossing Major Street	50	75	50	75	11
					% Fulfilled	15.0%

Left-Turn Lane Warrant: William Halton Parkway at Street E, 2041 Total Traffic

	V_L	V_O	S	
AM	89	970	25	●
PM	41	1757	130	●

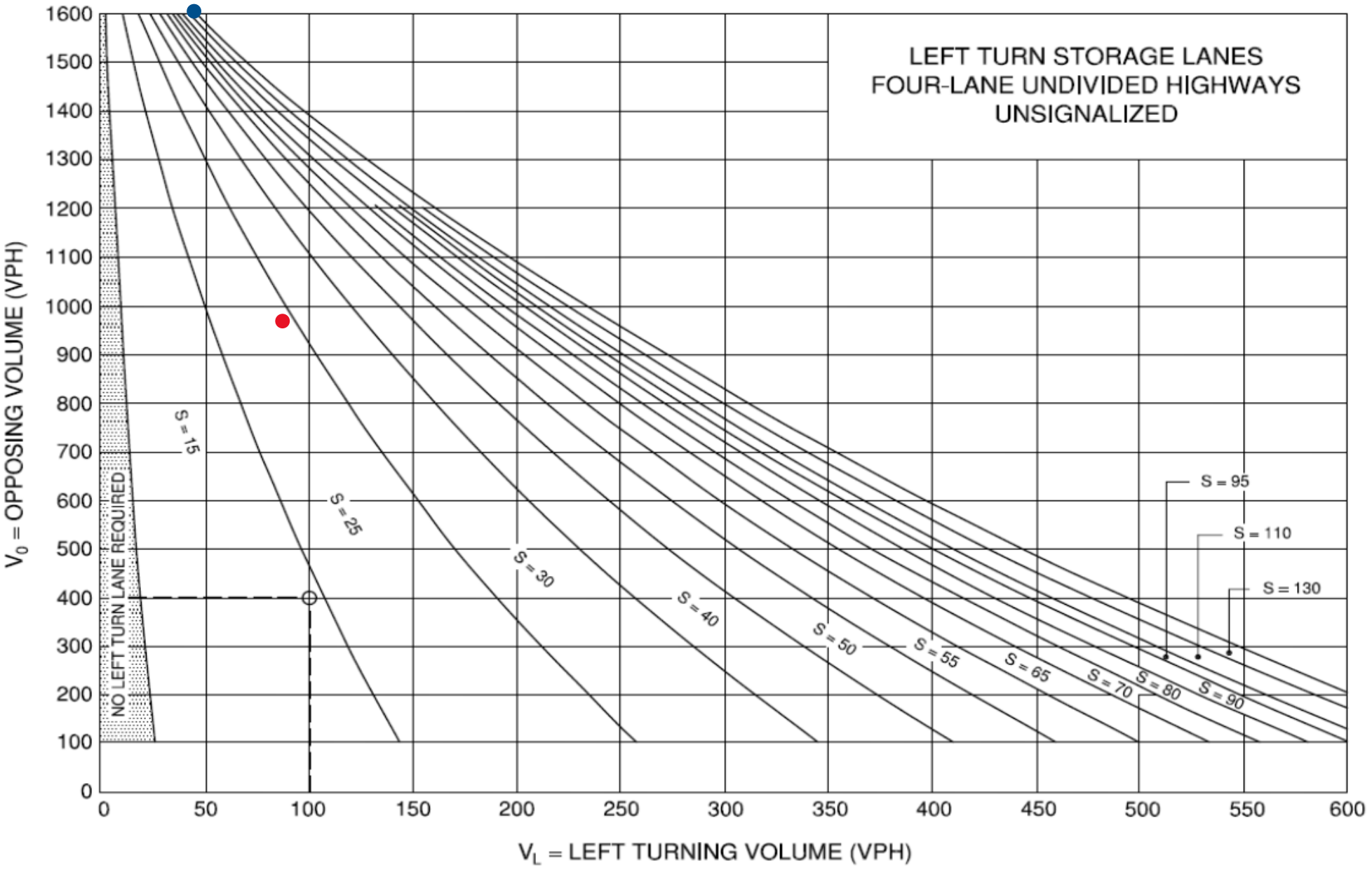
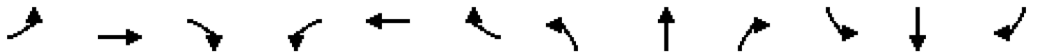


Exhibit 9A-30

Appendix H

Background Growth Rate Reduction Scenario

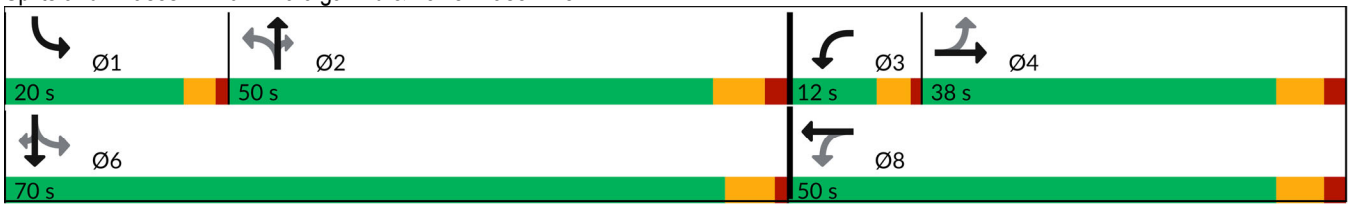


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	273	82	237	93	120	29	1016	187	285	1300	54
Future Volume (vph)	95	273	82	237	93	120	29	1016	187	285	1300	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		90.0	90.0		90.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.962			0.912				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1814	0	1736	1666	0	1597	4848	1568	1752	4988	1553
Flt Permitted	0.593			0.112			0.157			0.111		
Satd. Flow (perm)	1083	1814	0	205	1666	0	264	4848	1568	205	4988	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			67				210			76
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			728.7			434.3	
Travel Time (s)		38.5			41.4			32.8			19.5	
Peak Hour Factor	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Adj. Flow (vph)	113	355	121	325	112	158	40	1239	210	324	1529	76
Shared Lane Traffic (%)												
Lane Group Flow (vph)	113	476	0	325	270	0	40	1239	210	324	1529	76
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		25.0	25.0	25.0	7.0	25.0	25.0
Minimum Split (s)	22.5	22.5		11.5	22.5		31.6	31.6	31.6	11.5	30.6	30.6
Total Split (s)	38.0	38.0		12.0	50.0		50.0	50.0	50.0	20.0	70.0	70.0
Total Split (%)	31.7%	31.7%		10.0%	41.7%		41.7%	41.7%	41.7%	16.7%	58.3%	58.3%
Maximum Green (s)	31.8	31.8		8.0	43.8		43.4	43.4	43.4	16.0	64.4	64.4
Yellow Time (s)	4.2	4.2		3.0	4.2		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	Max
Act Effct Green (s)	31.8	31.8		46.0	43.8		43.4	43.4	43.4	66.0	64.4	64.4
Actuated g/C Ratio	0.27	0.27		0.38	0.37		0.36	0.36	0.36	0.55	0.54	0.54
v/c Ratio	0.40	0.97		1.81	0.42		0.42	0.71	0.30	1.02	0.57	0.09
Control Delay (s/veh)	41.2	76.6		406.5	23.3		45.3	35.5	4.7	83.7	19.6	3.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	41.2	76.6		406.5	23.3		45.3	35.5	4.7	83.7	19.6	3.2
LOS	D	E		F	C		D	D	A	F	B	A
Approach Delay (s/veh)		69.8			232.6			31.4			29.7	
Approach LOS		E			F			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.81			
Intersection Signal Delay (s/veh): 61.7		Intersection LOS: E	
Intersection Capacity Utilization 97.1%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line



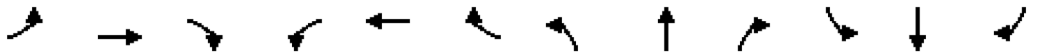


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	113	476	325	270	40	1239	210	324	1529	76
v/c Ratio	0.40	0.97	1.81	0.42	0.42	0.71	0.30	1.02	0.57	0.09
Control Delay (s/veh)	41.2	76.6	406.5	23.3	45.3	35.5	4.7	83.7	19.6	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	41.2	76.6	406.5	23.3	45.3	35.5	4.7	83.7	19.6	3.2
Queue Length 50th (m)	23.0	114.2	~105.0	36.8	7.4	95.6	0.0	~60.3	89.0	0.0
Queue Length 95th (m)	38.4	#138.1	#121.3	54.0	14.9	99.5	15.5	#116.7	95.0	3.9
Internal Link Dist (m)		725.3		666.6		704.7			410.3	
Turn Bay Length (m)	45.0		110.0		90.0		90.0	90.0		90.0
Base Capacity (vph)	286	491	180	650	95	1753	701	319	2676	868
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	0.40	0.97	1.81	0.42	0.42	0.71	0.30	1.02	0.57	0.09

Intersection Summary

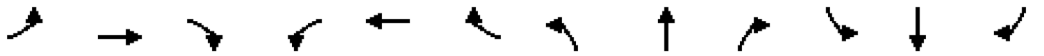
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	273	82	237	93	120	29	1016	187	285	1300	54
Future Volume (vph)	95	273	82	237	93	120	29	1016	187	285	1300	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	1814		1736	1667		1597	4848	1568	1752	4988	1553
Flt Permitted	0.59	1.00		0.11	1.00		0.16	1.00	1.00	0.11	1.00	1.00
Satd. Flow (perm)	1084	1814		204	1667		264	4848	1568	205	4988	1553
Peak-hour factor, PHF	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Adj. Flow (vph)	113	355	121	325	112	158	40	1239	210	324	1529	76
RTOR Reduction (vph)	0	10	0	0	43	0	0	0	134	0	0	35
Lane Group Flow (vph)	113	466	0	325	227	0	40	1239	76	324	1529	41
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	31.8	31.8		43.8	43.8		43.4	43.4	43.4	64.4	64.4	64.4
Effective Green, g (s)	31.8	31.8		43.8	43.8		43.4	43.4	43.4	64.4	64.4	64.4
Actuated g/C Ratio	0.27	0.27		0.37	0.37		0.36	0.36	0.36	0.54	0.54	0.54
Clearance Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Lane Grp Cap (vph)	287	480		176	608		95	1753	567	316	2676	833
v/s Ratio Prot		0.26		c0.12	0.14			0.26		c0.14	0.31	
v/s Ratio Perm	0.10			c0.55			0.15		0.05	c0.41		0.03
v/c Ratio	0.39	0.97		1.85	0.37		0.42	0.71	0.13	1.03	0.57	0.05
Uniform Delay, d1	36.2	43.6		32.7	28.0		28.8	32.8	25.7	32.1	18.6	13.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.9	33.7		402.1	0.8		13.1	2.4	0.5	57.3	0.9	0.1
Delay (s)	38.1	77.3		434.8	28.8		42.0	35.3	26.2	89.3	19.5	13.3
Level of Service	D	E		F	C		D	D	C	F	B	B
Approach Delay (s/veh)		69.8			250.6			34.2			31.0	
Approach LOS		E			F			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	65.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.44		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	97.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

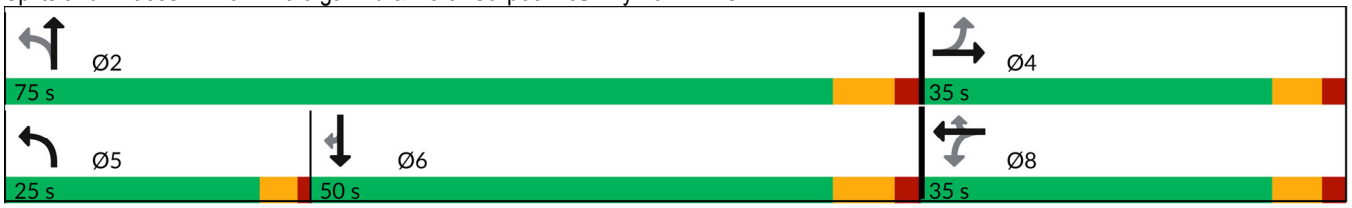


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	9	178	2	6	7	1224	0	0	1617	2
Future Volume (vph)	3	0	9	178	2	6	7	1224	0	0	1617	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.893			0.999	0.850						0.850
Flt Protected		0.990		0.950	0.954		0.950					
Satd. Flow (prot)	0	1481	0	1545	1468	1534	1543	4893	0	0	4988	1615
Flt Permitted		0.929		0.732	0.707		0.080					
Satd. Flow (perm)	0	1390	0	1190	1088	1534	130	4893	0	0	4988	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		79				79						69
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			728.7	
Travel Time (s)		9.6			41.3			26.2			52.5	
Peak Hour Factor	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Adj. Flow (vph)	8	0	30	231	4	14	23	1330	0	0	1859	8
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	0	38	0	118	118	13	23	1330	0	0	1859	8
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	4.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	27.0			27.0	27.0
Total Split (s)	35.0	35.0		35.0	35.0	35.0	25.0	75.0			50.0	50.0
Total Split (%)	31.8%	31.8%		31.8%	31.8%	31.8%	22.7%	68.2%			45.5%	45.5%
Maximum Green (s)	29.0	29.0		29.0	29.0	29.0	21.0	68.0			43.0	43.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0			2.0	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	4.0	7.0			7.0	7.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	None	Max			Max	Max
Act Effct Green (s)		16.2		16.2	16.2	16.2	71.2	68.2			64.4	64.4
Actuated g/C Ratio		0.17		0.17	0.17	0.17	0.73	0.70			0.66	0.66
v/c Ratio		0.13		0.60	0.66	0.04	0.13	0.39			0.56	0.01
Control Delay (s/veh)		1.7		50.2	55.1	0.2	6.4	6.9			11.4	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		1.7		50.2	55.1	0.2	6.4	6.9			11.4	0.0
LOS		A		D	E	A	A	A			B	A
Approach Delay (s/veh)		1.7			49.9			6.9			11.4	
Approach LOS		A			D			A			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 97.4			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay (s/veh): 12.3		Intersection LOS: B	
Intersection Capacity Utilization 53.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off



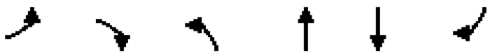


Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	38	118	118	13	23	1330	1859	8
v/c Ratio	0.13	0.60	0.66	0.04	0.13	0.39	0.56	0.01
Control Delay (s/veh)	1.7	50.2	55.1	0.2	6.4	6.9	11.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	1.7	50.2	55.1	0.2	6.4	6.9	11.4	0.0
Queue Length 50th (m)	0.0	22.9	24.2	0.0	1.1	34.3	55.7	0.0
Queue Length 95th (m)	0.0	35.0	22.6	0.0	1.4	56.1	111.6	0.0
Internal Link Dist (m)	110.0		550.1			339.6	704.7	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	470	355	324	513	400	3425	3299	1091
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	0.33	0.36	0.03	0.06	0.39	0.56	0.01

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	9	178	2	6	7	1224	0	0	1617	2
Future Volume (vph)	3	0	9	178	2	6	7	1224	0	0	1617	2
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	4.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.91			0.91	1.00
Frt		0.89		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1481		1545	1468	1534	1543	4893			4988	1615
Flt Permitted		0.93		0.73	0.71	1.00	0.08	1.00			1.00	1.00
Satd. Flow (perm)		1390		1191	1088	1534	130	4893			4988	1615
Peak-hour factor, PHF	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Adj. Flow (vph)	8	0	30	231	4	14	23	1330	0	0	1859	8
RTOR Reduction (vph)	0	32	0	0	0	11	0	0	0	0	0	3
Lane Group Flow (vph)	0	6	0	118	118	2	23	1330	0	0	1859	5
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		16.2		16.2	16.2	16.2	70.7	70.7			64.4	64.4
Effective Green, g (s)		16.2		16.2	16.2	16.2	70.7	70.7			64.4	64.4
Actuated g/C Ratio		0.16		0.16	0.16	0.16	0.71	0.71			0.64	0.64
Clearance Time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Lane Grp Cap (vph)		225		193	176	248	124	3462			3215	1041
v/s Ratio Prot							0.00	c0.27			c0.37	
v/s Ratio Perm		0.00		0.10	c0.11	0.00	0.13					0.00
v/c Ratio		0.03		0.61	0.67	0.01	0.19	0.38			0.58	0.00
Uniform Delay, d1		35.2		38.9	39.3	35.1	6.3	5.9			10.1	6.3
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2		0.1		5.9	10.0	0.0	0.5	0.3			0.8	0.0
Delay (s)		35.3		44.8	49.3	35.1	6.8	6.2			10.8	6.3
Level of Service		D		D	D	D	A	A			B	A
Approach Delay (s/veh)		35.3			46.5			6.2			10.8	
Approach LOS		D			D			A			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	99.9	Sum of lost time (s)	17.0
Intersection Capacity Utilization	53.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

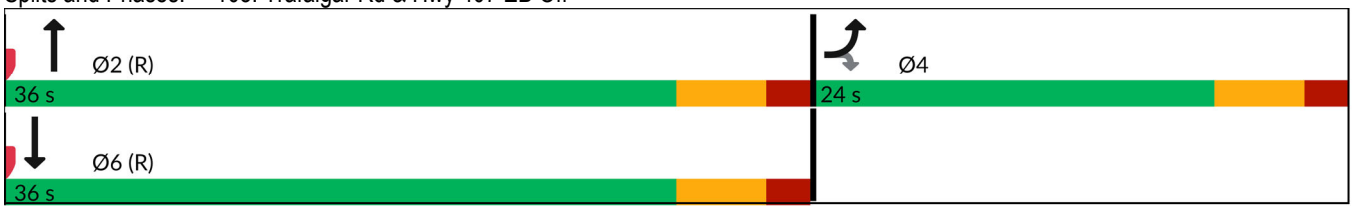


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	68	123	0	1292	1715	0
Future Volume (vph)	68	123	0	1292	1715	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1671	1392	0	4848	4940	0
Flt Permitted	0.950					
Satd. Flow (perm)	1671	1392	0	4848	4940	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		4				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			120.3	363.6	
Travel Time (s)	39.9			8.7	26.2	
Peak Hour Factor	0.79	0.78	0.25	0.85	0.86	0.25
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Adj. Flow (vph)	86	158	0	1520	1994	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	86	158	0	1520	1994	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	24.0	24.0		24.0	24.0	
Total Split (s)	24.0	24.0		36.0	36.0	
Total Split (%)	40.0%	40.0%		60.0%	60.0%	
Maximum Green (s)	18.0	18.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	18.0	18.0		30.0	30.0	
Actuated g/C Ratio	0.30	0.30		0.50	0.50	
v/c Ratio	0.17	0.38		0.63	0.81	
Control Delay (s/veh)	16.7	19.4		12.4	15.9	
Queue Delay	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay (s/veh)	16.7	19.4		12.4	15.9	
LOS	B	B		B	B	
Approach Delay (s/veh)	18.4			12.4	15.9	
Approach LOS	B			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Pretimed			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay (s/veh): 14.6		Intersection LOS: B	
Intersection Capacity Utilization 50.8%		ICU Level of Service A	
Analysis Period (min) 15			

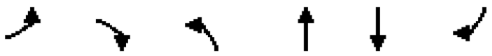
Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off





Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	86	158	1520	1994
v/c Ratio	0.17	0.38	0.63	0.81
Control Delay (s/veh)	16.7	19.4	12.4	15.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.7	19.4	12.4	15.9
Queue Length 50th (m)	7.3	13.9	43.3	65.4
Queue Length 95th (m)	14.3	23.7	51.8	77.7
Internal Link Dist (m)	530.6		96.3	339.6
Turn Bay Length (m)				
Base Capacity (vph)	501	420	2424	2470
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	0.17	0.38	0.63	0.81

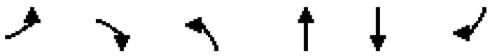
Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	68	123	0	1292	1715	0
Future Volume (vph)	68	123	0	1292	1715	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1671	1392		4848	4940	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1671	1392		4848	4940	
Peak-hour factor, PHF	0.79	0.78	0.25	0.85	0.86	0.25
Adj. Flow (vph)	86	158	0	1520	1994	0
RTOR Reduction (vph)	0	3	0	0	0	0
Lane Group Flow (vph)	86	155	0	1520	1994	0
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	18.0	18.0		30.0	30.0	
Effective Green, g (s)	18.0	18.0		30.0	30.0	
Actuated g/C Ratio	0.30	0.30		0.50	0.50	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	501	417		2424	2470	
v/s Ratio Prot	0.05			0.31	c0.40	
v/s Ratio Perm		c0.11				
v/c Ratio	0.17	0.37		0.63	0.81	
Uniform Delay, d1	15.5	16.5		10.9	12.6	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	2.5		1.2	3.0	
Delay (s)	16.2	19.1		12.2	15.5	
Level of Service	B	B		B	B	
Approach Delay (s/veh)	18.1			12.2	15.5	
Approach LOS	B			B	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



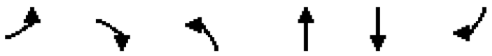
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	59	68	79	1608	1773	65
Future Volume (vph)	59	68	79	1608	1773	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	50.0			30.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5		100.0			
Lane Util. Factor	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)	1337	1404	1570	4940	4940	1615
Flt Permitted	0.950		0.102			
Satd. Flow (perm)	1337	1404	169	4940	4940	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		8				58
Link Speed (k/h)	50			80	80	
Link Distance (m)	107.1			233.3	131.6	
Travel Time (s)	7.7			10.5	5.9	
Peak Hour Factor	0.87	0.83	0.88	0.91	0.89	0.85
Heavy Vehicles (%)	35%	15%	15%	5%	5%	0%
Adj. Flow (vph)	68	82	90	1767	1992	76
Shared Lane Traffic (%)						
Lane Group Flow (vph)	68	82	90	1767	1992	76
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Minimum Split (s)	24.0	24.0	24.9	24.9	24.9	24.9
Total Split (s)	24.0	24.0	46.0	46.0	46.0	46.0
Total Split (%)	34.3%	34.3%	65.7%	65.7%	65.7%	65.7%
Maximum Green (s)	18.0	18.0	39.1	39.1	39.1	39.1
Yellow Time (s)	4.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.9	6.9	6.9	6.9
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Don't Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	18.0	18.0	39.1	39.1	39.1	39.1
Actuated g/C Ratio	0.26	0.26	0.56	0.56	0.56	0.56

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
v/c Ratio	0.20	0.22	0.96	0.64	0.72	0.08
Control Delay (s/veh)	22.3	20.8	107.7	12.0	13.3	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.3	20.8	107.7	12.0	13.3	3.3
LOS	C	C	F	B	B	A
Approach Delay (s/veh)	21.5			16.6	13.0	
Approach LOS	C			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 100			
Control Type: Pretimed			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay (s/veh): 14.9		Intersection LOS: B	
Intersection Capacity Utilization 59.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Trafalgar Rd & South Carpool Lot

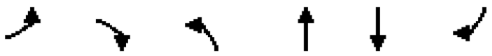




Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	68	82	90	1767	1992	76
v/c Ratio	0.20	0.22	0.96	0.64	0.72	0.08
Control Delay (s/veh)	22.3	20.8	107.7	12.0	13.3	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.3	20.8	107.7	12.0	13.3	3.3
Queue Length 50th (m)	7.3	8.0	10.7	55.8	67.6	1.0
Queue Length 95th (m)	16.5	17.1	#25.9	70.2	83.2	5.5
Internal Link Dist (m)	83.1			209.3	107.6	
Turn Bay Length (m)			50.0			30.0
Base Capacity (vph)	343	366	94	2759	2759	927
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	0.20	0.22	0.96	0.64	0.72	0.08

Intersection Summary

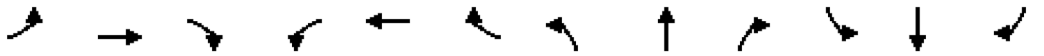
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	59	68	79	1608	1773	65
Future Volume (vph)	59	68	79	1608	1773	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.9	6.9	6.9	6.9
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)	1337	1404	1570	4940	4940	1615
Flt Permitted	0.95	1.00	0.10	1.00	1.00	1.00
Satd. Flow (perm)	1337	1404	169	4940	4940	1615
Peak-hour factor, PHF	0.87	0.83	0.88	0.91	0.89	0.85
Adj. Flow (vph)	68	82	90	1767	1992	76
RTOR Reduction (vph)	0	6	0	0	0	26
Lane Group Flow (vph)	68	76	90	1767	1992	50
Heavy Vehicles (%)	35%	15%	15%	5%	5%	0%
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	18.0	18.0	39.1	39.1	39.1	39.1
Effective Green, g (s)	18.0	18.0	39.1	39.1	39.1	39.1
Actuated g/C Ratio	0.26	0.26	0.56	0.56	0.56	0.56
Clearance Time (s)	6.0	6.0	6.9	6.9	6.9	6.9
Lane Grp Cap (vph)	343	361	94	2759	2759	902
v/s Ratio Prot	0.05			0.36	0.40	
v/s Ratio Perm		c0.05	c0.53			0.03
v/c Ratio	0.20	0.21	0.96	0.64	0.72	0.06
Uniform Delay, d1	20.4	20.4	14.7	10.6	11.4	7.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	1.3	81.8	1.2	1.7	0.1
Delay (s)	21.6	21.7	96.4	11.8	13.1	7.2
Level of Service	C	C	F	B	B	A
Approach Delay (s/veh)	21.7			15.9	12.9	
Approach LOS	C			B	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

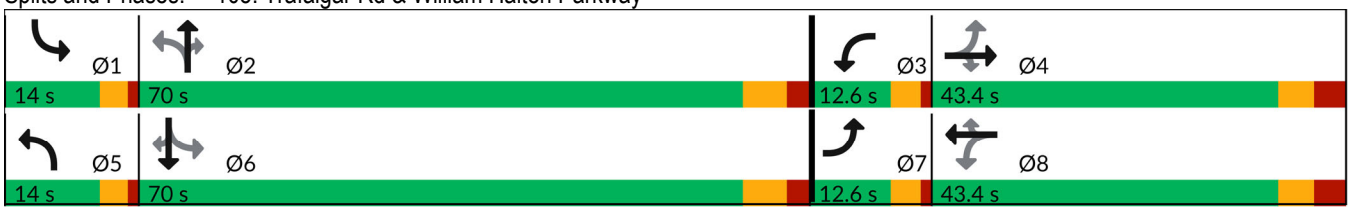


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	772	202	165	660	233	251	1251	55	357	1158	326
Future Volume (vph)	203	772	202	165	660	233	251	1251	55	357	1158	326
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	0.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			7.5		
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)	1787	3574	1599	1687	3574	1429	1703	4988	1615	1770	4893	1538
Flt Permitted	0.110			0.110			0.138			0.115		
Satd. Flow (perm)	207	3574	1599	195	3574	1429	247	4988	1615	214	4893	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			156			150			94			191
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		1215.0			1493.7			285.3			233.3	
Travel Time (s)		87.5			107.5			20.5			16.8	
Peak Hour Factor	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
Adj. Flow (vph)	239	848	243	220	846	311	292	1390	65	435	1287	379
Shared Lane Traffic (%)												
Lane Group Flow (vph)	239	848	243	220	846	311	292	1390	65	435	1287	379
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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)	11.5	38.0	38.0	11.5	38.0	38.0	11.5	42.9	42.9	11.5	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	-2.9	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	4.0	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	Max	Max	None	Max	Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't 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)	48.0	36.4	36.4	48.0	36.4	36.4	76.0	63.1	66.0	76.0	63.1	63.1
Actuated g/C Ratio	0.34	0.26	0.26	0.34	0.26	0.26	0.54	0.45	0.47	0.54	0.45	0.45
v/c Ratio	1.42	0.91	0.46	1.39	0.91	0.65	1.23	0.62	0.08	1.92	0.58	0.47
Control Delay (s/veh)	249.9	65.1	18.5	239.6	64.9	30.1	154.9	30.8	1.6	449.1	30.0	14.7
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 (s/veh)	249.9	65.1	18.5	239.6	64.9	30.1	154.9	30.8	1.6	449.1	30.0	14.7
LOS	F	E	B	F	E	C	F	C	A	F	C	B
Approach Delay (s/veh)		89.8			84.9			50.4			114.0	
Approach LOS		F			F			D			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Natural Cycle: 125			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.92			
Intersection Signal Delay (s/veh): 86.0		Intersection LOS: F	
Intersection Capacity Utilization 92.7%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway



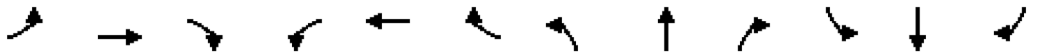


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	239	848	243	220	846	311	292	1390	65	435	1287	379
v/c Ratio	1.42	0.91	0.46	1.39	0.91	0.65	1.23	0.62	0.08	1.92	0.58	0.47
Control Delay (s/veh)	249.9	65.1	18.5	239.6	64.9	30.1	154.9	30.8	1.6	449.1	30.0	14.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	249.9	65.1	18.5	239.6	64.9	30.1	154.9	30.8	1.6	449.1	30.0	14.7
Queue Length 50th (m)	~76.2	127.0	20.0	~68.6	126.6	42.2	~68.8	111.2	0.0	~164.8	100.8	36.0
Queue Length 95th (m)	#121.6	#164.6	38.9	#91.9	127.1	52.8	#119.1	127.5	2.6	#204.0	116.3	58.3
Internal Link Dist (m)		1191.0			1469.7			261.3			209.3	
Turn Bay Length (m)	100.0		100.0	100.0		150.0	150.0		75.0			
Base Capacity (vph)	168	929	531	158	929	482	238	2248	811	227	2205	798
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	1.42	0.91	0.46	1.39	0.91	0.65	1.23	0.62	0.08	1.92	0.58	0.47

Intersection Summary

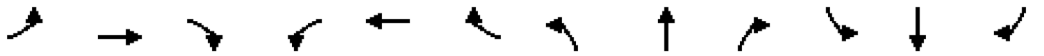
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	772	202	165	660	233	251	1251	55	357	1158	326
Future Volume (vph)	203	772	202	165	660	233	251	1251	55	357	1158	326
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	4.0	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)	1787	3574	1599	1687	3574	1429	1703	4988	1615	1770	4893	1538
Flt Permitted	0.11	1.00	1.00	0.11	1.00	1.00	0.14	1.00	1.00	0.11	1.00	1.00
Satd. Flow (perm)	207	3574	1599	195	3574	1429	246	4988	1615	213	4893	1538
Peak-hour factor, PHF	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Adj. Flow (vph)	239	848	243	220	846	311	292	1390	65	435	1287	379
RTOR Reduction (vph)	0	0	115	0	0	111	0	0	34	0	0	105
Lane Group Flow (vph)	239	848	128	220	846	200	292	1390	31	435	1287	274
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
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)	45.0	36.4	36.4	45.0	36.4	36.4	73.1	63.1	63.1	73.1	63.1	63.1
Effective Green, g (s)	45.0	36.4	36.4	45.0	36.4	36.4	73.1	63.1	66.0	73.1	63.1	63.1
Actuated g/C Ratio	0.32	0.26	0.26	0.32	0.26	0.26	0.52	0.45	0.47	0.52	0.45	0.45
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)	163	929	415	154	929	371	232	2248	761	222	2205	693
v/s Ratio Prot	c0.09	0.24		0.09	0.24		0.09	0.28		c0.14	0.26	
v/s Ratio Perm	c0.38		0.08	0.37		0.14	0.56		0.02	c0.88		0.18
v/c Ratio	1.47	0.91	0.31	1.43	0.91	0.54	1.26	0.62	0.04	1.96	0.58	0.40
Uniform Delay, d1	41.0	50.3	41.7	41.1	50.2	44.6	24.1	29.3	19.9	25.3	28.7	25.7
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	240.2	13.7	0.9	226.1	13.5	2.7	146.4	1.3	0.1	447.7	1.1	1.7
Delay (s)	281.2	63.9	42.5	267.2	63.7	47.3	170.5	30.6	20.0	473.0	29.8	27.4
Level of Service	F	E	D	F	E	D	F	C	C	F	C	C
Approach Delay (s/veh)		99.1			92.5			53.6			121.1	
Approach LOS		F			F			D			F	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	92.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.77		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.9
Intersection Capacity Utilization	92.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

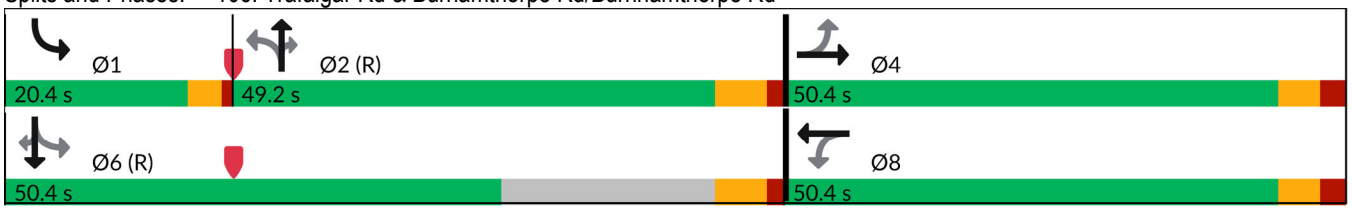


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	196	312	121	199	110	26	59	1396	105	45	1435	46
Future Volume (vph)	196	312	121	199	110	26	59	1396	105	45	1435	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		60.0	60.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	70.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.958			0.957				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1805	0	1770	1818	0	1703	4988	1615	1752	4940	1495
Flt Permitted	0.549			0.179			0.155			0.085		
Satd. Flow (perm)	1013	1805	0	333	1818	0	278	4988	1615	157	4940	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			19				90			55
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		828.7			989.6			1077.8			170.3	
Travel Time (s)		49.7			59.4			48.5			7.7	
Peak Hour Factor	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
Adj. Flow (vph)	233	395	153	326	162	65	86	1517	122	69	1543	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	233	548	0	326	227	0	86	1517	122	69	1543	55
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Minimum Split (s)	24.0	24.0		24.0	24.0		26.0	26.0	26.0	11.5	26.0	26.0
Total Split (s)	50.4	50.4		50.4	50.4		49.2	49.2	49.2	20.4	50.4	50.4
Total Split (%)	42.0%	42.0%		42.0%	42.0%		41.0%	41.0%	41.0%	17.0%	42.0%	42.0%
Maximum Green (s)	44.4	44.4		44.4	44.4		43.2	43.2	43.2	16.4	44.4	44.4
Yellow Time (s)	3.7	3.7		3.7	3.7		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.3	2.3		2.3	2.3		1.4	1.4	1.4	1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Act Effct Green (s)	44.4	44.4		44.4	44.4		43.2	43.2	45.2	65.6	63.6	65.6
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.36	0.36	0.38	0.55	0.53	0.55
v/c Ratio	0.62	0.81		2.65	0.33		0.86	0.85	0.18	0.23	0.59	0.07
Control Delay (s/veh)	39.7	43.5		785.0	26.4		97.2	40.7	8.9	14.8	20.4	3.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (s/veh)	39.7	43.5		785.0	26.4		97.2	40.7	8.9	14.8	20.4	3.5
LOS	D	D		F	C		F	D	A	B	C	A
Approach Delay (s/veh)		42.4			473.6			41.3			19.6	
Approach LOS		D			F			D			B	

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: Pretimed			
Maximum v/c Ratio: 2.65			
Intersection Signal Delay (s/veh): 84.4		Intersection LOS: F	
Intersection Capacity Utilization 98.8%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burhamthorpe Rd/Burnhamthorpe Rd



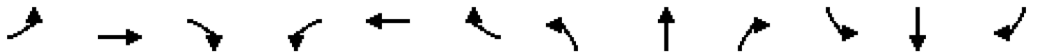


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	233	548	326	227	86	1517	122	69	1543	55
v/c Ratio	0.62	0.81	2.65	0.33	0.86	0.85	0.18	0.23	0.59	0.07
Control Delay (s/veh)	39.7	43.5	785.0	26.4	97.2	40.7	8.9	14.8	20.4	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	39.7	43.5	785.0	26.4	97.2	40.7	8.9	14.8	20.4	3.5
Queue Length 50th (m)	46.8	117.4	~136.4	36.5	19.6	125.6	5.0	7.7	92.1	0.0
Queue Length 95th (m)	69.8	134.5	#121.9	40.5	#34.6	146.2	16.5	10.7	106.9	5.2
Internal Link Dist (m)		804.7		965.6		1053.8			146.3	
Turn Bay Length (m)	30.0		15.0		60.0		60.0	60.0		60.0
Base Capacity (vph)	374	679	123	684	100	1795	664	303	2618	842
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	0.62	0.81	2.65	0.33	0.86	0.85	0.18	0.23	0.59	0.07

Intersection Summary

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

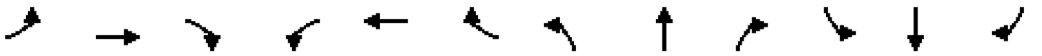
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	196	312	121	199	110	26	59	1396	105	45	1435	46
Future Volume (vph)	196	312	121	199	110	26	59	1396	105	45	1435	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	4.0	4.0	6.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	1805		1770	1818		1703	4988	1615	1752	4940	1495
Flt Permitted	0.55	1.00		0.18	1.00		0.15	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	1012	1805		334	1818		278	4988	1615	156	4940	1495
Peak-hour factor, PHF	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Adj. Flow (vph)	233	395	153	326	162	65	86	1517	122	69	1543	55
RTOR Reduction (vph)	0	11	0	0	12	0	0	0	56	0	0	25
Lane Group Flow (vph)	233	537	0	326	215	0	86	1517	66	69	1543	30
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	44.4	44.4		44.4	44.4		43.2	43.2	43.2	63.6	63.6	63.6
Effective Green, g (s)	44.4	44.4		44.4	44.4		43.2	43.2	45.2	63.6	63.6	65.6
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.36	0.36	0.38	0.53	0.53	0.55
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	4.0	6.0	6.0
Lane Grp Cap (vph)	374	667		123	672		100	1795	608	300	2618	817
v/s Ratio Prot		0.30			0.12			0.30		0.03	c0.31	
v/s Ratio Perm	0.23			c0.98			c0.31		0.04	0.09		0.02
v/c Ratio	0.62	0.80		2.65	0.32		0.86	0.85	0.11	0.23	0.59	0.04
Uniform Delay, d1	30.9	33.9		37.8	27.0		35.6	35.3	24.3	18.8	19.3	12.6
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	7.6	10.0		765.5	1.3		57.7	5.1	0.4	1.8	1.0	0.1
Delay (s)	38.6	43.9		803.3	28.3		93.3	40.4	24.7	20.6	20.3	12.7
Level of Service	D	D		F	C		F	D	C	C	C	B
Approach Delay (s/veh)		42.3			485.1			41.9			20.0	
Approach LOS		D			F			D			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	86.1	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)	16.0
Intersection Capacity Utilization	98.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

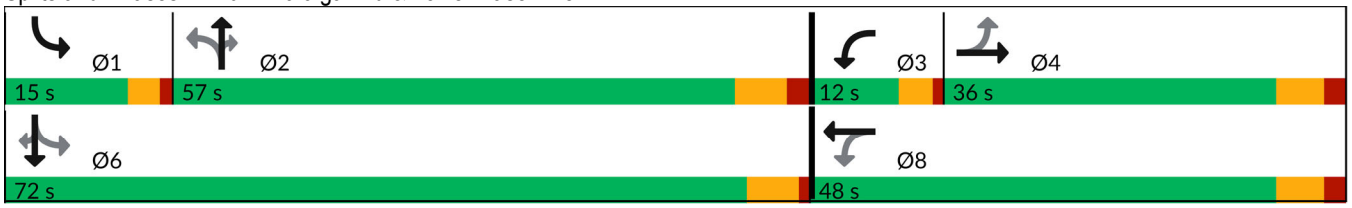


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	205	40	209	260	279	195	1491	242	159	1128	53
Future Volume (vph)	57	205	40	209	260	279	195	1491	242	159	1128	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		90.0	90.0		90.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.965			0.924				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1834	0	1770	1738	0	1805	5036	1599	1752	5085	1615
Flt Permitted	0.134			0.280			0.213			0.072		
Satd. Flow (perm)	250	1834	0	522	1738	0	405	5036	1599	133	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			48				288			84
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			728.6			888.2	
Travel Time (s)		38.5			41.4			32.8			40.0	
Peak Hour Factor	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Adj. Flow (vph)	74	244	74	220	329	340	219	1553	288	179	1240	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	318	0	220	669	0	219	1553	288	179	1240	84
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		25.0	25.0	25.0	7.0	25.0	25.0
Minimum Split (s)	22.5	22.5		11.5	22.5		31.6	31.6	31.6	11.5	30.6	30.6
Total Split (s)	36.0	36.0		12.0	48.0		57.0	57.0	57.0	15.0	72.0	72.0
Total Split (%)	30.0%	30.0%		10.0%	40.0%		47.5%	47.5%	47.5%	12.5%	60.0%	60.0%
Maximum Green (s)	29.8	29.8		8.0	41.8		50.4	50.4	50.4	11.0	66.4	66.4
Yellow Time (s)	4.2	4.2		3.0	4.2		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	Max
Act Effct Green (s)	29.8	29.8		44.0	41.8		50.4	50.4	50.4	68.0	66.4	66.4
Actuated g/C Ratio	0.25	0.25		0.37	0.35		0.42	0.42	0.42	0.57	0.55	0.55
v/c Ratio	1.19	0.69		0.80	1.05		1.29	0.73	0.34	0.80	0.44	0.09
Control Delay (s/veh)	217.0	47.9		52.6	85.9		198.4	31.8	3.7	51.5	16.4	2.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	217.0	47.9		52.6	85.9		198.4	31.8	3.7	51.5	16.4	2.8
LOS	F	D		D	F		F	C	A	D	B	A
Approach Delay (s/veh)		79.9			77.6			45.5			19.9	
Approach LOS		E			E			D			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 80			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.29			
Intersection Signal Delay (s/veh): 46.2		Intersection LOS: D	
Intersection Capacity Utilization 102.2%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line



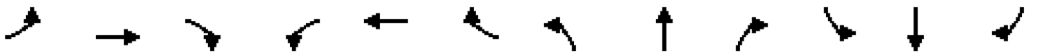


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	74	318	220	669	219	1553	288	179	1240	84
v/c Ratio	1.19	0.69	0.80	1.05	1.29	0.73	0.34	0.80	0.44	0.09
Control Delay (s/veh)	217.0	47.9	52.6	85.9	198.4	31.8	3.7	51.5	16.4	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	217.0	47.9	52.6	85.9	198.4	31.8	3.7	51.5	16.4	2.8
Queue Length 50th (m)	~22.2	69.1	39.1	~172.8	~69.1	116.2	0.0	26.8	63.5	0.0
Queue Length 95th (m)	#44.4	93.2	#73.8	#195.9	#117.6	134.9	12.2	#63.5	74.9	2.3
Internal Link Dist (m)		725.3		666.6		704.6			864.2	
Turn Bay Length (m)	45.0		110.0		90.0		90.0	90.0		90.0
Base Capacity (vph)	62	464	274	636	170	2115	838	223	2813	931
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.19	0.69	0.80	1.05	1.29	0.73	0.34	0.80	0.44	0.09

Intersection Summary

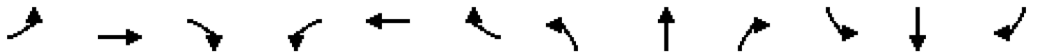
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	205	40	209	260	279	195	1491	242	159	1128	53
Future Volume (vph)	57	205	40	209	260	279	195	1491	242	159	1128	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.97		1.00	0.92		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1834		1770	1738		1805	5036	1599	1752	5085	1615
Flt Permitted	0.13	1.00		0.28	1.00		0.21	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	250	1834		521	1738		406	5036	1599	133	5085	1615
Peak-hour factor, PHF	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Adj. Flow (vph)	74	244	74	220	329	340	219	1553	288	179	1240	84
RTOR Reduction (vph)	0	9	0	0	31	0	0	0	167	0	0	38
Lane Group Flow (vph)	74	309	0	220	638	0	219	1553	121	179	1240	46
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	29.8	29.8		41.8	41.8		50.4	50.4	50.4	66.4	66.4	66.4
Effective Green, g (s)	29.8	29.8		41.8	41.8		50.4	50.4	50.4	66.4	66.4	66.4
Actuated g/C Ratio	0.25	0.25		0.35	0.35		0.42	0.42	0.42	0.55	0.55	0.55
Clearance Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Lane Grp Cap (vph)	62	455		264	605		170	2115	671	222	2813	893
v/s Ratio Prot		0.17		0.06	c0.37			0.31		c0.07	0.24	
v/s Ratio Perm	c0.30			0.23			c0.54		0.08	0.37		0.03
v/c Ratio	1.19	0.68		0.83	1.05		1.29	0.73	0.18	0.81	0.44	0.05
Uniform Delay, d1	45.1	40.8		34.8	39.1		34.8	29.2	21.8	28.8	15.8	12.3
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	175.8	5.2		18.9	51.7		166.6	2.3	0.6	26.0	0.5	0.1
Delay (s)	220.9	46.0		53.7	90.8		201.4	31.5	22.4	54.8	16.3	12.4
Level of Service	F	D		D	F		F	C	C	D	B	B
Approach Delay (s/veh)		79.0			81.6			48.3			20.7	
Approach LOS		E			F			D			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	48.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	120.0	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			

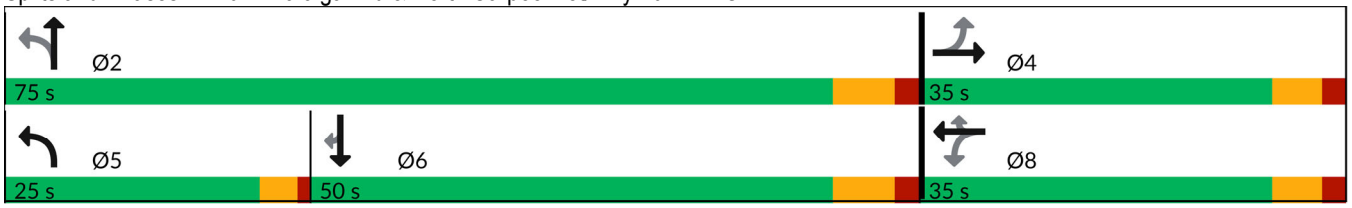


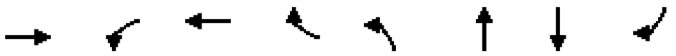
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	18	356	3	27	11	1898	0	0	1372	5
Future Volume (vph)	3	0	18	356	3	27	11	1898	0	0	1372	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.894			0.998	0.850						0.850
Flt Protected		0.989		0.950	0.955		0.950					
Satd. Flow (prot)	0	1525	0	1681	1595	1408	1641	5085	0	0	5085	1615
Flt Permitted		0.922		0.733	0.710		0.124					
Satd. Flow (perm)	0	1421	0	1297	1186	1408	214	5085	0	0	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		79			1	79						69
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			728.6	
Travel Time (s)		9.6			41.3			26.2			52.5	
Peak Hour Factor	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Adj. Flow (vph)	8	0	29	400	8	33	22	2019	0	0	1508	10
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	0	37	0	204	207	30	22	2019	0	0	1508	10
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	4.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	27.0			27.0	27.0
Total Split (s)	35.0	35.0		35.0	35.0	35.0	25.0	75.0			50.0	50.0
Total Split (%)	31.8%	31.8%		31.8%	31.8%	31.8%	22.7%	68.2%			45.5%	45.5%
Maximum Green (s)	29.0	29.0		29.0	29.0	29.0	21.0	68.0			43.0	43.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0			2.0	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	4.0	7.0			7.0	7.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	None	Max			Max	Max
Act Effct Green (s)		22.5		22.5	22.5	22.5	71.2	68.2			64.4	64.4
Actuated g/C Ratio		0.22		0.22	0.22	0.22	0.69	0.66			0.62	0.62
v/c Ratio		0.10		0.73	0.81	0.08	0.10	0.60			0.48	0.01
Control Delay (s/veh)		1.0		53.1	61.3	0.4	7.5	11.8			12.8	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		1.0		53.1	61.3	0.4	7.5	11.8			12.8	0.0
LOS		A		D	E	A	A	B			B	A
Approach Delay (s/veh)		1.0			53.4			11.7			12.7	
Approach LOS		A			D			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 103.7			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay (s/veh): 16.5		Intersection LOS: B	
Intersection Capacity Utilization 64.4%		ICU Level of Service C	
Analysis Period (min) 15			

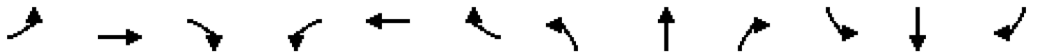
Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off





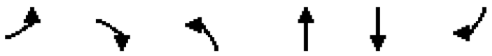
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	37	204	207	30	22	2019	1508	10
v/c Ratio	0.10	0.73	0.81	0.08	0.10	0.60	0.48	0.01
Control Delay (s/veh)	1.0	53.1	61.3	0.4	7.5	11.8	12.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	1.0	53.1	61.3	0.4	7.5	11.8	12.8	0.0
Queue Length 50th (m)	0.0	42.5	45.7	0.0	1.4	83.2	53.2	0.0
Queue Length 95th (m)	0.0	68.7	26.4	0.0	2.5	113.5	95.1	0.0
Internal Link Dist (m)	110.0		550.1			339.6	704.6	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	455	363	333	451	436	3344	3157	1029
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	0.56	0.62	0.07	0.05	0.60	0.48	0.01

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	18	356	3	27	11	1898	0	0	1372	5
Future Volume (vph)	3	0	18	356	3	27	11	1898	0	0	1372	5
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	4.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.91			0.91	1.00
Frt		0.89		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1525		1681	1595	1408	1641	5085			5085	1615
Flt Permitted		0.92		0.73	0.71	1.00	0.12	1.00			1.00	1.00
Satd. Flow (perm)		1422		1297	1186	1408	215	5085			5085	1615
Peak-hour factor, PHF	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Adj. Flow (vph)	8	0	29	400	8	33	22	2019	0	0	1508	10
RTOR Reduction (vph)	0	29	0	0	1	24	0	0	0	0	0	4
Lane Group Flow (vph)	0	8	0	204	206	6	22	2019	0	0	1508	6
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		22.5		22.5	22.5	22.5	70.7	70.7			64.4	64.4
Effective Green, g (s)		22.5		22.5	22.5	22.5	70.7	70.7			64.4	64.4
Actuated g/C Ratio		0.21		0.21	0.21	0.21	0.67	0.67			0.61	0.61
Clearance Time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Lane Grp Cap (vph)		301		274	251	298	174	3385			3083	979
v/s Ratio Prot							0.00	c0.40			0.30	
v/s Ratio Perm		0.01		0.16	c0.17	0.00	0.08					0.00
v/c Ratio		0.03		0.74	0.82	0.02	0.13	0.60			0.49	0.01
Uniform Delay, d1		33.2		39.2	39.9	33.1	7.2	9.8			11.7	8.3
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2		0.0		10.8	19.5	0.0	0.2	0.8			0.6	0.0
Delay (s)		33.2		49.9	59.4	33.2	7.5	10.6			12.3	8.3
Level of Service		C		D	E	C	A	B			B	A
Approach Delay (s/veh)		33.2			53.2			10.6			12.2	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	106.2	Sum of lost time (s)	17.0
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

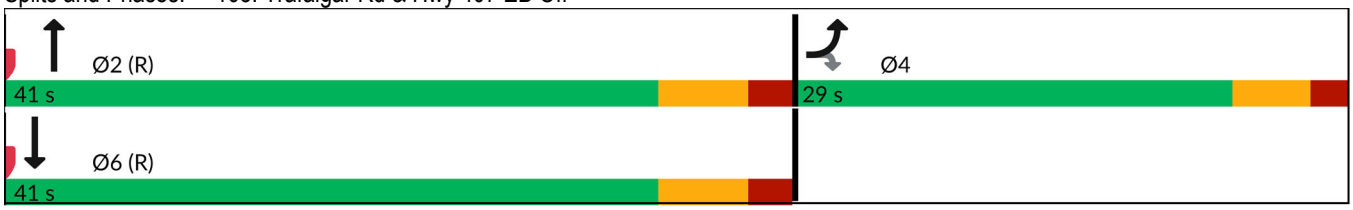


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	38	85	0	2118	1581	0
Future Volume (vph)	38	85	0	2118	1581	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1703	1429	0	5085	5085	0
Flt Permitted	0.950					
Satd. Flow (perm)	1703	1429	0	5085	5085	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		8				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			251.9	363.6	
Travel Time (s)	39.9			18.1	26.2	
Peak Hour Factor	0.75	0.94	0.25	0.94	0.92	0.25
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Adj. Flow (vph)	51	90	0	2253	1718	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	51	90	0	2253	1718	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	29.0	29.0		24.9	24.9	
Total Split (s)	29.0	29.0		41.0	41.0	
Total Split (%)	41.4%	41.4%		58.6%	58.6%	
Maximum Green (s)	23.0	23.0		34.1	34.1	
Yellow Time (s)	4.0	4.0		4.6	4.6	
All-Red Time (s)	2.0	2.0		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.9	6.9	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	23.0	23.0		34.1	34.1	
Actuated g/C Ratio	0.33	0.33		0.49	0.49	
v/c Ratio	0.09	0.19		0.91	0.69	
Control Delay (s/veh)	16.9	16.8		23.7	15.8	
Queue Delay	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay (s/veh)	16.9	16.8		23.7	15.8	
LOS	B	B		C	B	
Approach Delay (s/veh)	16.9			23.7	15.8	
Approach LOS	B			C	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 70			
Control Type: Pretimed			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay (s/veh): 20.1		Intersection LOS: C	
Intersection Capacity Utilization 55.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off

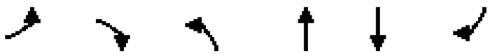




Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	51	90	2253	1718
v/c Ratio	0.09	0.19	0.91	0.69
Control Delay (s/veh)	16.9	16.8	23.7	15.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.9	16.8	23.7	15.8
Queue Length 50th (m)	4.8	7.9	98.5	63.2
Queue Length 95th (m)	9.8	18.0	#128.3	79.4
Internal Link Dist (m)	530.6		227.9	339.6
Turn Bay Length (m)				
Base Capacity (vph)	559	474	2477	2477
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.09	0.19	0.91	0.69

Intersection Summary

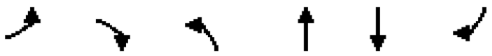
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	38	85	0	2118	1581	0
Future Volume (vph)	38	85	0	2118	1581	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.9	6.9	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1703	1429		5085	5085	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1703	1429		5085	5085	
Peak-hour factor, PHF	0.75	0.94	0.25	0.94	0.92	0.25
Adj. Flow (vph)	51	90	0	2253	1718	0
RTOR Reduction (vph)	0	5	0	0	0	0
Lane Group Flow (vph)	51	85	0	2253	1718	0
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	23.0	23.0		34.1	34.1	
Effective Green, g (s)	23.0	23.0		34.1	34.1	
Actuated g/C Ratio	0.33	0.33		0.49	0.49	
Clearance Time (s)	6.0	6.0		6.9	6.9	
Lane Grp Cap (vph)	559	469		2477	2477	
v/s Ratio Prot	0.03			c0.44	0.34	
v/s Ratio Perm		c0.06				
v/c Ratio	0.09	0.18		0.91	0.69	
Uniform Delay, d1	16.3	16.8		16.5	13.9	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.8		6.3	1.6	
Delay (s)	16.6	17.6		22.9	15.5	
Level of Service	B	B		C	B	
Approach Delay (s/veh)	17.2			22.9	15.5	
Approach LOS	B			C	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	19.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

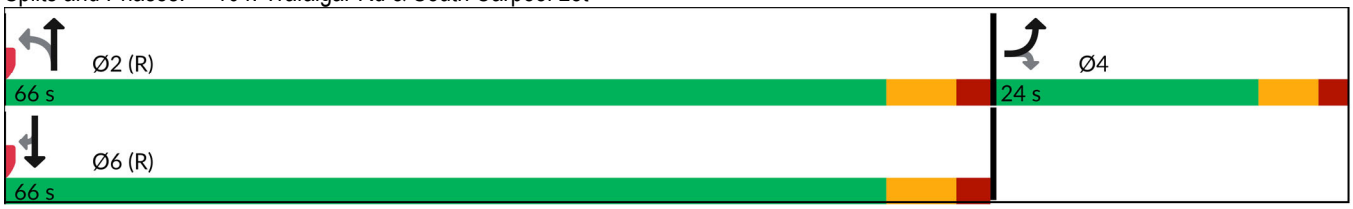


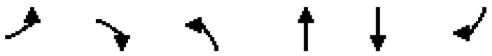
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	72	81	70	2412	1628	38
Future Volume (vph)	72	81	70	2412	1628	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	50.0			30.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5		100.0			
Lane Util. Factor	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)	1504	1455	1570	5085	5085	1615
Flt Permitted	0.950		0.095			
Satd. Flow (perm)	1504	1455	157	5085	5085	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		26				41
Link Speed (k/h)	50			80	80	
Link Distance (m)	107.1			233.3	251.9	
Travel Time (s)	7.7			10.5	11.3	
Peak Hour Factor	0.62	0.78	0.78	0.93	0.90	0.77
Heavy Vehicles (%)	20%	11%	15%	2%	2%	0%
Adj. Flow (vph)	116	104	90	2594	1809	49
Shared Lane Traffic (%)						
Lane Group Flow (vph)	116	104	90	2594	1809	49
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Minimum Split (s)	24.0	24.0	24.9	24.9	24.9	24.9
Total Split (s)	24.0	24.0	66.0	66.0	66.0	66.0
Total Split (%)	26.7%	26.7%	73.3%	73.3%	73.3%	73.3%
Maximum Green (s)	18.0	18.0	59.1	59.1	59.1	59.1
Yellow Time (s)	4.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.9	6.9	6.9	6.9
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Don't Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	18.0	18.0	59.1	59.1	59.1	59.1
Actuated g/C Ratio	0.20	0.20	0.66	0.66	0.66	0.66

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
v/c Ratio	0.39	0.33	0.87	0.78	0.54	0.05
Control Delay (s/veh)	35.7	26.7	81.0	12.9	9.0	2.3
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay (s/veh)	35.7	26.7	81.0	13.1	9.0	2.3
LOS	D	C	F	B	A	A
Approach Delay (s/veh)	31.4			15.3	8.8	
Approach LOS	C			B	A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 90			
Control Type: Pretimed			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay (s/veh): 13.5		Intersection LOS: B	
Intersection Capacity Utilization 61.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Trafalgar Rd & South Carpool Lot

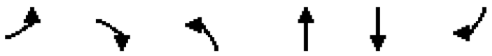




Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	116	104	90	2594	1809	49
v/c Ratio	0.39	0.33	0.87	0.78	0.54	0.05
Control Delay (s/veh)	35.7	26.7	81.0	12.9	9.0	2.3
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay (s/veh)	35.7	26.7	81.0	13.1	9.0	2.3
Queue Length 50th (m)	18.5	12.1	11.7	107.3	56.9	0.4
Queue Length 95th (m)	22.8	22.4	#36.5	127.6	68.3	3.0
Internal Link Dist (m)	83.1			209.3	227.9	
Turn Bay Length (m)			50.0			30.0
Base Capacity (vph)	300	311	103	3339	3339	1074
Starvation Cap Reductn	0	0	0	102	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.33	0.87	0.80	0.54	0.05

Intersection Summary

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



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	72	81	70	2412	1628	38
Future Volume (vph)	72	81	70	2412	1628	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.9	6.9	6.9	6.9
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)	1504	1455	1570	5085	5085	1615
Flt Permitted	0.95	1.00	0.09	1.00	1.00	1.00
Satd. Flow (perm)	1504	1455	156	5085	5085	1615
Peak-hour factor, PHF	0.62	0.78	0.78	0.93	0.90	0.77
Adj. Flow (vph)	116	104	90	2594	1809	49
RTOR Reduction (vph)	0	21	0	0	0	14
Lane Group Flow (vph)	116	83	90	2594	1809	35
Heavy Vehicles (%)	20%	11%	15%	2%	2%	0%
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	18.0	18.0	59.1	59.1	59.1	59.1
Effective Green, g (s)	18.0	18.0	59.1	59.1	59.1	59.1
Actuated g/C Ratio	0.20	0.20	0.66	0.66	0.66	0.66
Clearance Time (s)	6.0	6.0	6.9	6.9	6.9	6.9
Lane Grp Cap (vph)	300	291	102	3339	3339	1060
v/s Ratio Prot	c0.08			0.51	0.36	
v/s Ratio Perm		0.06	c0.58			0.02
v/c Ratio	0.39	0.29	0.88	0.78	0.54	0.03
Uniform Delay, d1	31.2	30.5	12.6	10.8	8.2	5.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.7	2.5	61.3	1.8	0.6	0.1
Delay (s)	34.9	33.0	73.9	12.7	8.9	5.5
Level of Service	C	C	E	B	A	A
Approach Delay (s/veh)	34.0			14.7	8.8	
Approach LOS	C			B	A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		

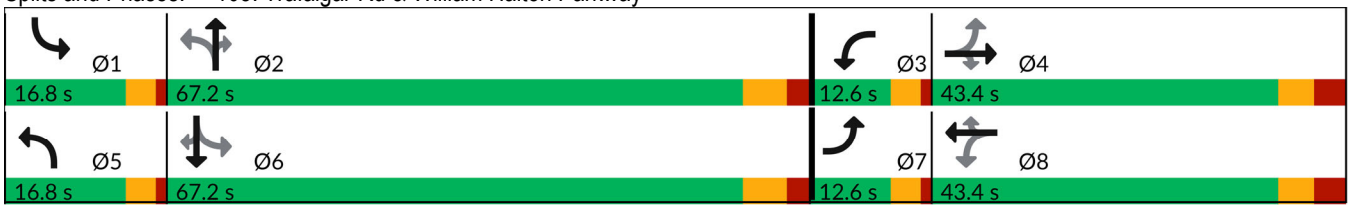
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	299	696	236	159	848	578	214	1605	44	240	1201	268
Future Volume (vph)	299	696	236	159	848	578	214	1605	44	240	1201	268
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	0.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			7.5		
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)	1770	3539	1599	1805	3610	1583	1787	5085	1615	1719	5085	1599
Flt Permitted	0.110			0.165			0.107			0.066		
Satd. Flow (perm)	205	3539	1599	314	3610	1583	201	5085	1615	119	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			188			174			94			186
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		1213.9			1579.7			285.3			233.3	
Travel Time (s)		87.4			113.7			20.5			16.8	
Peak Hour Factor	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
Adj. Flow (vph)	332	718	259	224	986	680	264	1783	70	261	1397	291
Shared Lane Traffic (%)												
Lane Group Flow (vph)	332	718	259	224	986	680	264	1783	70	261	1397	291
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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)	11.5	38.0	38.0	11.5	38.0	38.0	11.5	42.9	42.9	11.5	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	Max	Max	None	Max	Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't 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)	48.0	36.4	36.4	48.0	36.4	36.4	76.0	60.3	60.3	76.0	60.3	60.3
Actuated g/C Ratio	0.34	0.26	0.26	0.34	0.26	0.26	0.54	0.43	0.43	0.54	0.43	0.43
v/c Ratio	2.00	0.78	0.47	1.13	1.05	1.26	1.04	0.81	0.09	1.24	0.64	0.37
Control Delay (s/veh)	493.7	55.0	15.5	135.9	93.2	163.0	96.1	38.7	2.2	177.0	32.9	10.6
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 (s/veh)	493.7	55.0	15.5	135.9	93.2	163.0	96.1	38.7	2.2	177.0	32.9	10.6
LOS	F	E	B	F	F	F	F	D	A	F	C	B
Approach Delay (s/veh)		158.5			123.3			44.7			48.9	
Approach LOS		F			F			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Natural Cycle: 125			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 2.00			
Intersection Signal Delay (s/veh): 86.8		Intersection LOS: F	
Intersection Capacity Utilization 102.6%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway



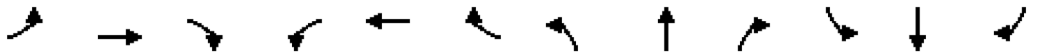


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	332	718	259	224	986	680	264	1783	70	261	1397	291
v/c Ratio	2.00	0.78	0.47	1.13	1.05	1.26	1.04	0.81	0.09	1.24	0.64	0.37
Control Delay (s/veh)	493.7	55.0	15.5	135.9	93.2	163.0	96.1	38.7	2.2	177.0	32.9	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	493.7	55.0	15.5	135.9	93.2	163.0	96.1	38.7	2.2	177.0	32.9	10.6
Queue Length 50th (m)	~133.9	102.8	16.1	~47.9	~164.4	~209.0	~54.7	164.7	0.0	~77.8	115.6	18.4
Queue Length 95th (m)	#197.7	127.3	43.1	#62.2	#192.1	#259.9	#91.5	185.4	0.0	#136.1	124.1	40.9
Internal Link Dist (m)		1189.9			1555.7			261.3			209.3	
Turn Bay Length (m)	100.0		100.0	100.0		150.0	150.0		75.0			
Base Capacity (vph)	166	920	554	199	938	540	254	2190	749	210	2190	794
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	2.00	0.78	0.47	1.13	1.05	1.26	1.04	0.81	0.09	1.24	0.64	0.37

Intersection Summary

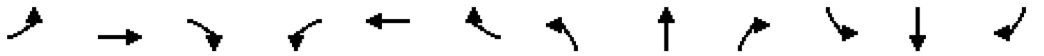
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	299	696	236	159	848	578	214	1605	44	240	1201	268
Future Volume (vph)	299	696	236	159	848	578	214	1605	44	240	1201	268
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)	1770	3539	1599	1805	3610	1583	1787	5085	1615	1719	5085	1599
Flt Permitted	0.11	1.00	1.00	0.17	1.00	1.00	0.11	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	205	3539	1599	314	3610	1583	201	5085	1615	120	5085	1599
Peak-hour factor, PHF	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Adj. Flow (vph)	332	718	259	224	986	680	264	1783	70	261	1397	291
RTOR Reduction (vph)	0	0	139	0	0	129	0	0	40	0	0	106
Lane Group Flow (vph)	332	718	120	224	986	551	264	1783	30	261	1397	185
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
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)	45.0	36.4	36.4	45.0	36.4	36.4	73.1	60.3	60.3	73.1	60.3	60.3
Effective Green, g (s)	45.0	36.4	36.4	45.0	36.4	36.4	73.1	60.3	60.3	73.1	60.3	60.3
Actuated g/C Ratio	0.32	0.26	0.26	0.32	0.26	0.26	0.52	0.43	0.43	0.52	0.43	0.43
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)	162	920	415	192	938	411	249	2190	695	208	2190	688
v/s Ratio Prot	c0.13	0.20		0.07	0.27		0.10	0.35		c0.11	0.27	
v/s Ratio Perm	c0.53		0.07	0.30		0.35	0.46		0.02	c0.54		0.12
v/c Ratio	2.05	0.78	0.29	1.17	1.05	1.34	1.06	0.81	0.04	1.25	0.64	0.27
Uniform Delay, d1	42.0	48.1	41.4	43.1	51.8	51.8	32.0	34.9	23.1	42.6	31.3	25.7
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	493.0	5.0	0.8	117.0	43.8	169.2	73.8	3.5	0.1	147.7	1.4	1.0
Delay (s)	535.0	53.1	42.3	160.2	95.6	221.0	105.8	38.4	23.2	190.4	32.7	26.6
Level of Service	F	D	D	F	F	F	F	D	C	F	C	C
Approach Delay (s/veh)		173.2			148.3			46.3			52.9	
Approach LOS		F			F			D			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	97.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.55		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.9
Intersection Capacity Utilization	102.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

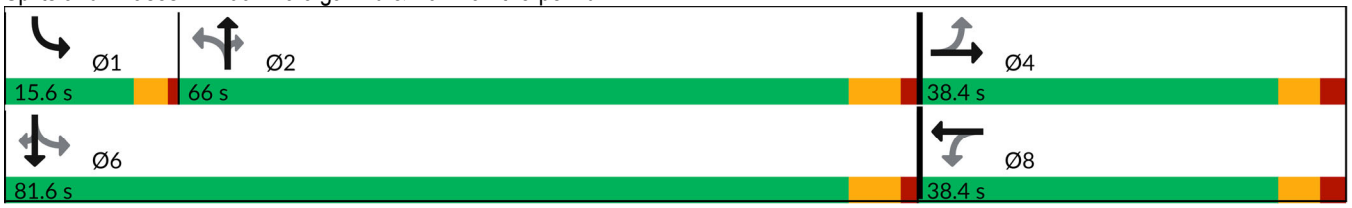


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	126	403	22	222	357	281	89	1582	131	190	1248	158
Future Volume (vph)	126	403	22	222	357	281	89	1582	131	190	1248	158
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		60.0	60.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	70.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.993			0.938				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1887	0	1805	1782	0	1805	5036	1615	1480	5085	1599
Flt Permitted	0.123			0.123			0.177			0.062		
Satd. Flow (perm)	229	1887	0	234	1782	0	336	5036	1615	97	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			29				64			95
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		828.7			989.6			1941.0			170.3	
Travel Time (s)		49.7			59.4			87.3			7.7	
Peak Hour Factor	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	1%
Adj. Flow (vph)	150	576	27	281	496	351	114	1861	193	297	1418	184
Shared Lane Traffic (%)												
Lane Group Flow (vph)	150	603	0	281	847	0	114	1861	193	297	1418	184
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		20.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	24.0	24.0		24.0	24.0		26.0	26.0	26.0	11.5	26.0	26.0
Total Split (s)	38.4	38.4		38.4	38.4		66.0	66.0	66.0	15.6	81.6	81.6
Total Split (%)	32.0%	32.0%		32.0%	32.0%		55.0%	55.0%	55.0%	13.0%	68.0%	68.0%
Maximum Green (s)	32.4	32.4		32.4	32.4		60.0	60.0	60.0	11.6	75.6	75.6
Yellow Time (s)	3.7	3.7		3.7	3.7		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.3	2.3		2.3	2.3		1.4	1.4	1.4	1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max	Max	None	Max	Max
Act Effct Green (s)	32.4	32.4		32.4	32.4		60.0	60.0	62.0	77.6	75.6	77.6
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.50	0.50	0.52	0.65	0.63	0.65
v/c Ratio	2.46	1.18		4.46	1.69		0.68	0.74	0.22	1.52	0.44	0.17
Control Delay (s/veh)	724.7	139.8		Error	346.8		46.2	26.0	11.1	283.8	11.9	4.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	724.7	139.8		Error	346.8		46.2	26.0	11.1	283.8	11.9	4.4
LOS	F	F		F	F		D	C	B	F	B	A
Approach Delay (s/veh)		256.3			660.4			25.8			53.7	
Approach LOS		F			F			C			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 4.46			
Intersection Signal Delay (s/veh): 184.2		Intersection LOS: F	
Intersection Capacity Utilization 105.1%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burnhamthorpe Rd



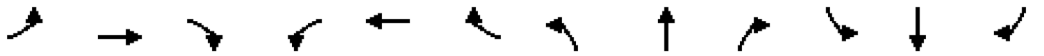


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	150	603	281	847	114	1861	193	297	1418	184
v/c Ratio	2.46	1.18	4.46	1.69	0.68	0.74	0.22	1.52	0.44	0.17
Control Delay (s/veh)	724.7	139.8	Error	346.8	46.2	26.0	11.1	283.8	11.9	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	724.7	139.8	Error	346.8	46.2	26.0	11.1	283.8	11.9	4.4
Queue Length 50th (m)	~61.4	~179.7	~115.8	~304.7	20.7	129.7	16.2	~89.2	61.4	7.6
Queue Length 95th (m)	#96.5	#166.0	#147.2	#279.0	38.5	135.5	19.4	#85.0	69.4	15.2
Internal Link Dist (m)		804.7		965.6		1917.0			146.3	
Turn Bay Length (m)	30.0		15.0		60.0		60.0	60.0		60.0
Base Capacity (vph)	61	510	63	502	168	2518	865	196	3203	1067
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	2.46	1.18	4.46	1.69	0.68	0.74	0.22	1.52	0.44	0.17

Intersection Summary

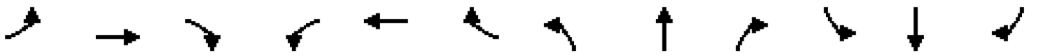
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	126	403	22	222	357	281	89	1582	131	190	1248	158
Future Volume (vph)	126	403	22	222	357	281	89	1582	131	190	1248	158
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	4.0	6.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.99		1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1887		1805	1782		1805	5036	1615	1480	5085	1599
Flt Permitted	0.12	1.00		0.12	1.00		0.18	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	230	1887		235	1782		336	5036	1615	97	5085	1599
Peak-hour factor, PHF	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Adj. Flow (vph)	150	576	27	281	496	351	114	1861	193	297	1418	184
RTOR Reduction (vph)	0	1	0	0	21	0	0	0	31	0	0	34
Lane Group Flow (vph)	150	602	0	281	826	0	114	1861	162	297	1418	150
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	32.4	32.4		32.4	32.4		60.0	60.0	60.0	75.6	75.6	75.6
Effective Green, g (s)	32.4	32.4		32.4	32.4		60.0	60.0	62.0	75.6	75.6	77.6
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.50	0.50	0.52	0.63	0.63	0.65
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	62	509		63	481		168	2518	834	194	3203	1034
v/s Ratio Prot		0.32			0.46			0.37		c0.15	0.28	
v/s Ratio Perm	0.65			c1.20			0.34		0.10	c0.81		0.09
v/c Ratio	2.42	1.18		4.46	1.72		0.68	0.74	0.19	1.53	0.44	0.15
Uniform Delay, d1	43.8	43.8		43.8	43.8		22.7	23.8	15.6	36.8	11.4	8.3
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	684.9	100.5		1593.1	331.3		19.9	2.0	0.5	263.2	0.4	0.3
Delay (s)	728.7	144.3		1636.9	375.1		42.6	25.8	16.1	300.0	11.8	8.6
Level of Service	F	F		F	F		D	C	B	F	B	A
Approach Delay (s/veh)		260.7			689.5			25.8			56.6	
Approach LOS		F			F			C			E	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	191.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.47		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	105.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

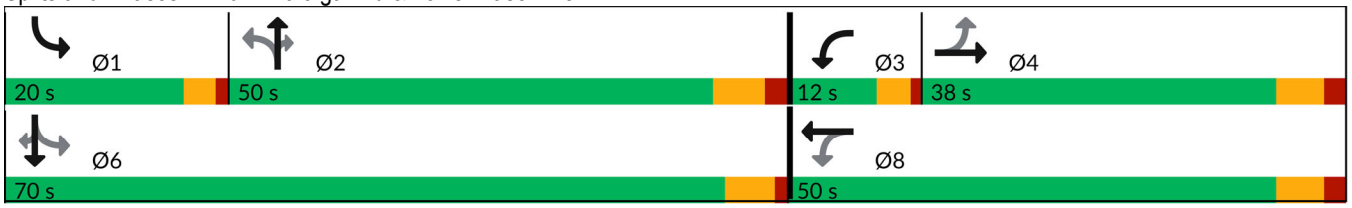


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	102	294	87	253	100	129	31	1091	201	307	1387	58
Future Volume (vph)	102	294	87	253	100	129	31	1091	201	307	1387	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		90.0	90.0		90.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.962			0.912				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1814	0	1736	1666	0	1597	4848	1568	1752	4988	1553
Flt Permitted	0.582			0.112			0.134			0.091		
Satd. Flow (perm)	1063	1814	0	205	1666	0	225	4848	1568	168	4988	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			67				226			82
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			498.3			434.3	
Travel Time (s)		38.5			41.4			22.4			19.5	
Peak Hour Factor	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Adj. Flow (vph)	121	382	128	347	120	170	43	1330	226	349	1632	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	121	510	0	347	290	0	43	1330	226	349	1632	82
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		25.0	25.0	25.0	7.0	25.0	25.0
Minimum Split (s)	22.5	22.5		11.5	22.5		31.6	31.6	31.6	11.5	30.6	30.6
Total Split (s)	38.0	38.0		12.0	50.0		50.0	50.0	50.0	20.0	70.0	70.0
Total Split (%)	31.7%	31.7%		10.0%	41.7%		41.7%	41.7%	41.7%	16.7%	58.3%	58.3%
Maximum Green (s)	31.8	31.8		8.0	43.8		43.4	43.4	43.4	16.0	64.4	64.4
Yellow Time (s)	4.2	4.2		3.0	4.2		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	Max
Act Effct Green (s)	31.8	31.8		46.0	43.8		43.4	43.4	43.4	66.0	64.4	64.4
Actuated g/C Ratio	0.27	0.27		0.38	0.37		0.36	0.36	0.36	0.55	0.54	0.54
v/c Ratio	0.43	1.04		1.93	0.45		0.53	0.76	0.32	1.15	0.61	0.09
Control Delay (s/veh)	42.3	93.2		459.4	24.4		57.6	37.1	4.6	130.4	20.4	3.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	42.3	93.2		459.4	24.4		57.6	37.1	4.6	130.4	20.4	3.1
LOS	D	F		F	C		E	D	A	F	C	A
Approach Delay (s/veh)		83.4			261.3			33.1			38.3	
Approach LOS		F			F			C			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.93			
Intersection Signal Delay (s/veh): 71.2		Intersection LOS: E	
Intersection Capacity Utilization 101.1%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line



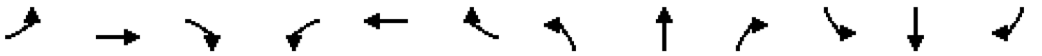


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	121	510	347	290	43	1330	226	349	1632	82
v/c Ratio	0.43	1.04	1.93	0.45	0.53	0.76	0.32	1.15	0.61	0.09
Control Delay (s/veh)	42.3	93.2	459.4	24.4	57.6	37.1	4.6	130.4	20.4	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	42.3	93.2	459.4	24.4	57.6	37.1	4.6	130.4	20.4	3.1
Queue Length 50th (m)	25.0	~133.9	~116.5	41.0	8.3	105.3	0.0	~83.5	97.9	0.0
Queue Length 95th (m)	40.9	#154.3	#131.8	59.1	17.0	108.6	15.9	#139.1	103.9	3.8
Internal Link Dist (m)		725.3		666.6		474.3			410.3	
Turn Bay Length (m)	45.0		110.0		90.0		90.0	90.0		90.0
Base Capacity (vph)	281	491	180	650	81	1753	711	303	2676	871
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	0.43	1.04	1.93	0.45	0.53	0.76	0.32	1.15	0.61	0.09

Intersection Summary

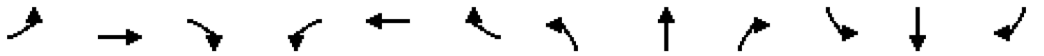
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	102	294	87	253	100	129	31	1091	201	307	1387	58
Future Volume (vph)	102	294	87	253	100	129	31	1091	201	307	1387	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	1815		1736	1666		1597	4848	1568	1752	4988	1553
Flt Permitted	0.58	1.00		0.11	1.00		0.13	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	1064	1815		204	1666		226	4848	1568	167	4988	1553
Peak-hour factor, PHF	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Adj. Flow (vph)	121	382	128	347	120	170	43	1330	226	349	1632	82
RTOR Reduction (vph)	0	10	0	0	43	0	0	0	144	0	0	38
Lane Group Flow (vph)	121	500	0	347	247	0	43	1330	82	349	1632	44
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	31.8	31.8		43.8	43.8		43.4	43.4	43.4	64.4	64.4	64.4
Effective Green, g (s)	31.8	31.8		43.8	43.8		43.4	43.4	43.4	64.4	64.4	64.4
Actuated g/C Ratio	0.27	0.27		0.37	0.37		0.36	0.36	0.36	0.54	0.54	0.54
Clearance Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Lane Grp Cap (vph)	281	480		176	608		81	1753	567	300	2676	833
v/s Ratio Prot		0.28		c0.13	0.15			0.27		c0.15	0.33	
v/s Ratio Perm	0.11			c0.59			0.19		0.05	c0.47		0.03
v/c Ratio	0.43	1.04		1.97	0.41		0.53	0.76	0.14	1.16	0.61	0.05
Uniform Delay, d1	36.6	44.1		33.1	28.4		30.3	33.7	25.8	35.2	19.1	13.3
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	2.2	52.2		457.1	0.9		22.7	3.1	0.5	103.8	1.0	0.1
Delay (s)	38.8	96.3		490.2	29.3		53.0	36.8	26.3	138.9	20.2	13.4
Level of Service	D	F		F	C		D	D	C	F	C	B
Approach Delay (s/veh)		85.2			280.4			35.8			40.0	
Approach LOS		F			F			D			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	75.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	101.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

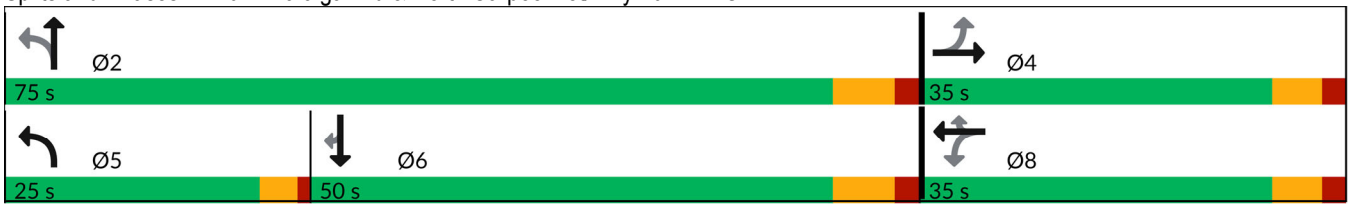


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	10	190	2	6	8	1314	0	0	1725	2
Future Volume (vph)	3	0	10	190	2	6	8	1314	0	0	1725	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.891			0.999	0.850						0.850
Flt Protected		0.990		0.950	0.954		0.950					
Satd. Flow (prot)	0	1474	0	1545	1469	1534	1543	4893	0	0	4988	1615
Flt Permitted		0.934		0.730	0.704		0.064					
Satd. Flow (perm)	0	1391	0	1187	1084	1534	104	4893	0	0	4988	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		79				79						69
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			232.3	
Travel Time (s)		9.6			41.3			26.2			16.7	
Peak Hour Factor	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Adj. Flow (vph)	8	0	33	247	4	14	27	1428	0	0	1983	8
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	0	41	0	126	126	13	27	1428	0	0	1983	8
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	4.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	27.0			27.0	27.0
Total Split (s)	35.0	35.0		35.0	35.0	35.0	25.0	75.0			50.0	50.0
Total Split (%)	31.8%	31.8%		31.8%	31.8%	31.8%	22.7%	68.2%			45.5%	45.5%
Maximum Green (s)	29.0	29.0		29.0	29.0	29.0	21.0	68.0			43.0	43.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0			2.0	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	4.0	7.0			7.0	7.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	None	Max			Max	Max
Act Effct Green (s)		17.0		17.0	17.0	17.0	71.3	68.2			62.5	62.5
Actuated g/C Ratio		0.17		0.17	0.17	0.17	0.73	0.69			0.64	0.64
v/c Ratio		0.13		0.61	0.67	0.04	0.17	0.42			0.63	0.01
Control Delay (s/veh)		2.4		50.5	55.7	0.2	7.5	7.5			13.8	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		2.4		50.5	55.7	0.2	7.5	7.5			13.8	0.0
LOS		A		D	E	A	A	A			B	A
Approach Delay (s/veh)		2.4			50.5			7.5			13.7	
Approach LOS		A			D			A			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 98.3			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay (s/veh): 13.8		Intersection LOS: B	
Intersection Capacity Utilization 56.2%		ICU Level of Service B	
Analysis Period (min) 15			

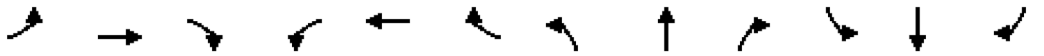
Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off





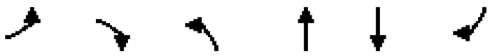
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	41	126	126	13	27	1428	1983	8
v/c Ratio	0.13	0.61	0.67	0.04	0.17	0.42	0.63	0.01
Control Delay (s/veh)	2.4	50.5	55.7	0.2	7.5	7.5	13.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	2.4	50.5	55.7	0.2	7.5	7.5	13.8	0.0
Queue Length 50th (m)	0.0	24.7	26.1	0.0	1.3	39.3	89.3	0.0
Queue Length 95th (m)	0.0	37.0	24.0	0.0	1.6	64.1	127.4	0.0
Internal Link Dist (m)	110.0		550.1			339.6	208.3	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	467	351	321	510	384	3397	3172	1052
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	0.36	0.39	0.03	0.07	0.42	0.63	0.01

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	10	190	2	6	8	1314	0	0	1725	2
Future Volume (vph)	3	0	10	190	2	6	8	1314	0	0	1725	2
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	4.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.91			0.91	1.00
Frt		0.89		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1475		1545	1469	1534	1543	4893			4988	1615
Flt Permitted		0.93		0.73	0.70	1.00	0.06	1.00			1.00	1.00
Satd. Flow (perm)		1391		1188	1085	1534	104	4893			4988	1615
Peak-hour factor, PHF	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Adj. Flow (vph)	8	0	33	247	4	14	27	1428	0	0	1983	8
RTOR Reduction (vph)	0	34	0	0	0	11	0	0	0	0	0	3
Lane Group Flow (vph)	0	7	0	126	126	2	27	1428	0	0	1983	5
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		17.0		17.0	17.0	17.0	69.9	69.9			62.5	62.5
Effective Green, g (s)		17.0		17.0	17.0	17.0	69.9	69.9			62.5	62.5
Actuated g/C Ratio		0.17		0.17	0.17	0.17	0.70	0.70			0.63	0.63
Clearance Time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Lane Grp Cap (vph)		236		202	184	261	121	3423			3120	1010
v/s Ratio Prot							0.01	c0.29			c0.40	
v/s Ratio Perm		0.01		0.11	c0.12	0.00	0.15					0.00
v/c Ratio		0.03		0.62	0.68	0.01	0.22	0.42			0.64	0.00
Uniform Delay, d1		34.6		38.5	38.9	34.4	7.6	6.4			11.6	7.0
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2		0.1		6.2	10.5	0.0	0.7	0.4			1.0	0.0
Delay (s)		34.6		44.6	49.4	34.5	8.3	6.7			12.6	7.0
Level of Service		C		D	D	C	A	A			B	A
Approach Delay (s/veh)		34.6			46.4			6.8			12.6	
Approach LOS		C			D			A			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	99.9	Sum of lost time (s)	17.0
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

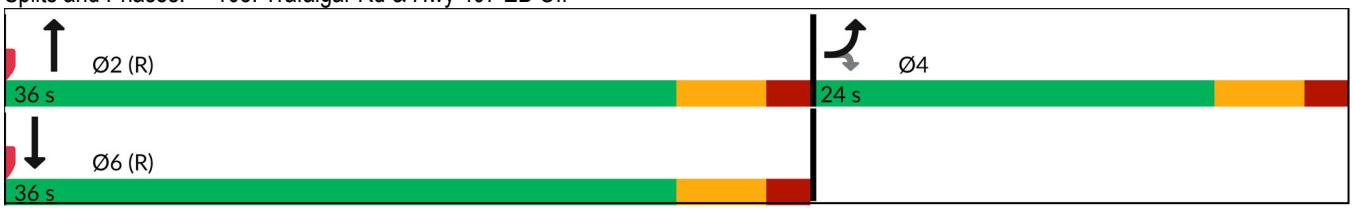


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	73	131	0	1387	1829	0
Future Volume (vph)	73	131	0	1387	1829	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1671	1392	0	4848	4940	0
Flt Permitted	0.950					
Satd. Flow (perm)	1671	1392	0	4848	4940	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		3				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			120.3	363.6	
Travel Time (s)	39.9			8.7	26.2	
Peak Hour Factor	0.79	0.78	0.25	0.85	0.86	0.25
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Adj. Flow (vph)	92	168	0	1632	2127	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	92	168	0	1632	2127	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	24.0	24.0		24.0	24.0	
Total Split (s)	24.0	24.0		36.0	36.0	
Total Split (%)	40.0%	40.0%		60.0%	60.0%	
Maximum Green (s)	18.0	18.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	18.0	18.0		30.0	30.0	
Actuated g/C Ratio	0.30	0.30		0.50	0.50	
v/c Ratio	0.18	0.40		0.67	0.86	
Control Delay (s/veh)	16.8	19.9		13.1	18.1	
Queue Delay	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay (s/veh)	16.8	19.9		13.1	18.1	
LOS	B	B		B	B	
Approach Delay (s/veh)	18.8			13.1	18.1	
Approach LOS	B			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Pretimed			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay (s/veh): 16.1		Intersection LOS: B	
Intersection Capacity Utilization 53.5%		ICU Level of Service A	
Analysis Period (min) 15			

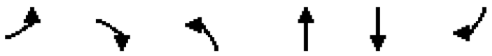
Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off





Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	92	168	1632	2127
v/c Ratio	0.18	0.40	0.67	0.86
Control Delay (s/veh)	16.8	19.9	13.1	18.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.8	19.9	13.1	18.1
Queue Length 50th (m)	7.8	15.0	48.1	72.9
Queue Length 95th (m)	15.0	25.2	57.2	86.5
Internal Link Dist (m)	530.6		96.3	339.6
Turn Bay Length (m)				
Base Capacity (vph)	501	419	2424	2470
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.18	0.40	0.67	0.86

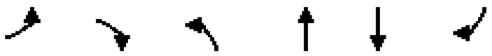
Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	73	131	0	1387	1829	0
Future Volume (vph)	73	131	0	1387	1829	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1671	1392		4848	4940	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1671	1392		4848	4940	
Peak-hour factor, PHF	0.79	0.78	0.25	0.85	0.86	0.25
Adj. Flow (vph)	92	168	0	1632	2127	0
RTOR Reduction (vph)	0	2	0	0	0	0
Lane Group Flow (vph)	92	166	0	1632	2127	0
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	18.0	18.0		30.0	30.0	
Effective Green, g (s)	18.0	18.0		30.0	30.0	
Actuated g/C Ratio	0.30	0.30		0.50	0.50	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	501	417		2424	2470	
v/s Ratio Prot	0.06			0.34	c0.43	
v/s Ratio Perm		c0.12				
v/c Ratio	0.18	0.40		0.67	0.86	
Uniform Delay, d1	15.6	16.7		11.3	13.2	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	2.8		1.5	4.2	
Delay (s)	16.4	19.5		12.8	17.4	
Level of Service	B	B		B	B	
Approach Delay (s/veh)	18.4			12.8	17.4	
Approach LOS	B			B	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



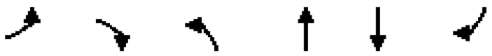
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	64	73	85	1726	1890	70
Future Volume (vph)	64	73	85	1726	1890	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	50.0			30.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5		100.0			
Lane Util. Factor	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)	1337	1404	1570	4940	4940	1615
Flt Permitted	0.950		0.102			
Satd. Flow (perm)	1337	1404	169	4940	4940	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		6				58
Link Speed (k/h)	50			80	80	
Link Distance (m)	107.1			233.3	131.6	
Travel Time (s)	7.7			10.5	5.9	
Peak Hour Factor	0.87	0.83	0.88	0.91	0.89	0.85
Heavy Vehicles (%)	35%	15%	15%	5%	5%	0%
Adj. Flow (vph)	74	88	97	1897	2124	82
Shared Lane Traffic (%)						
Lane Group Flow (vph)	74	88	97	1897	2124	82
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Minimum Split (s)	24.0	24.0	24.9	24.9	24.9	24.9
Total Split (s)	24.0	24.0	46.0	46.0	46.0	46.0
Total Split (%)	34.3%	34.3%	65.7%	65.7%	65.7%	65.7%
Maximum Green (s)	18.0	18.0	39.1	39.1	39.1	39.1
Yellow Time (s)	4.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.9	6.9	6.9	6.9
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Don't Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	18.0	18.0	39.1	39.1	39.1	39.1
Actuated g/C Ratio	0.26	0.26	0.56	0.56	0.56	0.56

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
v/c Ratio	0.22	0.24	1.03	0.69	0.77	0.09
Control Delay (s/veh)	22.5	21.5	128.2	12.7	14.4	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.5	21.5	128.2	12.7	14.4	3.5
LOS	C	C	F	B	B	A
Approach Delay (s/veh)	22.0			18.3	14.0	
Approach LOS	C			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Pretimed			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay (s/veh): 16.3		Intersection LOS: B	
Intersection Capacity Utilization 61.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Trafalgar Rd & South Carpool Lot



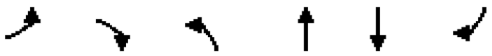


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	74	88	97	1897	2124	82
v/c Ratio	0.22	0.24	1.03	0.69	0.77	0.09
Control Delay (s/veh)	22.5	21.5	128.2	12.7	14.4	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.5	21.5	128.2	12.7	14.4	3.5
Queue Length 50th (m)	8.0	8.9	~13.4	62.4	75.6	1.4
Queue Length 95th (m)	17.5	18.3	#28.7	78.4	92.8	6.1
Internal Link Dist (m)	83.1			209.3	107.6	
Turn Bay Length (m)			50.0			30.0
Base Capacity (vph)	343	365	94	2759	2759	927
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	0.22	0.24	1.03	0.69	0.77	0.09

Intersection Summary

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

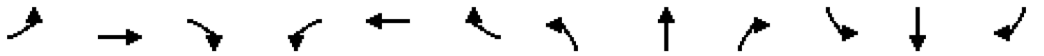
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	64	73	85	1726	1890	70
Future Volume (vph)	64	73	85	1726	1890	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.9	6.9	6.9	6.9
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)	1337	1404	1570	4940	4940	1615
Flt Permitted	0.95	1.00	0.10	1.00	1.00	1.00
Satd. Flow (perm)	1337	1404	169	4940	4940	1615
Peak-hour factor, PHF	0.87	0.83	0.88	0.91	0.89	0.85
Adj. Flow (vph)	74	88	97	1897	2124	82
RTOR Reduction (vph)	0	4	0	0	0	26
Lane Group Flow (vph)	74	84	97	1897	2124	56
Heavy Vehicles (%)	35%	15%	15%	5%	5%	0%
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	18.0	18.0	39.1	39.1	39.1	39.1
Effective Green, g (s)	18.0	18.0	39.1	39.1	39.1	39.1
Actuated g/C Ratio	0.26	0.26	0.56	0.56	0.56	0.56
Clearance Time (s)	6.0	6.0	6.9	6.9	6.9	6.9
Lane Grp Cap (vph)	343	361	94	2759	2759	902
v/s Ratio Prot	0.06			0.38	0.43	
v/s Ratio Perm		c0.06	c0.57			0.03
v/c Ratio	0.22	0.23	1.03	0.69	0.77	0.06
Uniform Delay, d1	20.4	20.5	15.5	11.1	12.0	7.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.4	1.5	101.8	1.4	2.1	0.1
Delay (s)	21.9	22.0	117.2	12.5	14.1	7.2
Level of Service	C	C	F	B	B	A
Approach Delay (s/veh)	22.0			17.6	13.8	
Approach LOS	C			B	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

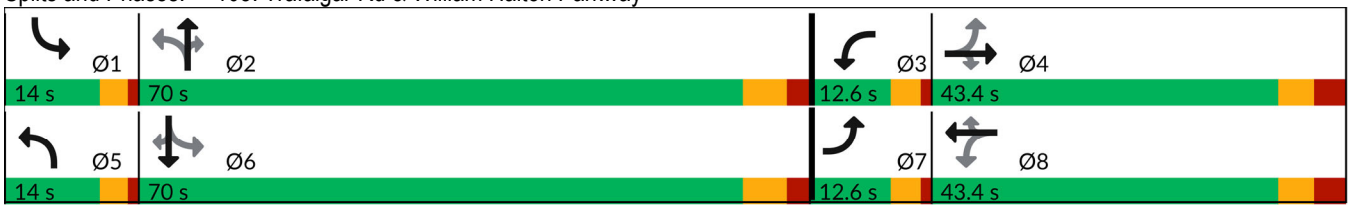


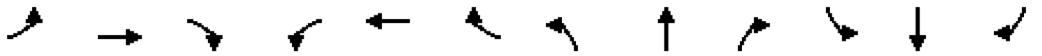
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	217	818	216	167	675	251	257	1343	57	383	1246	335
Future Volume (vph)	217	818	216	167	675	251	257	1343	57	383	1246	335
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	0.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			7.5		
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)	1787	3574	1599	1687	3574	1429	1703	4988	1615	1770	4893	1538
Flt Permitted	0.110			0.110			0.116			0.095		
Satd. Flow (perm)	207	3574	1599	195	3574	1429	208	4988	1615	177	4893	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			151			145			94			187
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		443.3			449.5			285.3			233.3	
Travel Time (s)		31.9			32.4			20.5			16.8	
Peak Hour Factor	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
Adj. Flow (vph)	255	899	260	223	865	335	299	1492	68	467	1384	390
Shared Lane Traffic (%)												
Lane Group Flow (vph)	255	899	260	223	865	335	299	1492	68	467	1384	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)		3.6			3.6			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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)	11.5	38.0	38.0	11.5	38.0	38.0	11.5	42.9	42.9	11.5	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	-2.9	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	4.0	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	Max	Max	None	Max	Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't 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)	48.0	36.4	36.4	48.0	36.4	36.4	76.0	63.1	66.0	76.0	63.1	63.1
Actuated g/C Ratio	0.34	0.26	0.26	0.34	0.26	0.26	0.54	0.45	0.47	0.54	0.45	0.45
v/c Ratio	1.52	0.97	0.49	1.41	0.93	0.70	1.37	0.66	0.08	2.23	0.63	0.49
Control Delay (s/veh)	288.6	73.7	21.3	247.1	67.5	34.8	214.0	31.9	1.8	590.7	31.0	15.6
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 (s/veh)	288.6	73.7	21.3	247.1	67.5	34.8	214.0	31.9	1.8	590.7	31.0	15.6
LOS	F	E	C	F	E	C	F	C	A	F	C	B
Approach Delay (s/veh)		102.8			88.0			60.1			145.0	
Approach LOS		F			F			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Natural Cycle: 125			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 2.23			
Intersection Signal Delay (s/veh): 101.9		Intersection LOS: F	
Intersection Capacity Utilization 97.3%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway



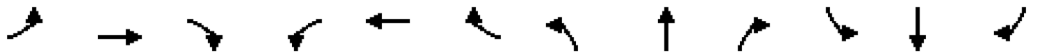


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	255	899	260	223	865	335	299	1492	68	467	1384	390
v/c Ratio	1.52	0.97	0.49	1.41	0.93	0.70	1.37	0.66	0.08	2.23	0.63	0.49
Control Delay (s/veh)	288.6	73.7	21.3	247.1	67.5	34.8	214.0	31.9	1.8	590.7	31.0	15.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	288.6	73.7	21.3	247.1	67.5	34.8	214.0	31.9	1.8	590.7	31.0	15.6
Queue Length 50th (m)	~86.0	137.1	25.8	~70.4	130.2	51.3	~84.6	122.9	0.0	~195.2	111.4	39.5
Queue Length 95th (m)	#132.0	#181.2	45.8	#93.7	130.5	61.9	#134.9	140.1	3.2	#234.5	127.9	62.7
Internal Link Dist (m)		419.3			425.5			261.3			209.3	
Turn Bay Length (m)	100.0		100.0	100.0		150.0	150.0		75.0			
Base Capacity (vph)	168	929	527	158	929	478	219	2248	811	209	2205	795
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	1.52	0.97	0.49	1.41	0.93	0.70	1.37	0.66	0.08	2.23	0.63	0.49

Intersection Summary

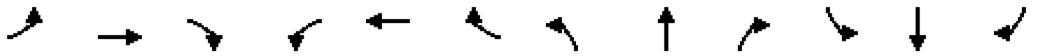
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	217	818	216	167	675	251	257	1343	57	383	1246	335
Future Volume (vph)	217	818	216	167	675	251	257	1343	57	383	1246	335
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	4.0	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)	1787	3574	1599	1687	3574	1429	1703	4988	1615	1770	4893	1538
Flt Permitted	0.11	1.00	1.00	0.11	1.00	1.00	0.12	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	207	3574	1599	195	3574	1429	208	4988	1615	176	4893	1538
Peak-hour factor, PHF	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Adj. Flow (vph)	255	899	260	223	865	335	299	1492	68	467	1384	390
RTOR Reduction (vph)	0	0	112	0	0	107	0	0	36	0	0	103
Lane Group Flow (vph)	255	899	148	223	865	228	299	1492	32	467	1384	287
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
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)	45.0	36.4	36.4	45.0	36.4	36.4	73.1	63.1	63.1	73.1	63.1	63.1
Effective Green, g (s)	45.0	36.4	36.4	45.0	36.4	36.4	73.1	63.1	66.0	73.1	63.1	63.1
Actuated g/C Ratio	0.32	0.26	0.26	0.32	0.26	0.26	0.52	0.45	0.47	0.52	0.45	0.45
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)	163	929	415	154	929	371	215	2248	761	205	2205	693
v/s Ratio Prot	c0.10	0.25		0.09	0.24		0.10	0.30		c0.16	0.28	
v/s Ratio Perm	c0.41		0.09	0.38		0.16	0.63		0.02	c1.02		0.19
v/c Ratio	1.56	0.97	0.36	1.45	0.93	0.61	1.39	0.66	0.04	2.28	0.63	0.41
Uniform Delay, d1	41.2	51.2	42.3	41.6	50.6	45.6	25.0	30.1	20.0	30.1	29.5	26.0
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	281.6	22.1	1.1	234.2	16.0	4.3	201.8	1.6	0.1	590.4	1.4	1.8
Delay (s)	322.8	73.3	43.4	275.7	66.6	49.9	226.8	31.7	20.1	620.5	30.8	27.8
Level of Service	F	E	D	F	E	D	F	C	C	F	C	C
Approach Delay (s/veh)		112.8			95.5			62.7			153.2	
Approach LOS		F			F			E			F	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	108.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.00		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.9
Intersection Capacity Utilization	97.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

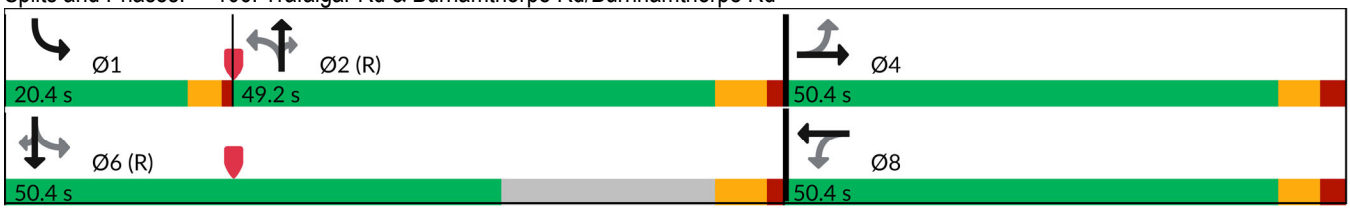


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	208	323	130	203	114	28	63	1483	112	48	1533	49
Future Volume (vph)	208	323	130	203	114	28	63	1483	112	48	1533	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		60.0	60.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	70.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.957			0.956				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1803	0	1770	1816	0	1703	4988	1615	1752	4940	1495
Flt Permitted	0.535			0.152			0.132			0.085		
Satd. Flow (perm)	987	1803	0	283	1816	0	237	4988	1615	157	4940	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			20				90			54
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		828.7			989.6			1077.8			170.3	
Travel Time (s)		49.7			59.4			48.5			7.7	
Peak Hour Factor	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
Adj. Flow (vph)	248	409	165	333	168	70	91	1612	130	74	1648	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	248	574	0	333	238	0	91	1612	130	74	1648	58
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Minimum Split (s)	24.0	24.0		24.0	24.0		26.0	26.0	26.0	11.5	26.0	26.0
Total Split (s)	50.4	50.4		50.4	50.4		49.2	49.2	49.2	20.4	50.4	50.4
Total Split (%)	42.0%	42.0%		42.0%	42.0%		41.0%	41.0%	41.0%	17.0%	42.0%	42.0%
Maximum Green (s)	44.4	44.4		44.4	44.4		43.2	43.2	43.2	16.4	44.4	44.4
Yellow Time (s)	3.7	3.7		3.7	3.7		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.3	2.3		2.3	2.3		1.4	1.4	1.4	1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Act Effct Green (s)	44.4	44.4		44.4	44.4		43.2	43.2	45.2	65.6	63.6	65.6
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.36	0.36	0.38	0.55	0.53	0.55
v/c Ratio	0.68	0.85		3.20	0.35		1.07	0.90	0.20	0.24	0.63	0.07
Control Delay (s/veh)	42.9	47.0		Error	26.7		157.7	44.2	9.8	15.0	21.2	4.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (s/veh)	42.9	47.0		Error	26.7		157.7	44.2	9.8	15.0	21.2	4.0
LOS	D	D		F	C		F	D	A	B	C	A
Approach Delay (s/veh)		45.8			613.0			47.4			20.4	
Approach LOS		D			F			D			C	

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: Pretimed			
Maximum v/c Ratio: 3.20			
Intersection Signal Delay (s/veh): 102.1		Intersection LOS: F	
Intersection Capacity Utilization 102.4%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burhamthorpe Rd/Burnhamthorpe Rd



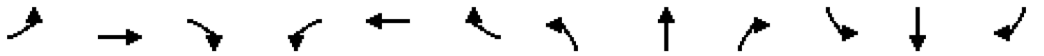


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	248	574	333	238	91	1612	130	74	1648	58
v/c Ratio	0.68	0.85	3.20	0.35	1.07	0.90	0.20	0.24	0.63	0.07
Control Delay (s/veh)	42.9	47.0	Error	26.7	157.7	44.2	9.8	15.0	21.2	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	42.9	47.0	Error	26.7	157.7	44.2	9.8	15.0	21.2	4.0
Queue Length 50th (m)	51.2	126.3	~121.3	38.5	~24.9	137.3	6.3	8.3	101.5	0.4
Queue Length 95th (m)	76.1	143.5	#105.6	42.2	#40.9	159.1	18.1	11.3	117.6	5.9
Internal Link Dist (m)		804.7		965.6		1053.8			146.3	
Turn Bay Length (m)	30.0		15.0		60.0		60.0	60.0		60.0
Base Capacity (vph)	365	677	104	684	85	1795	664	303	2618	841
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.85	3.20	0.35	1.07	0.90	0.20	0.24	0.63	0.07

Intersection Summary

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

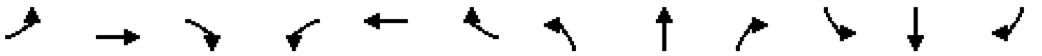
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	208	323	130	203	114	28	63	1483	112	48	1533	49
Future Volume (vph)	208	323	130	203	114	28	63	1483	112	48	1533	49
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	4.0	6.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	1803		1770	1816		1703	4988	1615	1752	4940	1495
Flt Permitted	0.53	1.00		0.15	1.00		0.13	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	986	1803		282	1816		236	4988	1615	156	4940	1495
Peak-hour factor, PHF	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Adj. Flow (vph)	248	409	165	333	168	70	91	1612	130	74	1648	58
RTOR Reduction (vph)	0	10	0	0	13	0	0	0	56	0	0	24
Lane Group Flow (vph)	248	564	0	333	225	0	91	1612	74	74	1648	34
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	44.4	44.4		44.4	44.4		43.2	43.2	43.2	63.6	63.6	63.6
Effective Green, g (s)	44.4	44.4		44.4	44.4		43.2	43.2	45.2	63.6	63.6	65.6
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.36	0.36	0.38	0.53	0.53	0.55
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	4.0	6.0	6.0
Lane Grp Cap (vph)	364	667		104	671		84	1795	608	300	2618	817
v/s Ratio Prot		0.31			0.12			0.32		0.03	c0.33	
v/s Ratio Perm	0.25			c1.18			c0.39		0.05	0.10		0.02
v/c Ratio	0.68	0.85		3.20	0.34		1.08	0.90	0.12	0.25	0.63	0.04
Uniform Delay, d1	31.8	34.7		37.8	27.2		38.4	36.3	24.4	19.8	19.9	12.6
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	9.9	12.5		1015.4	1.4		122.7	7.6	0.4	2.0	1.2	0.1
Delay (s)	41.7	47.2		1053.2	28.5		161.1	43.9	24.8	21.7	21.0	12.7
Level of Service	D	D		F	C		F	D	C	C	C	B
Approach Delay (s/veh)		45.5			626.1			48.4			20.8	
Approach LOS		D			F			D			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	104.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	102.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

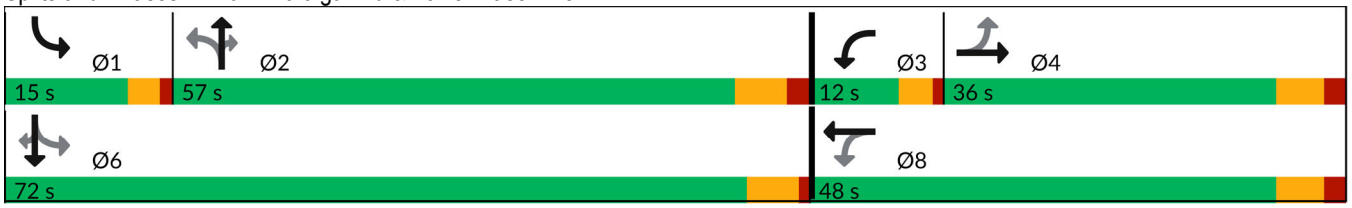


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	221	43	224	280	301	208	1597	260	170	1209	57
Future Volume (vph)	61	221	43	224	280	301	208	1597	260	170	1209	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		90.0	90.0		90.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.965			0.924				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1834	0	1770	1738	0	1805	5036	1599	1752	5085	1615
Flt Permitted	0.134			0.242			0.194			0.072		
Satd. Flow (perm)	250	1834	0	451	1738	0	369	5036	1599	133	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			48				310			90
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			728.6			888.2	
Travel Time (s)		38.5			41.4			32.8			40.0	
Peak Hour Factor	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Adj. Flow (vph)	79	263	80	236	354	367	234	1664	310	191	1329	90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	79	343	0	236	721	0	234	1664	310	191	1329	90
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		25.0	25.0	25.0	7.0	25.0	25.0
Minimum Split (s)	22.5	22.5		11.5	22.5		31.6	31.6	31.6	11.5	30.6	30.6
Total Split (s)	36.0	36.0		12.0	48.0		57.0	57.0	57.0	15.0	72.0	72.0
Total Split (%)	30.0%	30.0%		10.0%	40.0%		47.5%	47.5%	47.5%	12.5%	60.0%	60.0%
Maximum Green (s)	29.8	29.8		8.0	41.8		50.4	50.4	50.4	11.0	66.4	66.4
Yellow Time (s)	4.2	4.2		3.0	4.2		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	Max
Act Effct Green (s)	29.8	29.8		44.0	41.8		50.4	50.4	50.4	68.0	66.4	66.4
Actuated g/C Ratio	0.25	0.25		0.37	0.35		0.42	0.42	0.42	0.57	0.55	0.55
v/c Ratio	1.27	0.74		0.93	1.13		1.52	0.79	0.36	0.86	0.47	0.10
Control Delay (s/veh)	243.7	50.9		74.4	113.0		292.6	33.5	3.7	59.8	16.9	2.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	243.7	50.9		74.4	113.0		292.6	33.5	3.7	59.8	16.9	2.8
LOS	F	D		E	F		F	C	A	E	B	A
Approach Delay (s/veh)		87.0			103.5			56.8			21.2	
Approach LOS		F			F			E			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 80			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.52			
Intersection Signal Delay (s/veh): 56.8		Intersection LOS: E	
Intersection Capacity Utilization 106.2%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line



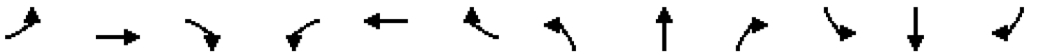


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	79	343	236	721	234	1664	310	191	1329	90
v/c Ratio	1.27	0.74	0.93	1.13	1.52	0.79	0.36	0.86	0.47	0.10
Control Delay (s/veh)	243.7	50.9	74.4	113.0	292.6	33.5	3.7	59.8	16.9	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	243.7	50.9	74.4	113.0	292.6	33.5	3.7	59.8	16.9	2.8
Queue Length 50th (m)	~24.8	76.0	42.4	~200.1	~80.7	128.7	0.0	30.2	69.7	0.0
Queue Length 95th (m)	#46.9	101.3	#90.2	#221.1	#130.8	148.6	12.5	#70.9	81.8	2.2
Internal Link Dist (m)		725.3		666.6		704.6			864.2	
Turn Bay Length (m)	45.0		110.0		90.0		90.0	90.0		90.0
Base Capacity (vph)	62	464	253	636	154	2115	851	223	2813	933
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.27	0.74	0.93	1.13	1.52	0.79	0.36	0.86	0.47	0.10

Intersection Summary

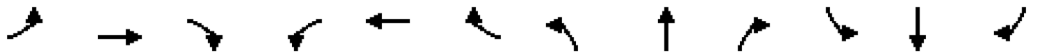
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	221	43	224	280	301	208	1597	260	170	1209	57
Future Volume (vph)	61	221	43	224	280	301	208	1597	260	170	1209	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.97		1.00	0.92		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1834		1770	1738		1805	5036	1599	1752	5085	1615
Flt Permitted	0.13	1.00		0.24	1.00		0.19	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	250	1834		451	1738		369	5036	1599	133	5085	1615
Peak-hour factor, PHF	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Adj. Flow (vph)	79	263	80	236	354	367	234	1664	310	191	1329	90
RTOR Reduction (vph)	0	9	0	0	31	0	0	0	180	0	0	40
Lane Group Flow (vph)	79	334	0	236	690	0	234	1664	130	191	1329	50
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	29.8	29.8		41.8	41.8		50.4	50.4	50.4	66.4	66.4	66.4
Effective Green, g (s)	29.8	29.8		41.8	41.8		50.4	50.4	50.4	66.4	66.4	66.4
Actuated g/C Ratio	0.25	0.25		0.35	0.35		0.42	0.42	0.42	0.55	0.55	0.55
Clearance Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Lane Grp Cap (vph)	62	455		245	605		154	2115	671	222	2813	893
v/s Ratio Prot		0.18		0.06	c0.40			0.33		c0.08	0.26	
v/s Ratio Perm	c0.32			0.27			c0.63		0.08	0.40		0.03
v/c Ratio	1.27	0.73		0.96	1.14		1.52	0.79	0.19	0.86	0.47	0.06
Uniform Delay, d1	45.1	41.5		37.2	39.1		34.8	30.1	22.0	31.2	16.2	12.4
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	204.7	7.3		46.7	81.7		264.0	3.0	0.6	32.8	0.6	0.1
Delay (s)	249.8	48.8		83.9	120.8		298.8	33.2	22.6	64.0	16.8	12.5
Level of Service	F	D		F	F		F	C	C	E	B	B
Approach Delay (s/veh)		86.4			111.7			59.9			22.1	
Approach LOS		F			F			E			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	59.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.35		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	106.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

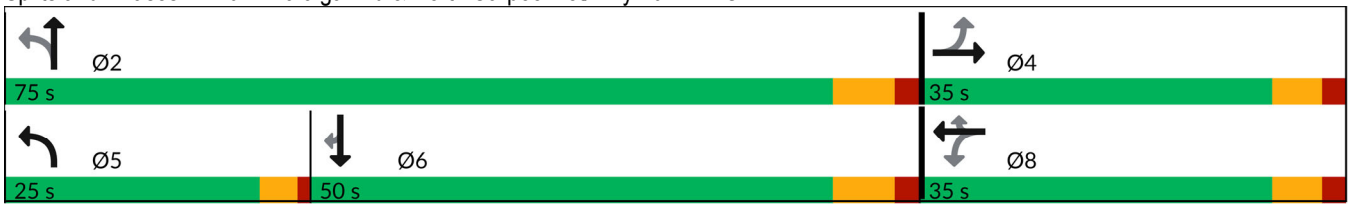


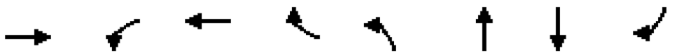
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	19	382	3	29	12	2033	0	0	1471	5
Future Volume (vph)	3	0	19	382	3	29	12	2033	0	0	1471	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.893			0.997	0.850						0.850
Flt Protected		0.990		0.950	0.955		0.950					
Satd. Flow (prot)	0	1523	0	1681	1595	1408	1641	5085	0	0	5085	1615
Flt Permitted		0.923		0.732	0.710		0.105					
Satd. Flow (perm)	0	1420	0	1295	1185	1408	181	5085	0	0	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		79			1	79						69
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			728.6	
Travel Time (s)		9.6			41.3			26.2			52.5	
Peak Hour Factor	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Adj. Flow (vph)	8	0	30	429	8	35	24	2163	0	0	1616	10
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	0	38	0	219	222	31	24	2163	0	0	1616	10
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	4.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	27.0			27.0	27.0
Total Split (s)	35.0	35.0		35.0	35.0	35.0	25.0	75.0			50.0	50.0
Total Split (%)	31.8%	31.8%		31.8%	31.8%	31.8%	22.7%	68.2%			45.5%	45.5%
Maximum Green (s)	29.0	29.0		29.0	29.0	29.0	21.0	68.0			43.0	43.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0			2.0	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	4.0	7.0			7.0	7.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	None	Max			Max	Max
Act Effct Green (s)		23.7		23.7	23.7	23.7	71.2	68.2			64.3	64.3
Actuated g/C Ratio		0.23		0.23	0.23	0.23	0.68	0.65			0.61	0.61
v/c Ratio		0.10		0.75	0.83	0.08	0.12	0.65			0.52	0.01
Control Delay (s/veh)		1.1		54.1	63.3	0.4	8.0	13.1			13.8	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		1.1		54.1	63.3	0.4	8.0	13.1			13.8	0.0
LOS		A		D	E	A	A	B			B	A
Approach Delay (s/veh)		1.1			54.9			13.0			13.7	
Approach LOS		A			D			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 104.9			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay (s/veh): 17.7		Intersection LOS: B	
Intersection Capacity Utilization 67.7%		ICU Level of Service C	
Analysis Period (min) 15			

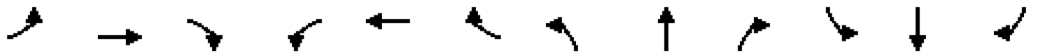
Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off





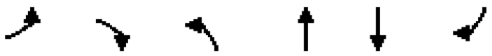
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	38	219	222	31	24	2163	1616	10
v/c Ratio	0.10	0.75	0.83	0.08	0.12	0.65	0.52	0.01
Control Delay (s/veh)	1.1	54.1	63.3	0.4	8.0	13.1	13.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	1.1	54.1	63.3	0.4	8.0	13.1	13.8	0.0
Queue Length 50th (m)	0.0	46.2	49.7	0.0	1.6	99.9	62.9	0.0
Queue Length 95th (m)	0.0	74.3	28.3	0.0	2.6	127.2	104.6	0.0
Internal Link Dist (m)	110.0		550.1			339.6	704.6	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	450	358	329	447	415	3303	3116	1016
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	0.61	0.67	0.07	0.06	0.65	0.52	0.01

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	19	382	3	29	12	2033	0	0	1471	5
Future Volume (vph)	3	0	19	382	3	29	12	2033	0	0	1471	5
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	4.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.91			0.91	1.00
Frt		0.89		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1523		1681	1595	1408	1641	5085			5085	1615
Flt Permitted		0.92		0.73	0.71	1.00	0.11	1.00			1.00	1.00
Satd. Flow (perm)		1421		1296	1185	1408	182	5085			5085	1615
Peak-hour factor, PHF	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Adj. Flow (vph)	8	0	30	429	8	35	24	2163	0	0	1616	10
RTOR Reduction (vph)	0	30	0	0	1	24	0	0	0	0	0	4
Lane Group Flow (vph)	0	8	0	219	221	7	24	2163	0	0	1616	6
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		23.7		23.7	23.7	23.7	70.6	70.6			64.3	64.3
Effective Green, g (s)		23.7		23.7	23.7	23.7	70.6	70.6			64.3	64.3
Actuated g/C Ratio		0.22		0.22	0.22	0.22	0.66	0.66			0.60	0.60
Clearance Time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Lane Grp Cap (vph)		313		286	261	310	151	3345			3047	967
v/s Ratio Prot							0.00	c0.43			0.32	
v/s Ratio Perm		0.01		0.17	c0.19	0.00	0.10					0.00
v/c Ratio		0.03		0.77	0.85	0.02	0.16	0.65			0.53	0.01
Uniform Delay, d1		32.8		39.2	40.1	32.7	8.1	10.9			12.6	8.6
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2		0.0		11.9	22.1	0.0	0.4	1.0			0.7	0.0
Delay (s)		32.8		51.1	62.2	32.8	8.4	11.9			13.3	8.7
Level of Service		C		D	E	C	A	B			B	A
Approach Delay (s/veh)		32.8			55.1			11.9			13.3	
Approach LOS		C			E			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	107.3	Sum of lost time (s)	17.0
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

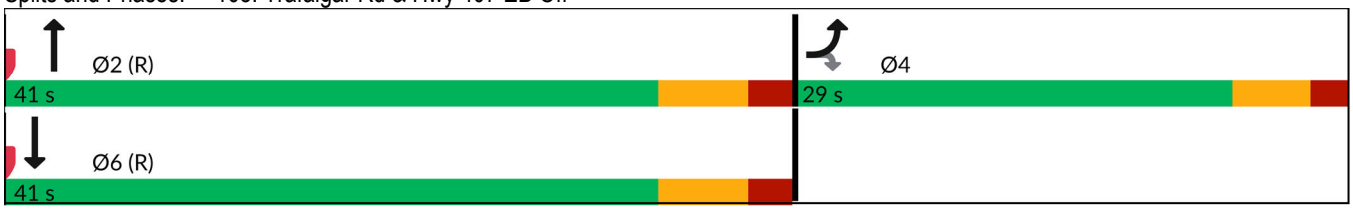


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	41	91	0	2269	1694	0
Future Volume (vph)	41	91	0	2269	1694	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1703	1429	0	5085	5085	0
Flt Permitted	0.950					
Satd. Flow (perm)	1703	1429	0	5085	5085	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		6				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			251.9	363.6	
Travel Time (s)	39.9			18.1	26.2	
Peak Hour Factor	0.75	0.94	0.25	0.94	0.92	0.25
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Adj. Flow (vph)	55	97	0	2414	1841	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	55	97	0	2414	1841	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	29.0	29.0		24.9	24.9	
Total Split (s)	29.0	29.0		41.0	41.0	
Total Split (%)	41.4%	41.4%		58.6%	58.6%	
Maximum Green (s)	23.0	23.0		34.1	34.1	
Yellow Time (s)	4.0	4.0		4.6	4.6	
All-Red Time (s)	2.0	2.0		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.9	6.9	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	23.0	23.0		34.1	34.1	
Actuated g/C Ratio	0.33	0.33		0.49	0.49	
v/c Ratio	0.10	0.21		0.97	0.74	
Control Delay (s/veh)	17.0	17.3		31.9	16.8	
Queue Delay	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay (s/veh)	17.0	17.3		31.9	16.8	
LOS	B	B		C	B	
Approach Delay (s/veh)	17.2			31.9	16.8	
Approach LOS	B			C	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 75			
Control Type: Pretimed			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay (s/veh): 25.1		Intersection LOS: C	
Intersection Capacity Utilization 58.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off

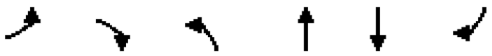




Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	55	97	2414	1841
v/c Ratio	0.10	0.21	0.97	0.74
Control Delay (s/veh)	17.0	17.3	31.9	16.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	17.0	17.3	31.9	16.8
Queue Length 50th (m)	5.2	8.9	112.1	70.2
Queue Length 95th (m)	10.4	19.5	#156.6	88.0
Internal Link Dist (m)	530.6		227.9	339.6
Turn Bay Length (m)				
Base Capacity (vph)	559	473	2477	2477
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.10	0.21	0.97	0.74

Intersection Summary

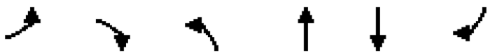
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	41	91	0	2269	1694	0
Future Volume (vph)	41	91	0	2269	1694	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.9	6.9	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1703	1429		5085	5085	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1703	1429		5085	5085	
Peak-hour factor, PHF	0.75	0.94	0.25	0.94	0.92	0.25
Adj. Flow (vph)	55	97	0	2414	1841	0
RTOR Reduction (vph)	0	4	0	0	0	0
Lane Group Flow (vph)	55	93	0	2414	1841	0
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	23.0	23.0		34.1	34.1	
Effective Green, g (s)	23.0	23.0		34.1	34.1	
Actuated g/C Ratio	0.33	0.33		0.49	0.49	
Clearance Time (s)	6.0	6.0		6.9	6.9	
Lane Grp Cap (vph)	559	469		2477	2477	
v/s Ratio Prot	0.03			c0.47	0.36	
v/s Ratio Perm		c0.07				
v/c Ratio	0.10	0.20		0.97	0.74	
Uniform Delay, d1	16.3	16.9		17.5	14.4	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.9		13.0	2.1	
Delay (s)	16.7	17.8		30.6	16.5	
Level of Service	B	B		C	B	
Approach Delay (s/veh)	17.4			30.6	16.5	
Approach LOS	B			C	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	24.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	58.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

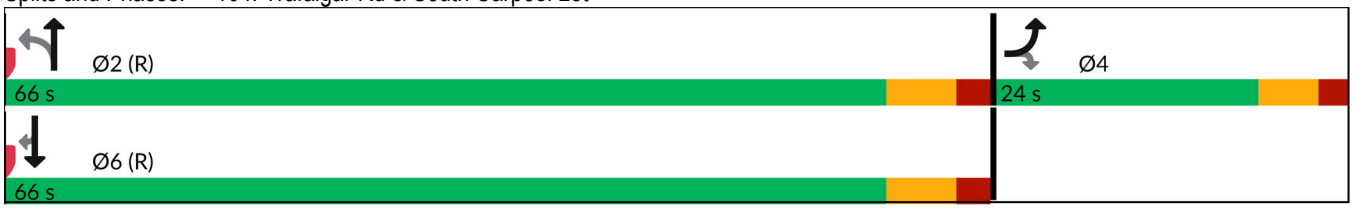


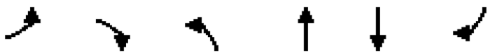
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	78	87	75	2583	1744	41
Future Volume (vph)	78	87	75	2583	1744	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	50.0			30.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5		100.0			
Lane Util. Factor	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)	1504	1455	1570	5085	5085	1615
Flt Permitted	0.950		0.079			
Satd. Flow (perm)	1504	1455	131	5085	5085	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		20				41
Link Speed (k/h)	50			80	80	
Link Distance (m)	107.1			233.3	251.9	
Travel Time (s)	7.7			10.5	11.3	
Peak Hour Factor	0.62	0.78	0.78	0.93	0.90	0.77
Heavy Vehicles (%)	20%	11%	15%	2%	2%	0%
Adj. Flow (vph)	126	112	96	2777	1938	53
Shared Lane Traffic (%)						
Lane Group Flow (vph)	126	112	96	2777	1938	53
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Minimum Split (s)	24.0	24.0	24.9	24.9	24.9	24.9
Total Split (s)	24.0	24.0	66.0	66.0	66.0	66.0
Total Split (%)	26.7%	26.7%	73.3%	73.3%	73.3%	73.3%
Maximum Green (s)	18.0	18.0	59.1	59.1	59.1	59.1
Yellow Time (s)	4.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.9	6.9	6.9	6.9
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Don't Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	18.0	18.0	59.1	59.1	59.1	59.1
Actuated g/C Ratio	0.20	0.20	0.66	0.66	0.66	0.66

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
v/c Ratio	0.42	0.36	1.12	0.83	0.58	0.05
Control Delay (s/veh)	36.4	29.3	156.7	14.6	9.4	2.5
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay (s/veh)	36.4	29.3	156.7	14.8	9.4	2.5
LOS	D	C	F	B	A	A
Approach Delay (s/veh)	33.1			19.5	9.3	
Approach LOS	C			B	A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 100			
Control Type: Pretimed			
Maximum v/c Ratio: 1.12			
Intersection Signal Delay (s/veh): 16.2		Intersection LOS: B	
Intersection Capacity Utilization 65.0%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 104: Trafalgar Rd & South Carpool Lot



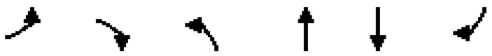


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	126	112	96	2777	1938	53
v/c Ratio	0.42	0.36	1.12	0.83	0.58	0.05
Control Delay (s/veh)	36.4	29.3	156.7	14.6	9.4	2.5
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay (s/veh)	36.4	29.3	156.7	14.8	9.4	2.5
Queue Length 50th (m)	20.2	14.4	~20.3	123.9	63.4	0.7
Queue Length 95th (m)	24.6	25.2	#27.0	147.7	75.8	3.3
Internal Link Dist (m)	83.1			209.3	227.9	
Turn Bay Length (m)			50.0			30.0
Base Capacity (vph)	300	307	86	3339	3339	1074
Starvation Cap Reductn	0	0	0	94	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.36	1.12	0.86	0.58	0.05

Intersection Summary

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

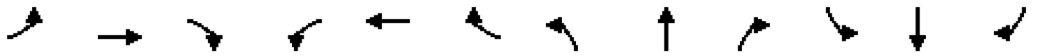
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	78	87	75	2583	1744	41
Future Volume (vph)	78	87	75	2583	1744	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.9	6.9	6.9	6.9
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)	1504	1455	1570	5085	5085	1615
Flt Permitted	0.95	1.00	0.08	1.00	1.00	1.00
Satd. Flow (perm)	1504	1455	130	5085	5085	1615
Peak-hour factor, PHF	0.62	0.78	0.78	0.93	0.90	0.77
Adj. Flow (vph)	126	112	96	2777	1938	53
RTOR Reduction (vph)	0	16	0	0	0	14
Lane Group Flow (vph)	126	96	96	2777	1938	39
Heavy Vehicles (%)	20%	11%	15%	2%	2%	0%
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	18.0	18.0	59.1	59.1	59.1	59.1
Effective Green, g (s)	18.0	18.0	59.1	59.1	59.1	59.1
Actuated g/C Ratio	0.20	0.20	0.66	0.66	0.66	0.66
Clearance Time (s)	6.0	6.0	6.9	6.9	6.9	6.9
Lane Grp Cap (vph)	300	291	85	3339	3339	1060
v/s Ratio Prot	c0.08			0.55	0.38	
v/s Ratio Perm		0.07	c0.74			0.02
v/c Ratio	0.42	0.33	1.13	0.83	0.58	0.04
Uniform Delay, d1	31.4	30.8	15.4	11.7	8.6	5.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.3	3.0	136.9	2.6	0.7	0.1
Delay (s)	35.7	33.8	152.3	14.3	9.3	5.5
Level of Service	D	C	F	B	A	A
Approach Delay (s/veh)	34.8			18.9	9.2	
Approach LOS	C			B	A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	90.0	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

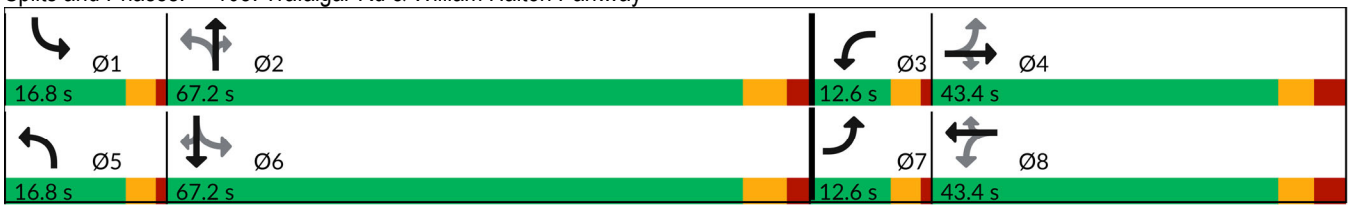


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	310	717	243	162	885	623	225	1726	45	256	1293	283
Future Volume (vph)	310	717	243	162	885	623	225	1726	45	256	1293	283
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	0.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			7.5		
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)	1770	3539	1599	1805	3610	1583	1787	5085	1615	1719	5085	1599
Flt Permitted	0.110			0.151			0.086			0.066		
Satd. Flow (perm)	205	3539	1599	287	3610	1583	162	5085	1615	119	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			184			173			94			180
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		1213.9			1579.7			285.3			233.3	
Travel Time (s)		87.4			113.7			20.5			16.8	
Peak Hour Factor	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
Adj. Flow (vph)	344	739	267	228	1029	733	278	1918	71	278	1503	308
Shared Lane Traffic (%)												
Lane Group Flow (vph)	344	739	267	228	1029	733	278	1918	71	278	1503	308
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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)	11.5	38.0	38.0	11.5	38.0	38.0	11.5	42.9	42.9	11.5	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	Max	Max	None	Max	Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't 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)	48.0	36.4	36.4	48.0	36.4	36.4	76.0	60.3	60.3	76.0	60.3	60.3
Actuated g/C Ratio	0.34	0.26	0.26	0.34	0.26	0.26	0.54	0.43	0.43	0.54	0.43	0.43
v/c Ratio	2.07	0.80	0.48	1.19	1.10	1.36	1.18	0.88	0.09	1.32	0.69	0.39
Control Delay (s/veh)	525.1	56.2	17.0	159.8	107.3	204.4	146.5	42.1	2.3	207.8	34.2	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	525.1	56.2	17.0	159.8	107.3	204.4	146.5	42.1	2.3	207.8	34.2	12.2
LOS	F	E	B	F	F	F	F	D	A	F	C	B
Approach Delay (s/veh)		167.9			149.1			53.6			54.1	
Approach LOS		F			F			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Natural Cycle: 125			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 2.07			
Intersection Signal Delay (s/veh): 98.5		Intersection LOS: F	
Intersection Capacity Utilization 107.4%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway



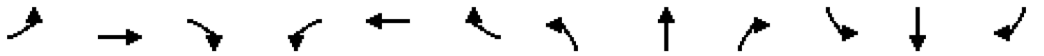


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	344	739	267	228	1029	733	278	1918	71	278	1503	308
v/c Ratio	2.07	0.80	0.48	1.19	1.10	1.36	1.18	0.88	0.09	1.32	0.69	0.39
Control Delay (s/veh)	525.1	56.2	17.0	159.8	107.3	204.4	146.5	42.1	2.3	207.8	34.2	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	525.1	56.2	17.0	159.8	107.3	204.4	146.5	42.1	2.3	207.8	34.2	12.2
Queue Length 50th (m)	~141.3	106.6	19.0	~54.8	~178.1	~242.0	~74.2	184.7	0.0	~88.2	128.0	23.1
Queue Length 95th (m)	#205.7	131.5	47.1	#68.5	#205.4	#292.3	#111.0	206.9	0.0	#147.7	136.3	47.2
Internal Link Dist (m)		1189.9			1555.7			261.3			209.3	
Turn Bay Length (m)	100.0		100.0	100.0		150.0	150.0		75.0			
Base Capacity (vph)	166	920	551	191	938	539	236	2190	749	210	2190	791
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	2.07	0.80	0.48	1.19	1.10	1.36	1.18	0.88	0.09	1.32	0.69	0.39

Intersection Summary

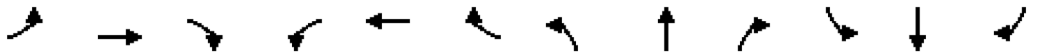
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	310	717	243	162	885	623	225	1726	45	256	1293	283
Future Volume (vph)	310	717	243	162	885	623	225	1726	45	256	1293	283
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)	1770	3539	1599	1805	3610	1583	1787	5085	1615	1719	5085	1599
Flt Permitted	0.11	1.00	1.00	0.15	1.00	1.00	0.09	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	205	3539	1599	287	3610	1583	162	5085	1615	120	5085	1599
Peak-hour factor, PHF	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Adj. Flow (vph)	344	739	267	228	1029	733	278	1918	71	278	1503	308
RTOR Reduction (vph)	0	0	136	0	0	128	0	0	40	0	0	102
Lane Group Flow (vph)	344	739	131	228	1029	605	278	1918	31	278	1503	206
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
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)	45.0	36.4	36.4	45.0	36.4	36.4	73.1	60.3	60.3	73.1	60.3	60.3
Effective Green, g (s)	45.0	36.4	36.4	45.0	36.4	36.4	73.1	60.3	60.3	73.1	60.3	60.3
Actuated g/C Ratio	0.32	0.26	0.26	0.32	0.26	0.26	0.52	0.43	0.43	0.52	0.43	0.43
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)	162	920	415	185	938	411	233	2190	695	208	2190	688
v/s Ratio Prot	c0.13	0.21		0.08	0.29		0.11	0.38		c0.12	0.30	
v/s Ratio Perm	c0.55		0.08	0.32		0.38	0.51		0.02	c0.57		0.13
v/c Ratio	2.12	0.80	0.32	1.23	1.10	1.47	1.19	0.88	0.04	1.34	0.69	0.30
Uniform Delay, d1	42.0	48.5	41.8	42.6	51.8	51.8	36.9	36.4	23.1	43.3	32.2	26.0
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	525.8	5.8	0.9	142.5	59.6	225.3	121.1	5.3	0.1	180.3	1.8	1.1
Delay (s)	567.8	54.3	42.7	185.1	111.4	277.1	158.0	41.7	23.2	223.7	34.0	27.1
Level of Service	F	D	D	F	F	F	F	D	C	F	C	C
Approach Delay (s/veh)		182.8			180.8			55.4			58.2	
Approach LOS		F			F			E			E	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	111.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.63		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.9
Intersection Capacity Utilization	107.4%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

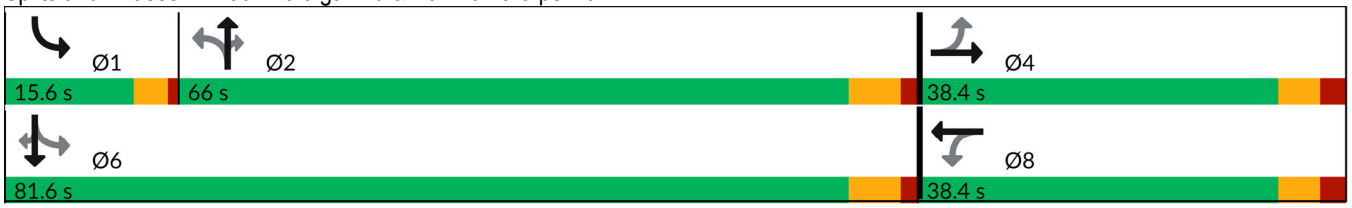


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	132	423	23	230	374	303	95	1687	140	204	1325	169
Future Volume (vph)	132	423	23	230	374	303	95	1687	140	204	1325	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		60.0	60.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	70.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.993			0.937				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1887	0	1805	1780	0	1805	5036	1615	1480	5085	1599
Flt Permitted	0.123			0.123			0.161			0.062		
Satd. Flow (perm)	229	1887	0	234	1780	0	306	5036	1615	97	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			30				64			84
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		828.7			989.6			1941.0			170.3	
Travel Time (s)		49.7			59.4			87.3			7.7	
Peak Hour Factor	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	1%
Adj. Flow (vph)	157	604	28	291	519	379	122	1985	206	319	1506	197
Shared Lane Traffic (%)												
Lane Group Flow (vph)	157	632	0	291	898	0	122	1985	206	319	1506	197
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		20.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	24.0	24.0		24.0	24.0		26.0	26.0	26.0	11.5	26.0	26.0
Total Split (s)	38.4	38.4		38.4	38.4		66.0	66.0	66.0	15.6	81.6	81.6
Total Split (%)	32.0%	32.0%		32.0%	32.0%		55.0%	55.0%	55.0%	13.0%	68.0%	68.0%
Maximum Green (s)	32.4	32.4		32.4	32.4		60.0	60.0	60.0	11.6	75.6	75.6
Yellow Time (s)	3.7	3.7		3.7	3.7		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.3	2.3		2.3	2.3		1.4	1.4	1.4	1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max	Max	None	Max	Max
Act Effct Green (s)	32.4	32.4		32.4	32.4		60.0	60.0	62.0	77.6	75.6	77.6
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.50	0.50	0.52	0.65	0.63	0.65
v/c Ratio	2.57	1.24		4.62	1.79		0.80	0.79	0.24	1.63	0.47	0.19
Control Delay (s/veh)	774.4	161.3		Error	390.6		62.9	27.7	11.6	330.8	12.3	5.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	774.4	161.3		Error	390.6		62.9	27.7	11.6	330.8	12.3	5.2
LOS	F	F		F	F		E	C	B	F	B	A
Approach Delay (s/veh)		283.3			705.3			28.1			61.8	
Approach LOS		F			F			C			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 4.62			
Intersection Signal Delay (s/veh): 198.3		Intersection LOS: F	
Intersection Capacity Utilization 108.8%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burnhamthorpe Rd



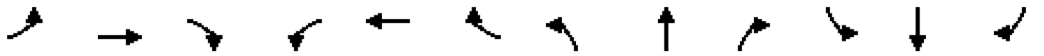


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	157	632	291	898	122	1985	206	319	1506	197
v/c Ratio	2.57	1.24	4.62	1.79	0.80	0.79	0.24	1.63	0.47	0.19
Control Delay (s/veh)	774.4	161.3	Error	390.6	62.9	27.7	11.6	330.8	12.3	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	774.4	161.3	Error	390.6	62.9	27.7	11.6	330.8	12.3	5.2
Queue Length 50th (m)	~65.0	~194.9	~121.0	~331.2	24.4	144.0	18.0	~100.7	66.8	9.9
Queue Length 95th (m)	#101.2	#178.6	#153.0	#301.3	#49.8	149.3	21.1	#94.4	75.3	17.9
Internal Link Dist (m)		804.7		965.6		1917.0			146.3	
Turn Bay Length (m)	30.0		15.0		60.0		60.0	60.0		60.0
Base Capacity (vph)	61	510	63	502	153	2518	865	196	3203	1063
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	2.57	1.24	4.62	1.79	0.80	0.79	0.24	1.63	0.47	0.19

Intersection Summary

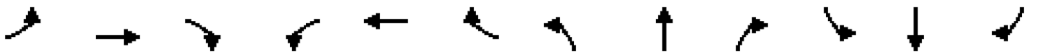
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	132	423	23	230	374	303	95	1687	140	204	1325	169
Future Volume (vph)	132	423	23	230	374	303	95	1687	140	204	1325	169
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	4.0	6.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.99		1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1887		1805	1780		1805	5036	1615	1480	5085	1599
Flt Permitted	0.12	1.00		0.12	1.00		0.16	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	230	1887		235	1780		306	5036	1615	97	5085	1599
Peak-hour factor, PHF	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Adj. Flow (vph)	157	604	28	291	519	379	122	1985	206	319	1506	197
RTOR Reduction (vph)	0	1	0	0	22	0	0	0	31	0	0	30
Lane Group Flow (vph)	157	631	0	291	876	0	122	1985	175	319	1506	167
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	32.4	32.4		32.4	32.4		60.0	60.0	60.0	75.6	75.6	75.6
Effective Green, g (s)	32.4	32.4		32.4	32.4		60.0	60.0	62.0	75.6	75.6	77.6
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.50	0.50	0.52	0.63	0.63	0.65
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	62	509		63	480		153	2518	834	194	3203	1034
v/s Ratio Prot		0.33			0.49			0.39		c0.16	0.30	
v/s Ratio Perm	0.68			c1.24			0.40		0.11	c0.87		0.10
v/c Ratio	2.53	1.24		4.62	1.83		0.80	0.79	0.21	1.64	0.47	0.16
Uniform Delay, d1	43.8	43.8		43.8	43.8		24.9	24.8	15.7	37.3	11.7	8.4
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	734.6	123.4		1664.3	379.5		33.8	2.6	0.6	312.0	0.5	0.3
Delay (s)	778.4	167.2		1708.1	423.3		58.7	27.4	16.3	349.3	12.2	8.7
Level of Service	F	F		F	F		E	C	B	F	B	A
Approach Delay (s/veh)		288.8			737.7			28.0			65.0	
Approach LOS		F			F			C			E	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	206.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	108.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

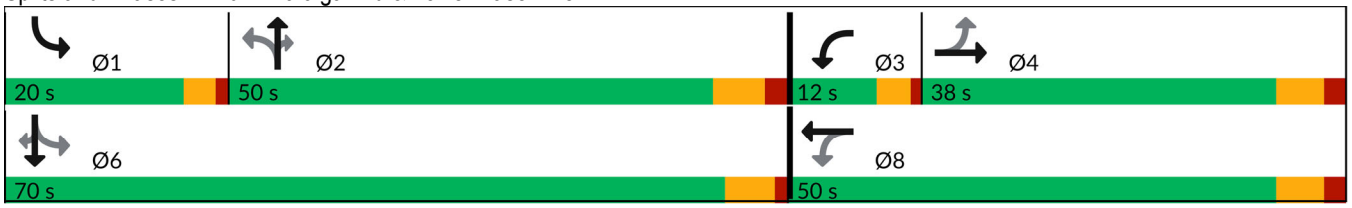


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	309	90	264	105	136	32	1144	211	323	1449	61
Future Volume (vph)	107	309	90	264	105	136	32	1144	211	323	1449	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		90.0	90.0		90.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.963			0.912				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1816	0	1736	1666	0	1597	4848	1568	1752	4988	1553
Flt Permitted	0.574			0.112			0.118			0.083		
Satd. Flow (perm)	1049	1816	0	205	1666	0	198	4848	1568	153	4988	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			67				237			86
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			498.3			434.3	
Travel Time (s)		38.5			41.4			22.4			19.5	
Peak Hour Factor	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Adj. Flow (vph)	127	401	132	362	127	179	44	1395	237	367	1705	86
Shared Lane Traffic (%)												
Lane Group Flow (vph)	127	533	0	362	306	0	44	1395	237	367	1705	86
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		25.0	25.0	25.0	7.0	25.0	25.0
Minimum Split (s)	22.5	22.5		11.5	22.5		31.6	31.6	31.6	11.5	30.6	30.6
Total Split (s)	38.0	38.0		12.0	50.0		50.0	50.0	50.0	20.0	70.0	70.0
Total Split (%)	31.7%	31.7%		10.0%	41.7%		41.7%	41.7%	41.7%	16.7%	58.3%	58.3%
Maximum Green (s)	31.8	31.8		8.0	43.8		43.4	43.4	43.4	16.0	64.4	64.4
Yellow Time (s)	4.2	4.2		3.0	4.2		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	Max
Act Effct Green (s)	31.8	31.8		46.0	43.8		43.4	43.4	43.4	66.0	64.4	64.4
Actuated g/C Ratio	0.27	0.27		0.38	0.37		0.36	0.36	0.36	0.55	0.54	0.54
v/c Ratio	0.46	1.09		2.01	0.47		0.62	0.80	0.33	1.24	0.64	0.10
Control Delay (s/veh)	43.3	107.4		495.6	25.2		71.4	38.5	4.6	162.8	20.9	3.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	43.3	107.4		495.6	25.2		71.4	38.5	4.6	162.8	20.9	3.1
LOS	D	F		F	C		E	D	A	F	C	A
Approach Delay (s/veh)		95.1			280.1			34.5			44.4	
Approach LOS		F			F			C			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 2.01			
Intersection Signal Delay (s/veh): 78.2		Intersection LOS: E	
Intersection Capacity Utilization 103.9%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line



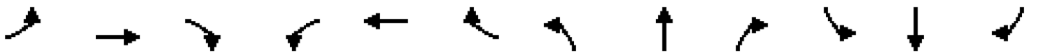


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	127	533	362	306	44	1395	237	367	1705	86
v/c Ratio	0.46	1.09	2.01	0.47	0.62	0.80	0.33	1.24	0.64	0.10
Control Delay (s/veh)	43.3	107.4	495.6	25.2	71.4	38.5	4.6	162.8	20.9	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	43.3	107.4	495.6	25.2	71.4	38.5	4.6	162.8	20.9	3.1
Queue Length 50th (m)	26.4	~146.2	~124.4	44.6	8.9	112.6	0.0	~96.2	104.5	0.0
Queue Length 95th (m)	42.9	#166.1	#138.6	63.4	#20.2	115.4	16.4	#152.9	110.4	4.0
Internal Link Dist (m)		725.3		666.6		474.3			410.3	
Turn Bay Length (m)	45.0		110.0		90.0		90.0	90.0		90.0
Base Capacity (vph)	277	490	180	650	71	1753	718	297	2676	873
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	1.09	2.01	0.47	0.62	0.80	0.33	1.24	0.64	0.10

Intersection Summary

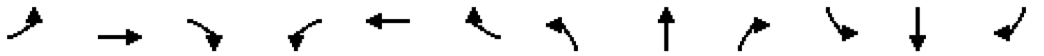
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	309	90	264	105	136	32	1144	211	323	1449	61
Future Volume (vph)	107	309	90	264	105	136	32	1144	211	323	1449	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	1816		1736	1667		1597	4848	1568	1752	4988	1553
Flt Permitted	0.57	1.00		0.11	1.00		0.12	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	1048	1816		204	1667		199	4848	1568	152	4988	1553
Peak-hour factor, PHF	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Adj. Flow (vph)	127	401	132	362	127	179	44	1395	237	367	1705	86
RTOR Reduction (vph)	0	10	0	0	43	0	0	0	151	0	0	40
Lane Group Flow (vph)	127	523	0	362	263	0	44	1395	86	367	1705	46
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	31.8	31.8		43.8	43.8		43.4	43.4	43.4	64.4	64.4	64.4
Effective Green, g (s)	31.8	31.8		43.8	43.8		43.4	43.4	43.4	64.4	64.4	64.4
Actuated g/C Ratio	0.27	0.27		0.37	0.37		0.36	0.36	0.36	0.54	0.54	0.54
Clearance Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Lane Grp Cap (vph)	277	481		176	608		71	1753	567	294	2676	833
v/s Ratio Prot		0.29		c0.14	0.16			0.29		c0.17	0.34	
v/s Ratio Perm	0.12			c0.61			0.22		0.05	c0.50		0.03
v/c Ratio	0.46	1.09		2.06	0.43		0.62	0.80	0.15	1.25	0.64	0.06
Uniform Delay, d1	36.9	44.1		33.1	28.7		31.5	34.3	25.9	36.5	19.6	13.3
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	2.5	67.0		494.7	1.0		34.4	3.8	0.6	136.9	1.2	0.1
Delay (s)	39.4	111.1		527.8	29.8		65.9	38.2	26.4	173.4	20.7	13.4
Level of Service	D	F		F	C		E	D	C	F	C	B
Approach Delay (s/veh)		97.3			299.7			37.2			46.4	
Approach LOS		F			F			D			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	82.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.67		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	103.9%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

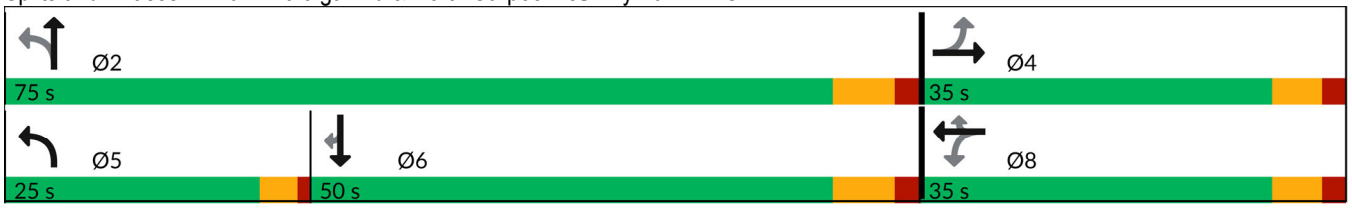


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	10	199	2	6	8	1378	0	0	1802	2
Future Volume (vph)	3	0	10	199	2	6	8	1378	0	0	1802	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.891			0.999	0.850						0.850
Flt Protected		0.990		0.950	0.954		0.950					
Satd. Flow (prot)	0	1474	0	1545	1470	1534	1543	4893	0	0	4988	1615
Flt Permitted		0.934		0.730	0.704		0.060					
Satd. Flow (perm)	0	1391	0	1187	1085	1534	97	4893	0	0	4988	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		79				79						69
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			232.3	
Travel Time (s)		9.6			41.3			26.2			16.7	
Peak Hour Factor	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Adj. Flow (vph)	8	0	33	258	4	14	27	1498	0	0	2071	8
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	0	41	0	132	131	13	27	1498	0	0	2071	8
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	4.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	27.0			27.0	27.0
Total Split (s)	35.0	35.0		35.0	35.0	35.0	25.0	75.0			50.0	50.0
Total Split (%)	31.8%	31.8%		31.8%	31.8%	31.8%	22.7%	68.2%			45.5%	45.5%
Maximum Green (s)	29.0	29.0		29.0	29.0	29.0	21.0	68.0			43.0	43.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0			2.0	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	4.0	7.0			7.0	7.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	None	Max			Max	Max
Act Effct Green (s)		17.5		17.5	17.5	17.5	71.2	68.2			62.5	62.5
Actuated g/C Ratio		0.18		0.18	0.18	0.18	0.72	0.69			0.63	0.63
v/c Ratio		0.13		0.63	0.69	0.04	0.18	0.44			0.66	0.01
Control Delay (s/veh)		2.2		51.0	56.0	0.2	7.9	7.9			14.6	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		2.2		51.0	56.0	0.2	7.9	7.9			14.6	0.0
LOS		A		D	E	A	A	A			B	A
Approach Delay (s/veh)		2.2			51.0			7.9			14.6	
Approach LOS		A			D			A			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 98.7			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay (s/veh): 14.4		Intersection LOS: B	
Intersection Capacity Utilization 57.9%		ICU Level of Service B	
Analysis Period (min) 15			

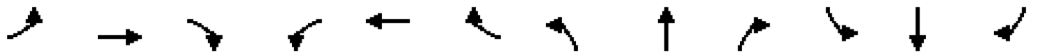
Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off





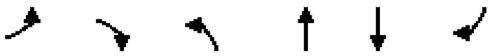
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	41	132	131	13	27	1498	2071	8
v/c Ratio	0.13	0.63	0.69	0.04	0.18	0.44	0.66	0.01
Control Delay (s/veh)	2.2	51.0	56.0	0.2	7.9	7.9	14.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	2.2	51.0	56.0	0.2	7.9	7.9	14.6	0.0
Queue Length 50th (m)	0.0	26.1	27.3	0.0	1.3	43.0	97.5	0.0
Queue Length 95th (m)	0.0	38.7	24.7	0.0	1.6	69.9	139.2	0.0
Internal Link Dist (m)	110.0		550.1			339.6	208.3	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	465	349	319	507	378	3381	3157	1047
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	0.38	0.41	0.03	0.07	0.44	0.66	0.01

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	10	199	2	6	8	1378	0	0	1802	2
Future Volume (vph)	3	0	10	199	2	6	8	1378	0	0	1802	2
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	4.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.91			0.91	1.00
Frt		0.89		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1475		1545	1470	1534	1543	4893			4988	1615
Flt Permitted		0.93		0.73	0.70	1.00	0.06	1.00			1.00	1.00
Satd. Flow (perm)		1391		1188	1085	1534	98	4893			4988	1615
Peak-hour factor, PHF	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Adj. Flow (vph)	8	0	33	258	4	14	27	1498	0	0	2071	8
RTOR Reduction (vph)	0	34	0	0	0	11	0	0	0	0	0	3
Lane Group Flow (vph)	0	7	0	132	131	2	27	1498	0	0	2071	5
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		17.5		17.5	17.5	17.5	69.9	69.9			62.5	62.5
Effective Green, g (s)		17.5		17.5	17.5	17.5	69.9	69.9			62.5	62.5
Actuated g/C Ratio		0.17		0.17	0.17	0.17	0.70	0.70			0.62	0.62
Clearance Time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Lane Grp Cap (vph)		242		207	189	267	117	3406			3105	1005
v/s Ratio Prot							0.01	c0.31			c0.42	
v/s Ratio Perm		0.01		0.11	c0.12	0.00	0.15					0.00
v/c Ratio		0.03		0.64	0.69	0.01	0.23	0.44			0.67	0.00
Uniform Delay, d1		34.4		38.5	38.9	34.3	8.4	6.7			12.2	7.2
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2		0.1		6.6	10.8	0.0	0.7	0.4			1.2	0.0
Delay (s)		34.5		45.1	49.8	34.3	9.1	7.1			13.4	7.2
Level of Service		C		D	D	C	A	A			B	A
Approach Delay (s/veh)		34.5			46.8			7.1			13.4	
Approach LOS		C			D			A			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	100.4	Sum of lost time (s)	17.0
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

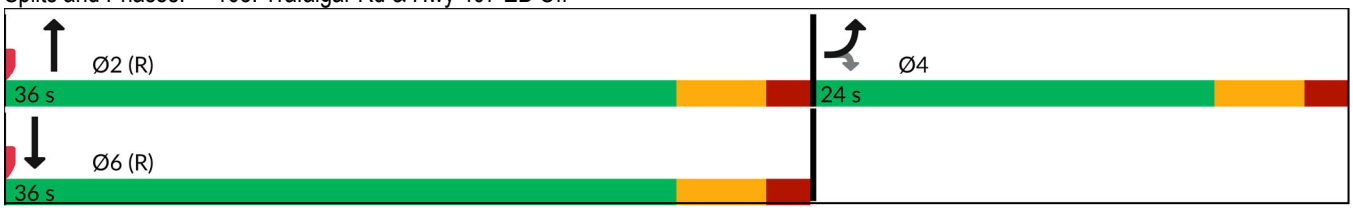


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	77	137	0	1455	1910	0
Future Volume (vph)	77	137	0	1455	1910	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1671	1392	0	4848	4940	0
Flt Permitted	0.950					
Satd. Flow (perm)	1671	1392	0	4848	4940	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		2				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			120.3	363.6	
Travel Time (s)	39.9			8.7	26.2	
Peak Hour Factor	0.79	0.78	0.25	0.85	0.86	0.25
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Adj. Flow (vph)	97	176	0	1712	2221	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	97	176	0	1712	2221	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	24.0	24.0		24.0	24.0	
Total Split (s)	24.0	24.0		36.0	36.0	
Total Split (%)	40.0%	40.0%		60.0%	60.0%	
Maximum Green (s)	18.0	18.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	18.0	18.0		30.0	30.0	
Actuated g/C Ratio	0.30	0.30		0.50	0.50	
v/c Ratio	0.19	0.42		0.71	0.90	
Control Delay (s/veh)	16.9	20.4		13.6	20.4	
Queue Delay	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay (s/veh)	16.9	20.4		13.6	20.4	
LOS	B	C		B	C	
Approach Delay (s/veh)	19.2			13.6	20.4	
Approach LOS	B			B	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Pretimed			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay (s/veh): 17.5		Intersection LOS: B	
Intersection Capacity Utilization 55.4%		ICU Level of Service B	
Analysis Period (min) 15			

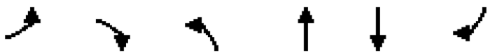
Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off





Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	97	176	1712	2221
v/c Ratio	0.19	0.42	0.71	0.90
Control Delay (s/veh)	16.9	20.4	13.6	20.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.9	20.4	13.6	20.4
Queue Length 50th (m)	8.2	15.9	51.7	78.9
Queue Length 95th (m)	15.7	26.5	61.2	93.3
Internal Link Dist (m)	530.6		96.3	339.6
Turn Bay Length (m)				
Base Capacity (vph)	501	419	2424	2470
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.19	0.42	0.71	0.90

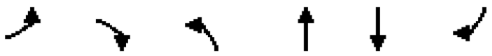
Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	77	137	0	1455	1910	0
Future Volume (vph)	77	137	0	1455	1910	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1671	1392		4848	4940	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1671	1392		4848	4940	
Peak-hour factor, PHF	0.79	0.78	0.25	0.85	0.86	0.25
Adj. Flow (vph)	97	176	0	1712	2221	0
RTOR Reduction (vph)	0	1	0	0	0	0
Lane Group Flow (vph)	97	175	0	1712	2221	0
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	18.0	18.0		30.0	30.0	
Effective Green, g (s)	18.0	18.0		30.0	30.0	
Actuated g/C Ratio	0.30	0.30		0.50	0.50	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	501	417		2424	2470	
v/s Ratio Prot	0.06			0.35	c0.45	
v/s Ratio Perm		c0.13				
v/c Ratio	0.19	0.42		0.71	0.90	
Uniform Delay, d1	15.6	16.8		11.6	13.6	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.9	3.1		1.8	5.8	
Delay (s)	16.5	19.9		13.4	19.4	
Level of Service	B	B		B	B	
Approach Delay (s/veh)	18.7			13.4	19.4	
Approach LOS	B			B	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



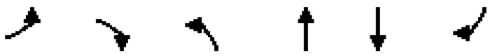
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	66	77	89	1810	1973	74
Future Volume (vph)	66	77	89	1810	1973	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	50.0			30.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5		100.0			
Lane Util. Factor	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)	1337	1404	1570	4940	4940	1615
Flt Permitted	0.950		0.102			
Satd. Flow (perm)	1337	1404	169	4940	4940	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		4				59
Link Speed (k/h)	50			80	80	
Link Distance (m)	107.1			233.3	131.6	
Travel Time (s)	7.7			10.5	5.9	
Peak Hour Factor	0.87	0.83	0.88	0.91	0.89	0.85
Heavy Vehicles (%)	35%	15%	15%	5%	5%	0%
Adj. Flow (vph)	76	93	101	1989	2217	87
Shared Lane Traffic (%)						
Lane Group Flow (vph)	76	93	101	1989	2217	87
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Minimum Split (s)	24.0	24.0	24.9	24.9	24.9	24.9
Total Split (s)	24.0	24.0	46.0	46.0	46.0	46.0
Total Split (%)	34.3%	34.3%	65.7%	65.7%	65.7%	65.7%
Maximum Green (s)	18.0	18.0	39.1	39.1	39.1	39.1
Yellow Time (s)	4.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.9	6.9	6.9	6.9
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Don't Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	18.0	18.0	39.1	39.1	39.1	39.1
Actuated g/C Ratio	0.26	0.26	0.56	0.56	0.56	0.56

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
v/c Ratio	0.22	0.26	1.07	0.72	0.80	0.09
Control Delay (s/veh)	22.6	22.1	140.5	13.3	15.3	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.6	22.1	140.5	13.3	15.3	3.6
LOS	C	C	F	B	B	A
Approach Delay (s/veh)	22.3			19.5	14.8	
Approach LOS	C			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Pretimed			
Maximum v/c Ratio: 1.07			
Intersection Signal Delay (s/veh): 17.2		Intersection LOS: B	
Intersection Capacity Utilization 63.7%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 104: Trafalgar Rd & South Carpool Lot



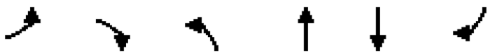


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	76	93	101	1989	2217	87
v/c Ratio	0.22	0.26	1.07	0.72	0.80	0.09
Control Delay (s/veh)	22.6	22.1	140.5	13.3	15.3	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.6	22.1	140.5	13.3	15.3	3.6
Queue Length 50th (m)	8.2	9.7	~15.8	67.5	81.4	1.6
Queue Length 95th (m)	18.0	19.5	#30.8	84.8	100.1	6.4
Internal Link Dist (m)	83.1			209.3	107.6	
Turn Bay Length (m)			50.0			30.0
Base Capacity (vph)	343	364	94	2759	2759	928
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	0.22	0.26	1.07	0.72	0.80	0.09

Intersection Summary

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

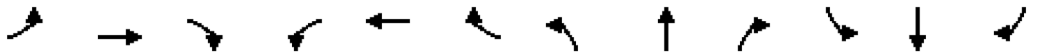
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	66	77	89	1810	1973	74
Future Volume (vph)	66	77	89	1810	1973	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.9	6.9	6.9	6.9
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)	1337	1404	1570	4940	4940	1615
Flt Permitted	0.95	1.00	0.10	1.00	1.00	1.00
Satd. Flow (perm)	1337	1404	169	4940	4940	1615
Peak-hour factor, PHF	0.87	0.83	0.88	0.91	0.89	0.85
Adj. Flow (vph)	76	93	101	1989	2217	87
RTOR Reduction (vph)	0	3	0	0	0	26
Lane Group Flow (vph)	76	90	101	1989	2217	61
Heavy Vehicles (%)	35%	15%	15%	5%	5%	0%
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	18.0	18.0	39.1	39.1	39.1	39.1
Effective Green, g (s)	18.0	18.0	39.1	39.1	39.1	39.1
Actuated g/C Ratio	0.26	0.26	0.56	0.56	0.56	0.56
Clearance Time (s)	6.0	6.0	6.9	6.9	6.9	6.9
Lane Grp Cap (vph)	343	361	94	2759	2759	902
v/s Ratio Prot	0.06			0.40	0.45	
v/s Ratio Perm		c0.06	c0.60			0.04
v/c Ratio	0.22	0.25	1.07	0.72	0.80	0.07
Uniform Delay, d1	20.5	20.6	15.5	11.4	12.4	7.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.5	1.6	114.4	1.7	2.6	0.1
Delay (s)	22.0	22.3	129.9	13.1	15.0	7.2
Level of Service	C	C	F	B	B	A
Approach Delay (s/veh)	22.1			18.7	14.7	
Approach LOS	C			B	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	70.0	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

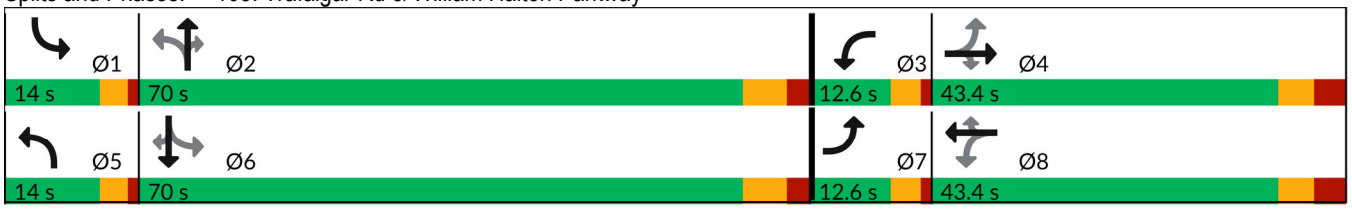


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	227	851	226	169	685	264	261	1409	59	401	1309	341
Future Volume (vph)	227	851	226	169	685	264	261	1409	59	401	1309	341
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	0.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			7.5		
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)	1787	3574	1599	1687	3574	1429	1703	4988	1615	1770	4893	1538
Flt Permitted	0.110			0.110			0.102			0.082		
Satd. Flow (perm)	207	3574	1599	195	3574	1429	183	4988	1615	153	4893	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			148			143			94			184
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		1206.6			1612.1			285.3			233.3	
Travel Time (s)		86.9			116.1			20.5			16.8	
Peak Hour Factor	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
Adj. Flow (vph)	267	935	272	225	878	352	303	1566	70	489	1454	397
Shared Lane Traffic (%)												
Lane Group Flow (vph)	267	935	272	225	878	352	303	1566	70	489	1454	397
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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)	11.5	38.0	38.0	11.5	38.0	38.0	11.5	42.9	42.9	11.5	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	-2.9	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	4.0	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	Max	Max	None	Max	Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't 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)	48.0	36.4	36.4	48.0	36.4	36.4	76.0	63.1	66.0	76.0	63.1	63.1
Actuated g/C Ratio	0.34	0.26	0.26	0.34	0.26	0.26	0.54	0.45	0.47	0.54	0.45	0.45
v/c Ratio	1.59	1.01	0.52	1.42	0.95	0.74	1.46	0.70	0.09	2.47	0.66	0.50
Control Delay (s/veh)	318.1	82.3	23.4	252.2	69.7	38.0	257.4	32.8	1.9	695.6	31.9	16.2
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 (s/veh)	318.1	82.3	23.4	252.2	69.7	38.0	257.4	32.8	1.9	695.6	31.9	16.2
LOS	F	F	C	F	E	D	F	C	A	F	C	B
Approach Delay (s/veh)		114.1			90.2			66.8			167.9	
Approach LOS		F			F			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Natural Cycle: 125			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 2.47			
Intersection Signal Delay (s/veh): 114.0		Intersection LOS: F	
Intersection Capacity Utilization 100.6%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway



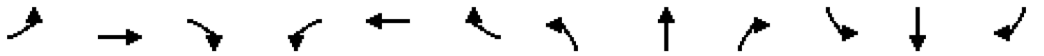


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	267	935	272	225	878	352	303	1566	70	489	1454	397
v/c Ratio	1.59	1.01	0.52	1.42	0.95	0.74	1.46	0.70	0.09	2.47	0.66	0.50
Control Delay (s/veh)	318.1	82.3	23.4	252.2	69.7	38.0	257.4	32.8	1.9	695.6	31.9	16.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	318.1	82.3	23.4	252.2	69.7	38.0	257.4	32.8	1.9	695.6	31.9	16.2
Queue Length 50th (m)	~93.4	~145.8	30.0	~71.7	132.9	57.7	~94.4	131.7	0.0	~215.8	119.4	42.0
Queue Length 95th (m)	#140.0	#193.0	50.4	#95.0	132.9	68.1	#144.7	149.6	3.7	#254.4	136.5	65.4
Internal Link Dist (m)		1182.6			1588.1			261.3			209.3	
Turn Bay Length (m)	100.0		100.0	100.0		150.0	150.0		75.0			
Base Capacity (vph)	168	929	525	158	929	477	207	2248	811	198	2205	794
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	1.59	1.01	0.52	1.42	0.95	0.74	1.46	0.70	0.09	2.47	0.66	0.50

Intersection Summary

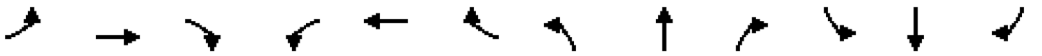
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	227	851	226	169	685	264	261	1409	59	401	1309	341
Future Volume (vph)	227	851	226	169	685	264	261	1409	59	401	1309	341
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	4.0	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)	1787	3574	1599	1687	3574	1429	1703	4988	1615	1770	4893	1538
Flt Permitted	0.11	1.00	1.00	0.11	1.00	1.00	0.10	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	207	3574	1599	195	3574	1429	182	4988	1615	152	4893	1538
Peak-hour factor, PHF	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Adj. Flow (vph)	267	935	272	225	878	352	303	1566	70	489	1454	397
RTOR Reduction (vph)	0	0	110	0	0	106	0	0	37	0	0	101
Lane Group Flow (vph)	267	935	162	225	878	246	303	1566	33	489	1454	296
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
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)	45.0	36.4	36.4	45.0	36.4	36.4	73.1	63.1	63.1	73.1	63.1	63.1
Effective Green, g (s)	45.0	36.4	36.4	45.0	36.4	36.4	73.1	63.1	66.0	73.1	63.1	63.1
Actuated g/C Ratio	0.32	0.26	0.26	0.32	0.26	0.26	0.52	0.45	0.47	0.52	0.45	0.45
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)	163	929	415	154	929	371	203	2248	761	194	2205	693
v/s Ratio Prot	c0.10	0.26		0.09	0.25		0.11	0.31		c0.18	0.30	
v/s Ratio Perm	c0.42		0.10	0.38		0.17	0.67		0.02	c1.13		0.19
v/c Ratio	1.64	1.01	0.39	1.46	0.95	0.66	1.49	0.70	0.04	2.52	0.66	0.43
Uniform Delay, d1	41.3	51.8	42.7	41.9	50.8	46.3	28.3	30.8	20.0	33.6	30.1	26.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	313.1	31.1	1.3	239.5	18.1	5.8	245.9	1.8	0.1	699.3	1.6	1.9
Delay (s)	354.4	82.9	44.0	281.4	68.9	52.1	274.2	32.6	20.1	732.9	31.6	28.1
Level of Service	F	F	D	F	E	D	F	C	C	F	C	C
Approach Delay (s/veh)		124.9			97.7			69.9			177.6	
Approach LOS		F			F			E			F	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	121.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.17		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.9
Intersection Capacity Utilization	100.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

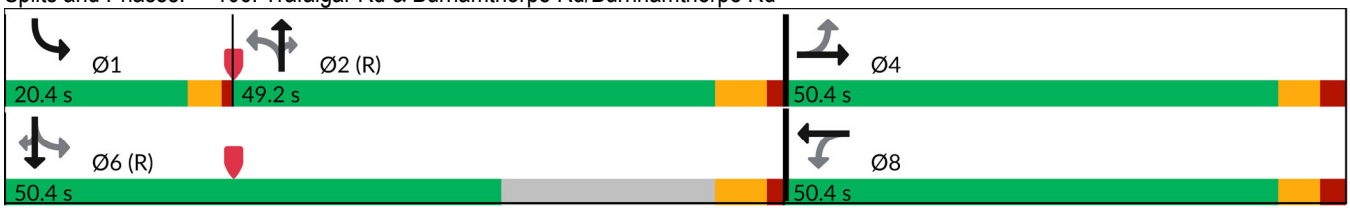


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	216	331	136	206	117	29	66	1545	117	50	1603	51
Future Volume (vph)	216	331	136	206	117	29	66	1545	117	50	1603	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		60.0	60.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	70.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.956			0.955				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1801	0	1770	1814	0	1703	4988	1615	1752	4940	1495
Flt Permitted	0.526			0.134			0.116			0.085		
Satd. Flow (perm)	970	1801	0	250	1814	0	208	4988	1615	157	4940	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			20				90			54
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		828.7			989.6			2053.1			170.3	
Travel Time (s)		49.7			59.4			92.4			7.7	
Peak Hour Factor	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
Adj. Flow (vph)	257	419	172	338	172	73	96	1679	136	77	1724	61
Shared Lane Traffic (%)												
Lane Group Flow (vph)	257	591	0	338	245	0	96	1679	136	77	1724	61
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Minimum Split (s)	24.0	24.0		24.0	24.0		26.0	26.0	26.0	11.5	26.0	26.0
Total Split (s)	50.4	50.4		50.4	50.4		49.2	49.2	49.2	20.4	50.4	50.4
Total Split (%)	42.0%	42.0%		42.0%	42.0%		41.0%	41.0%	41.0%	17.0%	42.0%	42.0%
Maximum Green (s)	44.4	44.4		44.4	44.4		43.2	43.2	43.2	16.4	44.4	44.4
Yellow Time (s)	3.7	3.7		3.7	3.7		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.3	2.3		2.3	2.3		1.4	1.4	1.4	1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Act Effct Green (s)	44.4	44.4		44.4	44.4		43.2	43.2	45.2	65.6	63.6	65.6
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.36	0.36	0.38	0.55	0.53	0.55
v/c Ratio	0.72	0.88		3.67	0.36		1.30	0.94	0.20	0.25	0.66	0.07
Control Delay (s/veh)	45.6	50.2		Error	26.9		238.1	48.0	10.4	15.1	21.9	4.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (s/veh)	45.6	50.2		Error	26.9		238.1	48.0	10.4	15.1	21.9	4.3
LOS	D	D		F	C		F	D	B	B	C	A
Approach Delay (s/veh)		48.8			732.7			54.8			21.0	
Approach LOS		D			F			D			C	

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: Pretimed			
Maximum v/c Ratio: 3.67			
Intersection Signal Delay (s/veh): 117.7		Intersection LOS: F	
Intersection Capacity Utilization 104.8%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burhamthorpe Rd/Burnhamthorpe Rd



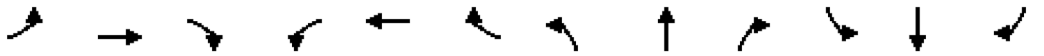


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	257	591	338	245	96	1679	136	77	1724	61
v/c Ratio	0.72	0.88	3.67	0.36	1.30	0.94	0.20	0.25	0.66	0.07
Control Delay (s/veh)	45.6	50.2	Error	26.9	238.1	48.0	10.4	15.1	21.9	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	45.6	50.2	Error	26.9	238.1	48.0	10.4	15.1	21.9	4.3
Queue Length 50th (m)	54.1	132.9	~130.2	40.0	~30.2	145.8	7.2	8.7	108.6	0.8
Queue Length 95th (m)	80.0	150.2	#113.9	43.4	#46.2	#178.5	19.3	11.5	125.3	6.3
Internal Link Dist (m)		804.7		965.6		2029.1			146.3	
Turn Bay Length (m)	30.0		15.0		60.0		60.0	60.0		60.0
Base Capacity (vph)	358	674	92	683	74	1795	664	303	2618	841
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	0.72	0.88	3.67	0.36	1.30	0.94	0.20	0.25	0.66	0.07

Intersection Summary

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

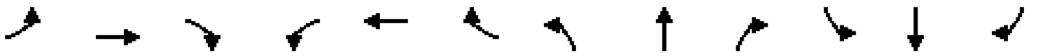
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	216	331	136	206	117	29	66	1545	117	50	1603	51
Future Volume (vph)	216	331	136	206	117	29	66	1545	117	50	1603	51
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	4.0	6.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	1801		1770	1815		1703	4988	1615	1752	4940	1495
Flt Permitted	0.53	1.00		0.13	1.00		0.12	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	970	1801		249	1815		207	4988	1615	156	4940	1495
Peak-hour factor, PHF	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Adj. Flow (vph)	257	419	172	338	172	72	96	1679	136	77	1724	61
RTOR Reduction (vph)	0	8	0	0	13	0	0	0	56	0	0	24
Lane Group Flow (vph)	257	583	0	338	232	0	96	1679	80	77	1724	37
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	44.4	44.4		44.4	44.4		43.2	43.2	43.2	63.6	63.6	63.6
Effective Green, g (s)	44.4	44.4		44.4	44.4		43.2	43.2	45.2	63.6	63.6	65.6
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.36	0.36	0.38	0.53	0.53	0.55
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	4.0	6.0	6.0
Lane Grp Cap (vph)	358	666		92	671		74	1795	608	300	2618	817
v/s Ratio Prot		0.32			0.13			0.34		0.03	c0.35	
v/s Ratio Perm	0.26			c1.36			c0.46		0.05	0.10		0.02
v/c Ratio	0.72	0.88		3.67	0.35		1.30	0.94	0.13	0.26	0.66	0.04
Uniform Delay, d1	32.4	35.2		37.8	27.3		38.4	37.1	24.5	20.5	20.4	12.6
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	11.7	15.0		1229.6	1.4		203.5	10.6	0.4	2.1	1.3	0.1
Delay (s)	44.1	50.2		1267.4	28.7		241.9	47.7	25.0	22.5	21.7	12.7
Level of Service	D	D		F	C		F	D	C	C	C	B
Approach Delay (s/veh)		48.3			746.8			55.8			21.4	
Approach LOS		D			F			E			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	119.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.21		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	104.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

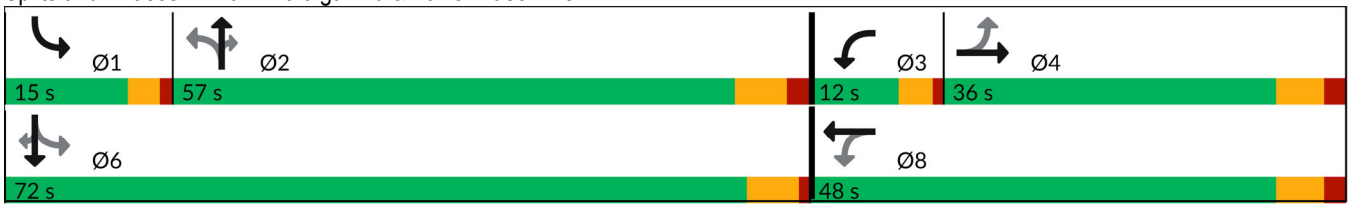


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	232	45	235	294	316	217	1673	273	179	1267	60
Future Volume (vph)	64	232	45	235	294	316	217	1673	273	179	1267	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		90.0	90.0		90.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.965			0.924				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1834	0	1770	1738	0	1805	5036	1599	1752	5085	1615
Flt Permitted	0.134			0.219			0.180			0.072		
Satd. Flow (perm)	250	1834	0	408	1738	0	342	5036	1599	133	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			48				323			95
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			728.6			888.2	
Travel Time (s)		38.5			41.4			32.8			40.0	
Peak Hour Factor	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Adj. Flow (vph)	83	276	83	247	372	385	244	1743	325	201	1392	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	83	359	0	247	757	0	244	1743	325	201	1392	95
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0		25.0	25.0	25.0	7.0	25.0	25.0
Minimum Split (s)	22.5	22.5		11.5	22.5		31.6	31.6	31.6	11.5	30.6	30.6
Total Split (s)	36.0	36.0		12.0	48.0		57.0	57.0	57.0	15.0	72.0	72.0
Total Split (%)	30.0%	30.0%		10.0%	40.0%		47.5%	47.5%	47.5%	12.5%	60.0%	60.0%
Maximum Green (s)	29.8	29.8		8.0	41.8		50.4	50.4	50.4	11.0	66.4	66.4
Yellow Time (s)	4.2	4.2		3.0	4.2		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	Max
Act Effct Green (s)	29.8	29.8		44.0	41.8		50.4	50.4	50.4	68.0	66.4	66.4
Actuated g/C Ratio	0.25	0.25		0.37	0.35		0.42	0.42	0.42	0.57	0.55	0.55
v/c Ratio	1.34	0.77		1.03	1.19		1.71	0.82	0.38	0.90	0.49	0.10
Control Delay (s/veh)	266.2	53.1		99.1	134.3		372.3	35.0	3.8	68.0	17.2	2.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	266.2	53.1		99.1	134.3		372.3	35.0	3.8	68.0	17.2	2.7
LOS	F	D		F	F		F	C	A	E	B	A
Approach Delay (s/veh)		93.1			125.6			66.2			22.5	
Approach LOS		F			F			E			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.71			
Intersection Signal Delay (s/veh): 65.8		Intersection LOS: E	
Intersection Capacity Utilization 109.0%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line



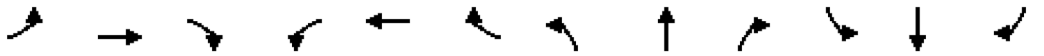


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	83	359	247	757	244	1743	325	201	1392	95
v/c Ratio	1.34	0.77	1.03	1.19	1.71	0.82	0.38	0.90	0.49	0.10
Control Delay (s/veh)	266.2	53.1	99.1	134.3	372.3	35.0	3.8	68.0	17.2	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	266.2	53.1	99.1	134.3	372.3	35.0	3.8	68.0	17.2	2.7
Queue Length 50th (m)	~26.8	80.6	~46.6	~219.0	~88.8	138.1	0.3	32.9	74.3	0.0
Queue Length 95th (m)	#49.5	106.8	#101.4	#238.4	#106.3	158.8	12.9	#77.2	86.8	2.2
Internal Link Dist (m)		725.3		666.6		704.6			864.2	
Turn Bay Length (m)	45.0		110.0		90.0		90.0	90.0		90.0
Base Capacity (vph)	62	464	240	636	143	2115	858	223	2813	936
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.34	0.77	1.03	1.19	1.71	0.82	0.38	0.90	0.49	0.10

Intersection Summary

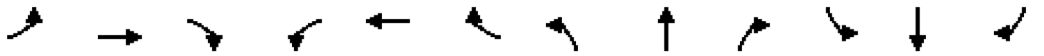
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	232	45	235	294	316	217	1673	273	179	1267	60
Future Volume (vph)	64	232	45	235	294	316	217	1673	273	179	1267	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.97		1.00	0.92		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1834		1770	1738		1805	5036	1599	1752	5085	1615
Flt Permitted	0.13	1.00		0.22	1.00		0.18	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	250	1834		408	1738		341	5036	1599	133	5085	1615
Peak-hour factor, PHF	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Adj. Flow (vph)	83	276	83	247	372	385	244	1743	325	201	1392	95
RTOR Reduction (vph)	0	9	0	0	31	0	0	0	187	0	0	42
Lane Group Flow (vph)	83	350	0	247	726	0	244	1743	138	201	1392	53
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	29.8	29.8		41.8	41.8		50.4	50.4	50.4	66.4	66.4	66.4
Effective Green, g (s)	29.8	29.8		41.8	41.8		50.4	50.4	50.4	66.4	66.4	66.4
Actuated g/C Ratio	0.25	0.25		0.35	0.35		0.42	0.42	0.42	0.55	0.55	0.55
Clearance Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Vehicle Extension (s)	5.0	5.0		0.2	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Lane Grp Cap (vph)	62	455		232	605		143	2115	671	222	2813	893
v/s Ratio Prot		0.19		0.07	c0.42			0.35		c0.08	0.27	
v/s Ratio Perm	c0.33			0.30			c0.71		0.09	0.42		0.03
v/c Ratio	1.34	0.77		1.06	1.20		1.71	0.82	0.21	0.91	0.49	0.06
Uniform Delay, d1	45.1	41.9		37.4	39.1		34.8	30.9	22.1	32.9	16.5	12.4
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	228.8	9.0		77.2	105.1		345.8	3.8	0.7	40.0	0.6	0.1
Delay (s)	273.9	50.9		114.7	144.2		380.6	34.7	22.8	72.9	17.1	12.5
Level of Service	F	D		F	F		F	C	C	E	B	B
Approach Delay (s/veh)		92.8			136.9			69.5			23.5	
Approach LOS		F			F			E			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	69.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.48		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	109.0%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

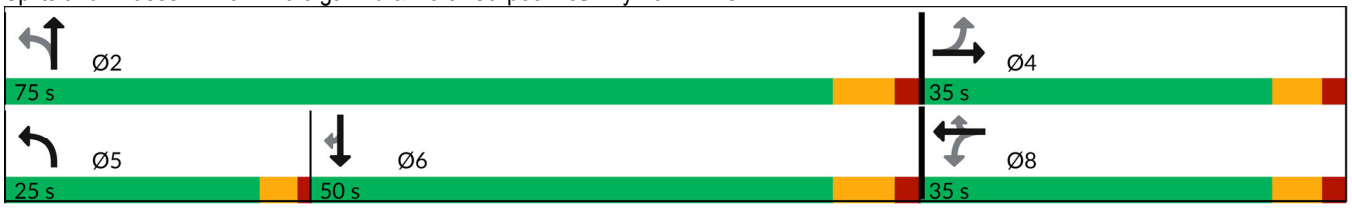


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	20	400	3	30	13	2129	0	0	1541	5
Future Volume (vph)	3	0	20	400	3	30	13	2129	0	0	1541	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.892			0.997	0.850						0.850
Flt Protected		0.990		0.950	0.955		0.950					
Satd. Flow (prot)	0	1520	0	1681	1595	1408	1641	5085	0	0	5085	1615
Flt Permitted		0.926		0.731	0.708		0.091					
Satd. Flow (perm)	0	1422	0	1294	1183	1408	157	5085	0	0	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		79			1	79						69
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			728.6	
Travel Time (s)		9.6			41.3			26.2			52.5	
Peak Hour Factor	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Adj. Flow (vph)	8	0	32	449	8	37	26	2265	0	0	1693	10
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	0	40	0	229	232	33	26	2265	0	0	1693	10
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	4.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	27.0			27.0	27.0
Total Split (s)	35.0	35.0		35.0	35.0	35.0	25.0	75.0			50.0	50.0
Total Split (%)	31.8%	31.8%		31.8%	31.8%	31.8%	22.7%	68.2%			45.5%	45.5%
Maximum Green (s)	29.0	29.0		29.0	29.0	29.0	21.0	68.0			43.0	43.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0			2.0	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	4.0	7.0			7.0	7.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	None	Max			Max	Max
Act Effct Green (s)		24.5		24.5	24.5	24.5	71.1	68.1			62.4	62.4
Actuated g/C Ratio		0.23		0.23	0.23	0.23	0.67	0.64			0.59	0.59
v/c Ratio		0.10		0.76	0.84	0.09	0.14	0.69			0.56	0.01
Control Delay (s/veh)		1.6		54.9	65.0	0.4	8.5	14.1			15.8	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		1.6		54.9	65.0	0.4	8.5	14.1			15.8	0.0
LOS		A		D	E	A	A	B			B	A
Approach Delay (s/veh)		1.6			56.0			14.0			15.7	
Approach LOS		A			E			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 105.7			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay (s/veh): 19.1		Intersection LOS: B	
Intersection Capacity Utilization 70.1%		ICU Level of Service C	
Analysis Period (min) 15			

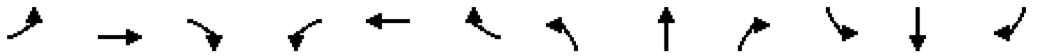
Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off





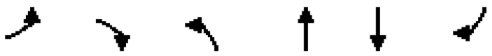
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	40	229	232	33	26	2265	1693	10
v/c Ratio	0.10	0.76	0.84	0.09	0.14	0.69	0.56	0.01
Control Delay (s/veh)	1.6	54.9	65.0	0.4	8.5	14.1	15.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	1.6	54.9	65.0	0.4	8.5	14.1	15.8	0.0
Queue Length 50th (m)	0.0	48.8	52.6	0.0	1.8	113.6	90.4	0.0
Queue Length 95th (m)	0.0	77.7	29.5	0.0	2.8	137.8	112.0	0.0
Internal Link Dist (m)	110.0		550.1			339.6	704.6	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	448	355	325	444	401	3278	3000	981
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	0.65	0.71	0.07	0.06	0.69	0.56	0.01

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	20	400	3	30	13	2129	0	0	1541	5
Future Volume (vph)	3	0	20	400	3	30	13	2129	0	0	1541	5
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	4.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.91			0.91	1.00
Frt		0.89		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1520		1681	1596	1408	1641	5085			5085	1615
Flt Permitted		0.93		0.73	0.71	1.00	0.09	1.00			1.00	1.00
Satd. Flow (perm)		1421		1294	1183	1408	157	5085			5085	1615
Peak-hour factor, PHF	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Adj. Flow (vph)	8	0	32	449	8	37	26	2265	0	0	1693	10
RTOR Reduction (vph)	0	31	0	0	1	25	0	0	0	0	0	4
Lane Group Flow (vph)	0	9	0	229	231	8	26	2265	0	0	1693	6
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		24.5		24.5	24.5	24.5	69.9	69.9			62.4	62.4
Effective Green, g (s)		24.5		24.5	24.5	24.5	69.9	69.9			62.4	62.4
Actuated g/C Ratio		0.23		0.23	0.23	0.23	0.65	0.65			0.58	0.58
Clearance Time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Lane Grp Cap (vph)		324		295	269	321	150	3309			2954	938
v/s Ratio Prot							0.01	c0.45			0.33	
v/s Ratio Perm		0.01		0.18	c0.20	0.01	0.11					0.00
v/c Ratio		0.03		0.78	0.86	0.02	0.17	0.68			0.57	0.01
Uniform Delay, d1		32.2		38.9	39.8	32.2	8.9	11.8			14.1	9.5
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2		0.0		12.4	23.3	0.0	0.4	1.2			0.8	0.0
Delay (s)		32.2		51.3	63.1	32.2	9.3	13.0			14.9	9.5
Level of Service		C		D	E	C	A	B			B	A
Approach Delay (s/veh)		32.2			55.6			12.9			14.9	
Approach LOS		C			E			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	18.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	107.4	Sum of lost time (s)	17.0
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

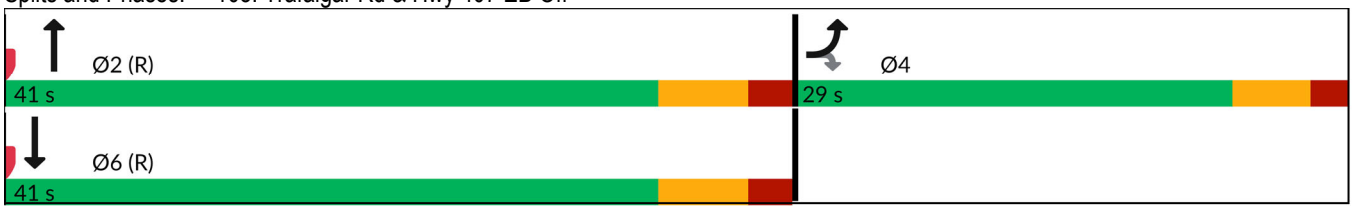


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	43	95	0	2376	1774	0
Future Volume (vph)	43	95	0	2376	1774	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1703	1429	0	5085	5085	0
Flt Permitted	0.950					
Satd. Flow (perm)	1703	1429	0	5085	5085	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		4				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			253.0	363.6	
Travel Time (s)	39.9			18.2	26.2	
Peak Hour Factor	0.75	0.94	0.25	0.94	0.92	0.25
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Adj. Flow (vph)	57	101	0	2528	1928	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	101	0	2528	1928	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	29.0	29.0		24.9	24.9	
Total Split (s)	29.0	29.0		41.0	41.0	
Total Split (%)	41.4%	41.4%		58.6%	58.6%	
Maximum Green (s)	23.0	23.0		34.1	34.1	
Yellow Time (s)	4.0	4.0		4.6	4.6	
All-Red Time (s)	2.0	2.0		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.9	6.9	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	23.0	23.0		34.1	34.1	
Actuated g/C Ratio	0.33	0.33		0.49	0.49	
v/c Ratio	0.10	0.21		1.02	0.78	
Control Delay (s/veh)	17.0	17.8		43.1	17.6	
Queue Delay	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay (s/veh)	17.0	17.8		43.1	17.6	
LOS	B	B		D	B	
Approach Delay (s/veh)	17.5			43.1	17.6	
Approach LOS	B			D	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 75			
Control Type: Pretimed			
Maximum v/c Ratio: 1.02			
Intersection Signal Delay (s/veh): 31.6		Intersection LOS: C	
Intersection Capacity Utilization 60.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off



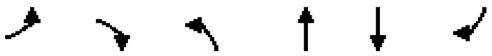


Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	57	101	2528	1928
v/c Ratio	0.10	0.21	1.02	0.78
Control Delay (s/veh)	17.0	17.8	43.1	17.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	17.0	17.8	43.1	17.6
Queue Length 50th (m)	5.4	9.5	~127.7	75.5
Queue Length 95th (m)	10.7	20.5	#168.8	94.3
Internal Link Dist (m)	530.6		229.0	339.6
Turn Bay Length (m)				
Base Capacity (vph)	559	472	2477	2477
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.10	0.21	1.02	0.78

Intersection Summary

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

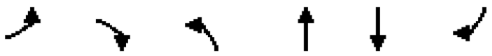
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	43	95	0	2376	1774	0
Future Volume (vph)	43	95	0	2376	1774	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.9	6.9	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1703	1429		5085	5085	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1703	1429		5085	5085	
Peak-hour factor, PHF	0.75	0.94	0.25	0.94	0.92	0.25
Adj. Flow (vph)	57	101	0	2528	1928	0
RTOR Reduction (vph)	0	3	0	0	0	0
Lane Group Flow (vph)	57	98	0	2528	1928	0
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	23.0	23.0		34.1	34.1	
Effective Green, g (s)	23.0	23.0		34.1	34.1	
Actuated g/C Ratio	0.33	0.33		0.49	0.49	
Clearance Time (s)	6.0	6.0		6.9	6.9	
Lane Grp Cap (vph)	559	469		2477	2477	
v/s Ratio Prot	0.03			c0.50	0.38	
v/s Ratio Perm		c0.07				
v/c Ratio	0.10	0.21		1.02	0.78	
Uniform Delay, d1	16.3	16.9		18.0	14.8	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	1.0		23.5	2.5	
Delay (s)	16.7	18.0		41.4	17.3	
Level of Service	B	B		D	B	
Approach Delay (s/veh)	17.5			41.4	17.3	
Approach LOS	B			D	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	30.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

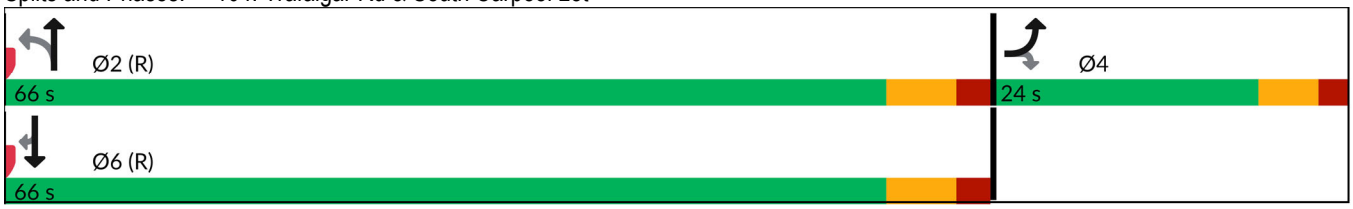


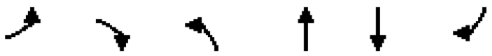
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	82	91	79	2705	1827	43
Future Volume (vph)	82	91	79	2705	1827	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	50.0			30.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5		100.0			
Lane Util. Factor	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)	1504	1455	1570	5085	5085	1615
Flt Permitted	0.950		0.069			
Satd. Flow (perm)	1504	1455	114	5085	5085	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		16				42
Link Speed (k/h)	50			80	80	
Link Distance (m)	107.1			231.4	253.0	
Travel Time (s)	7.7			10.4	11.4	
Peak Hour Factor	0.62	0.78	0.78	0.93	0.90	0.77
Heavy Vehicles (%)	20%	11%	15%	2%	2%	0%
Adj. Flow (vph)	132	117	101	2909	2030	56
Shared Lane Traffic (%)						
Lane Group Flow (vph)	132	117	101	2909	2030	56
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Minimum Split (s)	24.0	24.0	24.9	24.9	24.9	24.9
Total Split (s)	24.0	24.0	66.0	66.0	66.0	66.0
Total Split (%)	26.7%	26.7%	73.3%	73.3%	73.3%	73.3%
Maximum Green (s)	18.0	18.0	59.1	59.1	59.1	59.1
Yellow Time (s)	4.0	4.0	4.6	4.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.9	6.9	6.9	6.9
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Don't Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	18.0	18.0	59.1	59.1	59.1	59.1
Actuated g/C Ratio	0.20	0.20	0.66	0.66	0.66	0.66

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
v/c Ratio	0.44	0.39	1.36	0.87	0.61	0.05
Control Delay (s/veh)	37.0	31.2	252.7	16.3	9.8	2.6
Queue Delay	0.0	0.0	0.0	0.5	0.0	0.0
Total Delay (s/veh)	37.0	31.2	252.7	16.8	9.8	2.6
LOS	D	C	F	B	A	A
Approach Delay (s/veh)	34.2			24.7	9.6	
Approach LOS	C			C	A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 130			
Control Type: Pretimed			
Maximum v/c Ratio: 1.36			
Intersection Signal Delay (s/veh): 19.3		Intersection LOS: B	
Intersection Capacity Utilization 67.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 104: Trafalgar Rd & South Carpool Lot



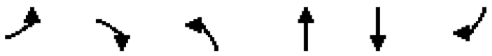


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	132	117	101	2909	2030	56
v/c Ratio	0.44	0.39	1.36	0.87	0.61	0.05
Control Delay (s/veh)	37.0	31.2	252.7	16.3	9.8	2.6
Queue Delay	0.0	0.0	0.0	0.5	0.0	0.0
Total Delay (s/veh)	37.0	31.2	252.7	16.8	9.8	2.6
Queue Length 50th (m)	21.2	15.9	~24.3	138.1	68.6	0.8
Queue Length 95th (m)	25.5	27.0	#34.1	164.3	81.9	3.5
Internal Link Dist (m)	83.1			207.4	229.0	
Turn Bay Length (m)			50.0			30.0
Base Capacity (vph)	300	303	74	3339	3339	1074
Starvation Cap Reductn	0	0	0	136	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.39	1.36	0.91	0.61	0.05

Intersection Summary

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

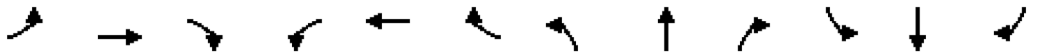
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	82	91	79	2705	1827	43
Future Volume (vph)	82	91	79	2705	1827	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.9	6.9	6.9	6.9
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)	1504	1455	1570	5085	5085	1615
Flt Permitted	0.95	1.00	0.07	1.00	1.00	1.00
Satd. Flow (perm)	1504	1455	113	5085	5085	1615
Peak-hour factor, PHF	0.62	0.78	0.78	0.93	0.90	0.77
Adj. Flow (vph)	132	117	101	2909	2030	56
RTOR Reduction (vph)	0	13	0	0	0	14
Lane Group Flow (vph)	132	104	101	2909	2030	42
Heavy Vehicles (%)	20%	11%	15%	2%	2%	0%
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	18.0	18.0	59.1	59.1	59.1	59.1
Effective Green, g (s)	18.0	18.0	59.1	59.1	59.1	59.1
Actuated g/C Ratio	0.20	0.20	0.66	0.66	0.66	0.66
Clearance Time (s)	6.0	6.0	6.9	6.9	6.9	6.9
Lane Grp Cap (vph)	300	291	74	3339	3339	1060
v/s Ratio Prot	c0.09			0.57	0.40	
v/s Ratio Perm		0.07	c0.89			0.03
v/c Ratio	0.44	0.36	1.36	0.87	0.61	0.04
Uniform Delay, d1	31.6	31.0	15.4	12.4	8.8	5.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.6	3.4	229.3	3.4	0.8	0.1
Delay (s)	36.2	34.4	244.8	15.8	9.7	5.5
Level of Service	D	C	F	B	A	A
Approach Delay (s/veh)	35.4			23.5	9.6	
Approach LOS	D			C	A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	18.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

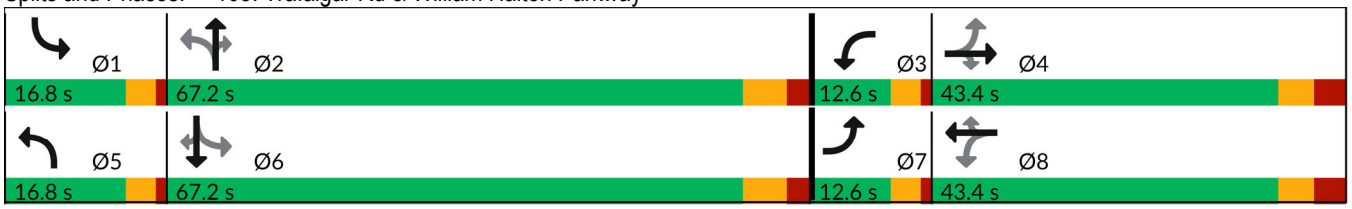


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	318	732	248	164	911	655	233	1812	46	267	1358	294
Future Volume (vph)	318	732	248	164	911	655	233	1812	46	267	1358	294
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	0.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			7.5		
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)	1770	3539	1599	1805	3610	1583	1787	5085	1615	1719	5085	1599
Flt Permitted	0.110			0.141			0.073			0.066		
Satd. Flow (perm)	205	3539	1599	268	3610	1583	137	5085	1615	119	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			182			173			94			176
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		1213.9			1579.7			277.3			231.4	
Travel Time (s)		87.4			113.7			20.0			16.7	
Peak Hour Factor	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
Adj. Flow (vph)	353	755	273	231	1059	771	288	2013	73	290	1579	320
Shared Lane Traffic (%)												
Lane Group Flow (vph)	353	755	273	231	1059	771	288	2013	73	290	1579	320
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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)	11.5	38.0	38.0	11.5	38.0	38.0	11.5	42.9	42.9	11.5	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	Max	Max	None	Max	Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Don't 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)	48.0	36.4	36.4	48.0	36.4	36.4	76.0	60.3	60.3	76.0	60.3	60.3
Actuated g/C Ratio	0.34	0.26	0.26	0.34	0.26	0.26	0.54	0.43	0.43	0.54	0.43	0.43
v/c Ratio	2.13	0.82	0.50	1.24	1.13	1.43	1.28	0.92	0.10	1.38	0.72	0.41
Control Delay (s/veh)	548.6	57.2	17.9	177.8	118.2	234.0	188.0	45.5	2.6	230.3	35.2	13.3
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 (s/veh)	548.6	57.2	17.9	177.8	118.2	234.0	188.0	45.5	2.6	230.3	35.2	13.3
LOS	F	E	B	F	F	F	F	D	A	F	D	B
Approach Delay (s/veh)		175.1			168.2			61.5			57.9	
Approach LOS		F			F			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Natural Cycle: 125			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 2.13			
Intersection Signal Delay (s/veh): 107.6		Intersection LOS: F	
Intersection Capacity Utilization 110.9%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway



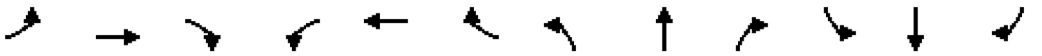


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	353	755	273	231	1059	771	288	2013	73	290	1579	320
v/c Ratio	2.13	0.82	0.50	1.24	1.13	1.43	1.28	0.92	0.10	1.38	0.72	0.41
Control Delay (s/veh)	548.6	57.2	17.9	177.8	118.2	234.0	188.0	45.5	2.6	230.3	35.2	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	548.6	57.2	17.9	177.8	118.2	234.0	188.0	45.5	2.6	230.3	35.2	13.3
Queue Length 50th (m)	~146.8	109.5	20.9	~59.8	~187.6	~265.3	~87.4	200.0	0.0	~95.6	137.3	26.5
Queue Length 95th (m)	#211.9	134.8	49.9	#73.5	#214.7	#315.6	#124.2	223.0	0.0	#156.3	145.7	51.6
Internal Link Dist (m)		1189.9			1555.7			253.3			207.4	
Turn Bay Length (m)	100.0		100.0	100.0		150.0	150.0		75.0			
Base Capacity (vph)	166	920	550	186	938	539	225	2190	749	210	2190	788
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	2.13	0.82	0.50	1.24	1.13	1.43	1.28	0.92	0.10	1.38	0.72	0.41

Intersection Summary

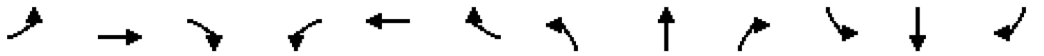
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	318	732	248	164	911	655	233	1812	46	267	1358	294
Future Volume (vph)	318	732	248	164	911	655	233	1812	46	267	1358	294
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)	1770	3539	1599	1805	3610	1583	1787	5085	1615	1719	5085	1599
Flt Permitted	0.11	1.00	1.00	0.14	1.00	1.00	0.07	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	205	3539	1599	268	3610	1583	137	5085	1615	120	5085	1599
Peak-hour factor, PHF	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Adj. Flow (vph)	353	755	273	231	1059	771	288	2013	73	290	1579	320
RTOR Reduction (vph)	0	0	135	0	0	128	0	0	42	0	0	100
Lane Group Flow (vph)	353	755	138	231	1059	643	288	2013	31	290	1579	220
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
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)	45.0	36.4	36.4	45.0	36.4	36.4	73.1	60.3	60.3	73.1	60.3	60.3
Effective Green, g (s)	45.0	36.4	36.4	45.0	36.4	36.4	73.1	60.3	60.3	73.1	60.3	60.3
Actuated g/C Ratio	0.32	0.26	0.26	0.32	0.26	0.26	0.52	0.43	0.43	0.52	0.43	0.43
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)	162	920	415	180	938	411	222	2190	695	208	2190	688
v/s Ratio Prot	c0.13	0.21		0.08	0.29		0.12	0.40		c0.13	0.31	
v/s Ratio Perm	c0.57		0.09	0.33		0.41	0.56		0.02	c0.60		0.14
v/c Ratio	2.18	0.82	0.33	1.28	1.13	1.56	1.30	0.92	0.05	1.39	0.72	0.32
Uniform Delay, d1	42.0	48.7	42.0	42.2	51.8	51.8	40.2	37.6	23.1	43.9	32.9	26.3
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	550.4	6.6	1.0	162.9	71.7	265.6	162.8	7.7	0.1	204.0	2.1	1.2
Delay (s)	592.4	55.4	43.0	205.2	123.5	317.4	203.0	45.3	23.3	247.9	35.0	27.5
Level of Service	F	E	D	F	F	F	F	D	C	F	C	C
Approach Delay (s/veh)		190.2			205.2			63.7			62.1	
Approach LOS		F			F			E			E	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	121.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.69		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.9
Intersection Capacity Utilization	110.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

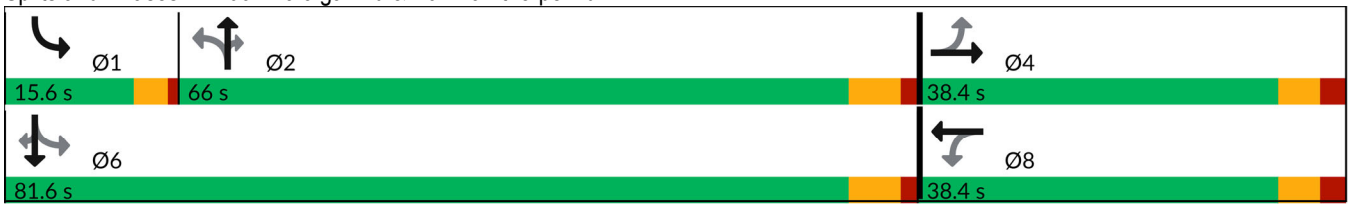


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	437	24	236	386	318	99	1762	146	214	1380	177
Future Volume (vph)	136	437	24	236	386	318	99	1762	146	214	1380	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		60.0	60.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	70.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.993			0.936				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1887	0	1805	1778	0	1805	5036	1615	1480	5085	1599
Flt Permitted	0.123			0.123			0.151			0.062		
Satd. Flow (perm)	229	1887	0	234	1778	0	287	5036	1615	97	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			31				64			78
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		828.7			989.6			1941.0			176.4	
Travel Time (s)		49.7			59.4			87.3			7.9	
Peak Hour Factor	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	1%
Adj. Flow (vph)	162	624	30	299	536	398	127	2073	215	334	1568	206
Shared Lane Traffic (%)												
Lane Group Flow (vph)	162	654	0	299	934	0	127	2073	215	334	1568	206
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		20.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	24.0	24.0		24.0	24.0		26.0	26.0	26.0	11.5	26.0	26.0
Total Split (s)	38.4	38.4		38.4	38.4		66.0	66.0	66.0	15.6	81.6	81.6
Total Split (%)	32.0%	32.0%		32.0%	32.0%		55.0%	55.0%	55.0%	13.0%	68.0%	68.0%
Maximum Green (s)	32.4	32.4		32.4	32.4		60.0	60.0	60.0	11.6	75.6	75.6
Yellow Time (s)	3.7	3.7		3.7	3.7		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.3	2.3		2.3	2.3		1.4	1.4	1.4	1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max	Max	None	Max	Max
Act Effct Green (s)	32.4	32.4		32.4	32.4		60.0	60.0	62.0	77.6	75.6	77.6
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.50	0.50	0.52	0.65	0.63	0.65
v/c Ratio	2.66	1.28		4.75	1.86		0.89	0.82	0.25	1.70	0.49	0.19
Control Delay (s/veh)	810.0	178.3		Error	421.6		81.1	29.0	11.9	363.3	12.5	5.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	810.0	178.3		Error	421.6		81.1	29.0	11.9	363.3	12.5	5.6
LOS	F	F		F	F		F	C	B	F	B	A
Approach Delay (s/veh)		303.7			739.7			30.2			67.4	
Approach LOS		F			F			C			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 110			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 4.75			
Intersection Signal Delay (s/veh): 209.2		Intersection LOS: F	
Intersection Capacity Utilization 112.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burnhamthorpe Rd



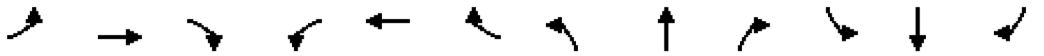


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	162	654	299	934	127	2073	215	334	1568	206
v/c Ratio	2.66	1.28	4.75	1.86	0.89	0.82	0.25	1.70	0.49	0.19
Control Delay (s/veh)	810.0	178.3	Error	421.6	81.1	29.0	11.9	363.3	12.5	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	810.0	178.3	Error	421.6	81.1	29.0	11.9	363.3	12.5	5.6
Queue Length 50th (m)	~67.6	~206.4	~125.2	~349.9	27.4	154.8	19.2	~108.6	70.9	11.3
Queue Length 95th (m)	#91.3	#188.1	#156.7	#316.3	#55.3	159.8	22.3	#100.7	79.4	19.5
Internal Link Dist (m)		804.7		965.6		1917.0			152.4	
Turn Bay Length (m)	30.0		15.0		60.0		60.0	60.0		60.0
Base Capacity (vph)	61	510	63	502	143	2518	865	196	3203	1061
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	2.66	1.28	4.75	1.86	0.89	0.82	0.25	1.70	0.49	0.19

Intersection Summary

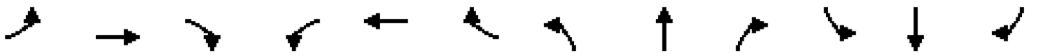
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	437	24	236	386	318	99	1762	146	214	1380	177
Future Volume (vph)	136	437	24	236	386	318	99	1762	146	214	1380	177
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	4.0	6.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.99		1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1887		1805	1779		1805	5036	1615	1480	5085	1599
Flt Permitted	0.12	1.00		0.12	1.00		0.15	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	230	1887		235	1779		287	5036	1615	97	5085	1599
Peak-hour factor, PHF	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Adj. Flow (vph)	162	624	30	299	536	398	127	2073	215	334	1568	206
RTOR Reduction (vph)	0	1	0	0	23	0	0	0	31	0	0	28
Lane Group Flow (vph)	162	653	0	299	911	0	127	2073	184	334	1568	178
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	32.4	32.4		32.4	32.4		60.0	60.0	60.0	75.6	75.6	75.6
Effective Green, g (s)	32.4	32.4		32.4	32.4		60.0	60.0	62.0	75.6	75.6	77.6
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.50	0.50	0.52	0.63	0.63	0.65
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	62	509		63	480		143	2518	834	194	3203	1034
v/s Ratio Prot		0.35			0.51			0.41		c0.17	0.31	
v/s Ratio Perm	0.70			c1.27			0.44		0.11	c0.91		0.11
v/c Ratio	2.61	1.28		4.75	1.90		0.89	0.82	0.22	1.72	0.49	0.17
Uniform Delay, d1	43.8	43.8		43.8	43.8		27.0	25.5	15.8	37.8	11.9	8.4
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	770.1	141.3		1721.2	412.2		50.1	3.2	0.6	345.5	0.5	0.4
Delay (s)	813.9	185.1		1765.0	456.0		77.1	28.7	16.4	383.3	12.4	8.8
Level of Service	F	F		F	F		E	C	B	F	B	A
Approach Delay (s/veh)		310.0			773.4			30.1			70.8	
Approach LOS		F			F			C			E	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	217.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	112.3%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

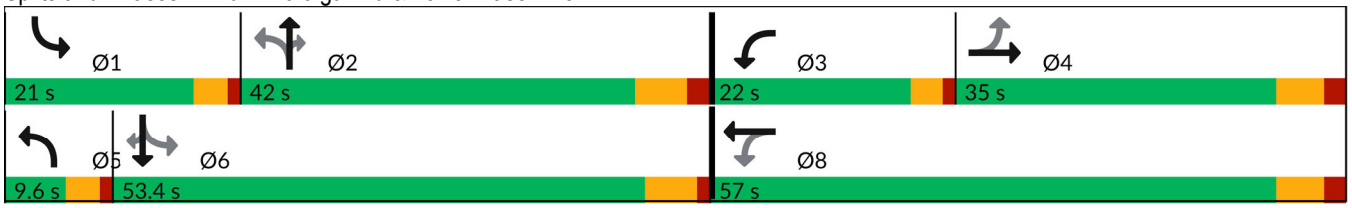


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	273	82	251	93	120	29	1121	224	285	1435	54
Future Volume (vph)	95	273	82	251	93	120	29	1121	224	285	1435	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		90.0	90.0		90.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.962			0.912				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1814	0	1736	1666	0	1597	4848	1568	1752	4988	1553
Flt Permitted	0.593			0.122			0.110			0.097		
Satd. Flow (perm)	1083	1814	0	223	1666	0	185	4848	1568	179	4988	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			73				252			102
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			728.7			434.3	
Travel Time (s)		38.5			41.4			32.8			19.5	
Peak Hour Factor	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Adj. Flow (vph)	113	355	121	344	112	158	40	1367	252	324	1688	76
Shared Lane Traffic (%)												
Lane Group Flow (vph)	113	476	0	344	270	0	40	1367	252	324	1688	76
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		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		2	6		6
Detector Phase	4	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0		5.0	25.0	25.0	7.0	25.0	25.0
Minimum Split (s)	22.5	22.5		9.5	22.5		9.5	31.6	31.6	11.5	30.6	30.6
Total Split (s)	35.0	35.0		22.0	57.0		9.6	42.0	42.0	21.0	53.4	53.4
Total Split (%)	29.2%	29.2%		18.3%	47.5%		8.0%	35.0%	35.0%	17.5%	44.5%	44.5%
Maximum Green (s)	28.8	28.8		18.0	50.8		5.6	35.4	35.4	17.0	47.8	47.8
Yellow Time (s)	4.2	4.2		3.0	4.2		3.0	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.0	2.0		1.0	2.0		1.0	2.0	2.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		4.0	6.2		4.0	6.6	6.6	4.0	5.6	5.6
Lead/Lag	Lag	Lag		Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	5.0	5.0		3.0	5.0		3.0	5.0	5.0	0.2	5.0	5.0
Recall Mode	None	None		None	None		None	Max	Max	Max	Max	Max
Act Effct Green (s)	28.8	28.8		53.0	50.8		43.6	35.4	35.4	59.0	49.7	49.7
Actuated g/C Ratio	0.24	0.24		0.44	0.42		0.36	0.30	0.30	0.49	0.41	0.41
v/c Ratio	0.44	1.07		1.06	0.36		0.30	0.96	0.39	1.05	0.82	0.11
Control Delay (s/veh)	45.0	105.1		98.5	18.4		23.4	57.2	5.8	96.6	35.6	2.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	45.0	105.1		98.5	18.4		23.4	57.2	5.8	96.6	35.6	2.4
LOS	D	F		F	B		C	E	A	F	D	A
Approach Delay (s/veh)		93.5			63.3			48.6			43.9	
Approach LOS		F			E			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.07			
Intersection Signal Delay (s/veh): 53.8		Intersection LOS: D	
Intersection Capacity Utilization 88.0%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line



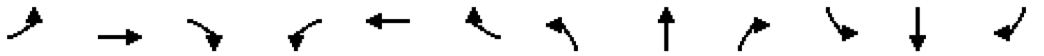


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	113	476	344	270	40	1367	252	324	1688	76
v/c Ratio	0.44	1.07	1.06	0.36	0.30	0.96	0.39	1.05	0.82	0.11
Control Delay (s/veh)	45.0	105.1	98.5	18.4	23.4	57.2	5.8	96.6	35.6	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	45.0	105.1	98.5	18.4	23.4	57.2	5.8	96.6	35.6	2.4
Queue Length 50th (m)	23.9	~128.3	~76.3	31.9	5.0	121.7	0.0	~70.4	137.6	0.0
Queue Length 95th (m)	39.8	#150.4	#91.5	47.4	9.0	125.2	18.7	#124.9	145.1	1.2
Internal Link Dist (m)		725.3		666.6		704.7			410.3	
Turn Bay Length (m)	45.0		110.0		90.0		90.0	90.0		90.0
Base Capacity (vph)	259	445	325	747	133	1430	640	310	2066	702
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	0.44	1.07	1.06	0.36	0.30	0.96	0.39	1.05	0.82	0.11

Intersection Summary

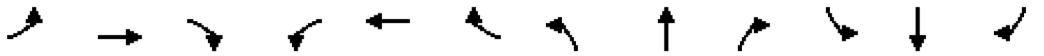
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	273	82	251	93	120	29	1121	224	285	1435	54
Future Volume (vph)	95	273	82	251	93	120	29	1121	224	285	1435	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2		4.0	6.2		4.0	6.6	6.6	4.0	5.6	5.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	1814		1736	1667		1597	4848	1568	1752	4988	1553
Flt Permitted	0.59	1.00		0.12	1.00		0.11	1.00	1.00	0.10	1.00	1.00
Satd. Flow (perm)	1084	1814		223	1667		186	4848	1568	179	4988	1553
Peak-hour factor, PHF	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Adj. Flow (vph)	113	355	121	344	112	158	40	1367	252	324	1688	76
RTOR Reduction (vph)	0	10	0	0	42	0	0	0	176	0	0	45
Lane Group Flow (vph)	113	466	0	344	228	0	40	1367	76	324	1688	31
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	28.8	28.8		50.8	50.8		40.7	36.2	36.2	58.2	49.7	49.7
Effective Green, g (s)	28.8	28.8		50.8	50.8		40.7	36.2	36.2	58.2	49.7	49.7
Actuated g/C Ratio	0.24	0.24		0.42	0.42		0.34	0.30	0.30	0.48	0.41	0.41
Clearance Time (s)	6.2	6.2		4.0	6.2		4.0	6.6	6.6	4.0	5.6	5.6
Vehicle Extension (s)	5.0	5.0		3.0	5.0		3.0	5.0	5.0	0.2	5.0	5.0
Lane Grp Cap (vph)	258	432		319	701		115	1452	469	307	2052	638
v/s Ratio Prot		0.26		c0.16	0.14		0.01	0.28		c0.15	0.34	
v/s Ratio Perm	0.10			c0.29			0.10		0.05	c0.36		0.02
v/c Ratio	0.44	1.08		1.08	0.32		0.35	0.94	0.16	1.06	0.82	0.05
Uniform Delay, d1	39.1	46.0		36.0	23.5		28.9	41.3	31.1	36.6	31.6	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	2.5	66.1		72.9	0.6		1.8	13.3	0.7	66.7	3.9	0.1
Delay (s)	41.6	112.1		108.9	24.1		30.7	54.5	31.9	103.3	35.5	21.5
Level of Service	D	F		F	C		C	D	C	F	D	C
Approach Delay (s/veh)		98.6			71.6			50.5			45.5	
Approach LOS		F			E			D			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	56.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	120.8	Sum of lost time (s)	20.8
Intersection Capacity Utilization	88.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

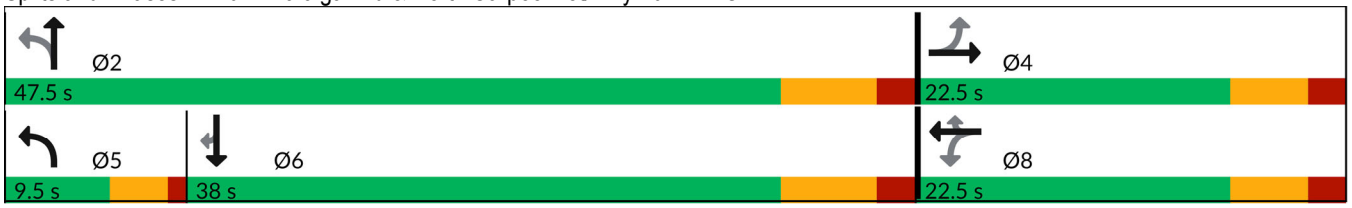


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	9	230	2	6	7	1366	0	0	1766	2
Future Volume (vph)	3	0	9	230	2	6	7	1366	0	0	1766	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.893			0.999	0.850						0.850
Flt Protected		0.990		0.950	0.954		0.950					
Satd. Flow (prot)	0	1481	0	1545	1472	1534	1543	4893	0	0	4988	1615
Flt Permitted		0.920		0.732	0.705		0.098					
Satd. Flow (perm)	0	1376	0	1190	1088	1534	159	4893	0	0	4988	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		125				125						109
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			728.7	
Travel Time (s)		9.6			41.3			26.2			52.5	
Peak Hour Factor	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Adj. Flow (vph)	8	0	30	299	4	14	23	1485	0	0	2030	8
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	0	38	0	152	152	13	23	1485	0	0	2030	8
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	4.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	27.0			27.0	27.0
Total Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	47.5			38.0	38.0
Total Split (%)	32.1%	32.1%		32.1%	32.1%	32.1%	13.6%	67.9%			54.3%	54.3%
Maximum Green (s)	16.5	16.5		16.5	16.5	16.5	5.5	40.5			31.0	31.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0			2.0	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	4.0	7.0			7.0	7.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	None	Max			Max	Max
Act Effct Green (s)		13.6		13.6	13.6	13.6	43.6	40.6			36.9	36.9
Actuated g/C Ratio		0.20		0.20	0.20	0.20	0.65	0.60			0.55	0.55
v/c Ratio		0.10		0.63	0.69	0.03	0.11	0.50			0.74	0.01
Control Delay (s/veh)		0.5		36.9	42.1	0.2	6.1	8.7			15.9	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		0.5		36.9	42.1	0.2	6.1	8.7			15.9	0.0
LOS		A		D	D	A	A	A			B	A
Approach Delay (s/veh)		0.5			37.9			8.7			15.9	
Approach LOS		A			D			A			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 67.2			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay (s/veh): 14.7		Intersection LOS: B	
Intersection Capacity Utilization 58.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off

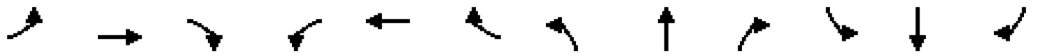




Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	38	152	152	13	23	1485	2030	8
v/c Ratio	0.10	0.63	0.69	0.03	0.11	0.50	0.74	0.01
Control Delay (s/veh)	0.5	36.9	42.1	0.2	6.1	8.7	15.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	0.5	36.9	42.1	0.2	6.1	8.7	15.9	0.0
Queue Length 50th (m)	0.0	19.3	20.4	0.0	1.0	38.4	62.0	0.0
Queue Length 95th (m)	0.0	31.5	20.0	0.0	1.1	51.9	#110.2	0.0
Internal Link Dist (m)	110.0		550.1			339.6	704.7	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	432	292	267	471	216	2954	2741	936
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	0.52	0.57	0.03	0.11	0.50	0.74	0.01

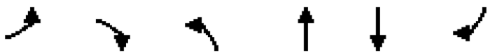
Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	9	230	2	6	7	1366	0	0	1766	2
Future Volume (vph)	3	0	9	230	2	6	7	1366	0	0	1766	2
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	4.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.91			0.91	1.00
Frt		0.89		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1481		1545	1472	1534	1543	4893			4988	1615
Flt Permitted		0.92		0.73	0.71	1.00	0.10	1.00			1.00	1.00
Satd. Flow (perm)		1377		1191	1088	1534	159	4893			4988	1615
Peak-hour factor, PHF	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Adj. Flow (vph)	8	0	30	299	4	14	23	1485	0	0	2030	8
RTOR Reduction (vph)	0	31	0	0	0	10	0	0	0	0	0	4
Lane Group Flow (vph)	0	7	0	152	152	3	23	1485	0	0	2030	4
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		13.6		13.6	13.6	13.6	43.0	43.0			36.9	36.9
Effective Green, g (s)		13.6		13.6	13.6	13.6	43.0	43.0			36.9	36.9
Actuated g/C Ratio		0.20		0.20	0.20	0.20	0.62	0.62			0.53	0.53
Clearance Time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Lane Grp Cap (vph)		269		232	212	299	139	3022			2644	856
v/s Ratio Prot							0.00	c0.30			c0.41	
v/s Ratio Perm		0.01		0.13	c0.14	0.00	0.10					0.00
v/c Ratio		0.03		0.66	0.72	0.01	0.17	0.49			0.77	0.00
Uniform Delay, d1		22.7		25.8	26.2	22.6	8.3	7.3			13.0	7.7
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2		0.0		6.8	11.3	0.0	0.4	0.6			2.2	0.0
Delay (s)		22.7		32.6	37.5	22.6	8.7	7.9			15.2	7.7
Level of Service		C		C	D	C	A	A			B	A
Approach Delay (s/veh)		22.7			34.6			7.9			15.1	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	69.6	Sum of lost time (s)	17.0
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

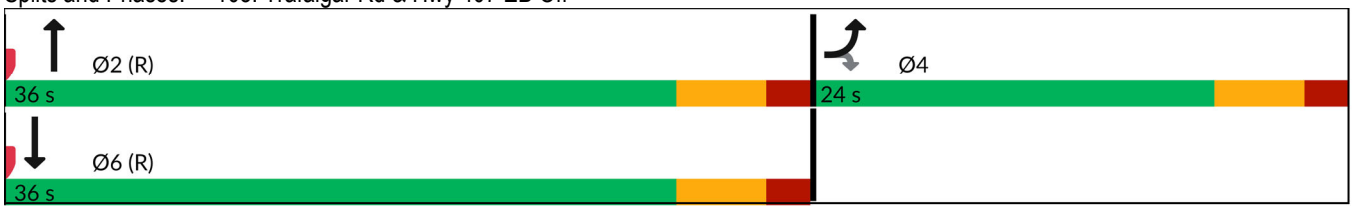


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	68	181	0	1450	1916	0
Future Volume (vph)	68	181	0	1450	1916	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1671	1392	0	4848	4940	0
Flt Permitted	0.950					
Satd. Flow (perm)	1671	1392	0	4848	4940	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		2				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			485.1	363.6	
Travel Time (s)	39.9			34.9	26.2	
Peak Hour Factor	0.79	0.78	0.25	0.85	0.86	0.25
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Adj. Flow (vph)	86	232	0	1706	2228	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	86	232	0	1706	2228	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			7.2	7.2	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	24.0	24.0		24.0	24.0	
Total Split (s)	24.0	24.0		36.0	36.0	
Total Split (%)	40.0%	40.0%		60.0%	60.0%	
Maximum Green (s)	18.0	18.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	18.0	18.0		30.0	30.0	
Actuated g/C Ratio	0.30	0.30		0.50	0.50	
v/c Ratio	0.17	0.55		0.70	0.90	
Control Delay (s/veh)	16.7	23.5		13.6	20.6	
Queue Delay	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay (s/veh)	16.7	23.5		13.6	20.6	
LOS	B	C		B	C	
Approach Delay (s/veh)	21.6			13.6	20.6	
Approach LOS	C			B	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 60			
Control Type: Pretimed			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay (s/veh): 17.8		Intersection LOS: B	
Intersection Capacity Utilization 58.2%		ICU Level of Service B	
Analysis Period (min) 15			

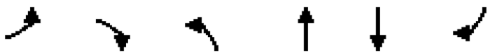
Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off





Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	86	232	1706	2228
v/c Ratio	0.17	0.55	0.70	0.90
Control Delay (s/veh)	16.7	23.5	13.6	20.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.7	23.5	13.6	20.6
Queue Length 50th (m)	7.3	22.1	51.4	79.3
Queue Length 95th (m)	14.3	34.6	60.9	93.9
Internal Link Dist (m)	530.6		461.1	339.6
Turn Bay Length (m)				
Base Capacity (vph)	501	419	2424	2470
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	0.17	0.55	0.70	0.90

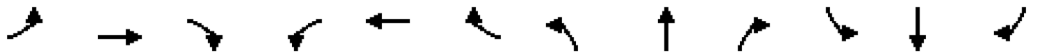
Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	68	181	0	1450	1916	0
Future Volume (vph)	68	181	0	1450	1916	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1671	1392		4848	4940	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1671	1392		4848	4940	
Peak-hour factor, PHF	0.79	0.78	0.25	0.85	0.86	0.25
Adj. Flow (vph)	86	232	0	1706	2228	0
RTOR Reduction (vph)	0	1	0	0	0	0
Lane Group Flow (vph)	86	231	0	1706	2228	0
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	18.0	18.0		30.0	30.0	
Effective Green, g (s)	18.0	18.0		30.0	30.0	
Actuated g/C Ratio	0.30	0.30		0.50	0.50	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	501	417		2424	2470	
v/s Ratio Prot	0.05			0.35	c0.45	
v/s Ratio Perm		c0.17				
v/c Ratio	0.17	0.55		0.70	0.90	
Uniform Delay, d1	15.5	17.6		11.6	13.7	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	5.2		1.7	5.9	
Delay (s)	16.2	22.8		13.3	19.6	
Level of Service	B	C		B	B	
Approach Delay (s/veh)	21.0			13.3	19.6	
Approach LOS	C			B	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

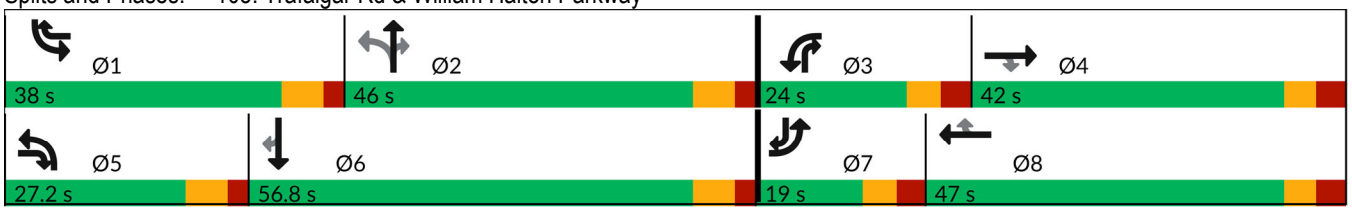


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	832	202	290	681	453	330	1172	218	616	1090	391
Future Volume (vph)	203	832	202	290	681	453	330	1172	218	616	1090	391
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	150.0		150.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3467	3574	1599	3273	3574	1429	3303	4988	1615	3433	4893	1538
Flt Permitted	0.950			0.950			0.163			0.950		
Satd. Flow (perm)	3467	3574	1599	3273	3574	1429	567	4988	1615	3433	4893	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			129			79			129			79
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		1215.0			165.2			455.6			485.1	
Travel Time (s)		87.5			11.9			32.8			34.9	
Peak Hour Factor	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
Adj. Flow (vph)	239	914	243	387	873	604	384	1302	260	751	1211	455
Shared Lane Traffic (%)												
Lane Group Flow (vph)	239	914	243	387	873	604	384	1302	260	751	1211	455
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8	2		2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	20.0	7.0	7.0	20.0	7.0	7.0	20.0	7.0	7.0	20.0	7.0
Minimum Split (s)	14.0	38.0	13.9	14.0	38.0	13.9	13.9	42.9	14.0	13.9	42.9	14.0
Total Split (s)	19.0	42.0	27.2	24.0	47.0	38.0	27.2	46.0	24.0	38.0	56.8	19.0
Total Split (%)	12.7%	28.0%	18.1%	16.0%	31.3%	25.3%	18.1%	30.7%	16.0%	25.3%	37.9%	12.7%
Maximum Green (s)	12.0	35.0	20.3	17.0	40.0	31.1	20.3	39.1	17.0	31.1	49.9	12.0
Yellow Time (s)	3.7	3.7	4.6	3.7	3.7	4.6	4.6	4.6	3.7	4.6	4.6	3.7
All-Red Time (s)	3.3	3.3	2.3	3.3	3.3	2.3	2.3	2.3	3.3	2.3	2.3	3.3
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)	7.0	7.0	6.9	7.0	7.0	6.9	6.9	6.9	7.0	6.9	6.9	7.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0
Recall Mode	None	None	None	None	None	None	None	Max	None	None	Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		24.0			24.0			29.0			29.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	12.0	35.0	58.6	17.0	40.0	78.1	55.7	39.1	63.0	31.1	53.6	72.5
Actuated g/C Ratio	0.08	0.23	0.39	0.11	0.27	0.52	0.37	0.26	0.42	0.21	0.36	0.48
v/c Ratio	0.86	1.10	0.35	1.05	0.92	0.77	0.75	1.00	0.35	1.06	0.69	0.58
Control Delay (s/veh)	95.8	113.5	15.4	121.7	68.2	32.9	37.6	80.1	15.6	105.4	44.2	26.6
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 (s/veh)	95.8	113.5	15.4	121.7	68.2	32.9	37.6	80.1	15.6	105.4	44.2	26.6
LOS	F	F	B	F	E	C	D	F	B	F	D	C
Approach Delay (s/veh)		93.4			67.9			63.1			59.9	
Approach LOS		F			E			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.10			
Intersection Signal Delay (s/veh): 68.8		Intersection LOS: E	
Intersection Capacity Utilization 94.7%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway



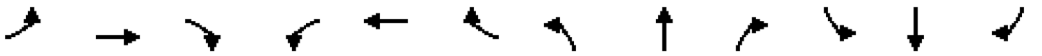


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	239	914	243	387	873	604	384	1302	260	751	1211	455
v/c Ratio	0.86	1.10	0.35	1.05	0.92	0.77	0.75	1.00	0.35	1.06	0.69	0.58
Control Delay (s/veh)	95.8	113.5	15.4	121.7	68.2	32.9	37.6	80.1	15.6	105.4	44.2	26.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	95.8	113.5	15.4	121.7	68.2	32.9	37.6	80.1	15.6	105.4	44.2	26.6
Queue Length 50th (m)	38.8	~169.7	23.4	~67.4	140.5	131.5	34.4	~150.8	26.1	~132.2	118.9	83.9
Queue Length 95th (m)	#57.0	#213.5	37.7	#75.1	139.2	130.6	46.8	#186.3	42.8	#147.5	141.7	116.7
Internal Link Dist (m)		1191.0			141.2			431.6			461.1	
Turn Bay Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	150.0		150.0
Base Capacity (vph)	277	833	739	370	953	781	594	1300	753	711	1748	784
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	0.86	1.10	0.33	1.05	0.92	0.77	0.65	1.00	0.35	1.06	0.69	0.58

Intersection Summary

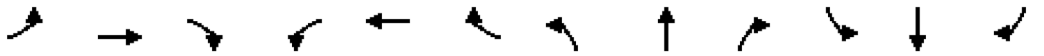
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	832	202	290	681	453	330	1172	218	616	1090	391
Future Volume (vph)	203	832	202	290	681	453	330	1172	218	616	1090	391
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	6.9	7.0	7.0	6.9	6.9	6.9	7.0	6.9	6.9	7.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3467	3574	1599	3273	3574	1429	3303	4988	1615	3433	4893	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.16	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3273	3574	1429	567	4988	1615	3433	4893	1538
Peak-hour factor, PHF	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Adj. Flow (vph)	239	914	243	387	873	604	384	1302	260	751	1211	455
RTOR Reduction (vph)	0	0	85	0	0	42	0	0	81	0	0	44
Lane Group Flow (vph)	239	914	158	387	873	562	384	1302	179	751	1211	411
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8	2		2			6
Actuated Green, G (s)	12.0	35.0	51.6	17.0	40.0	71.1	55.7	39.1	56.1	31.1	53.6	65.6
Effective Green, g (s)	12.0	35.0	51.6	17.0	40.0	71.1	55.7	39.1	56.1	31.1	53.6	65.6
Actuated g/C Ratio	0.08	0.23	0.34	0.11	0.27	0.47	0.37	0.26	0.37	0.21	0.36	0.44
Clearance Time (s)	7.0	7.0	6.9	7.0	7.0	6.9	6.9	6.9	7.0	6.9	6.9	7.0
Vehicle Extension (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0
Lane Grp Cap (vph)	277	833	550	370	953	677	513	1300	604	711	1748	672
v/s Ratio Prot	0.07	c0.26	0.03	c0.12	c0.24	0.17	0.08	c0.26	0.03	c0.22	0.25	0.05
v/s Ratio Perm			0.07			0.22	0.19		0.08			0.22
v/c Ratio	0.86	1.10	0.29	1.05	0.92	0.83	0.75	1.00	0.30	1.06	0.69	0.61
Uniform Delay, d1	68.2	57.5	35.8	66.5	53.4	34.2	34.2	55.5	33.1	59.5	41.2	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	23.1	61.2	0.3	59.3	13.8	8.5	5.9	25.3	0.3	49.6	2.3	1.7
Delay (s)	91.3	118.7	36.1	125.8	67.1	42.8	40.1	80.8	33.3	109.0	43.5	34.1
Level of Service	F	F	D	F	E	D	D	F	C	F	D	C
Approach Delay (s/veh)		99.6			71.4			66.4			62.1	
Approach LOS		F			E			E			E	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	72.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	27.8
Intersection Capacity Utilization	94.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

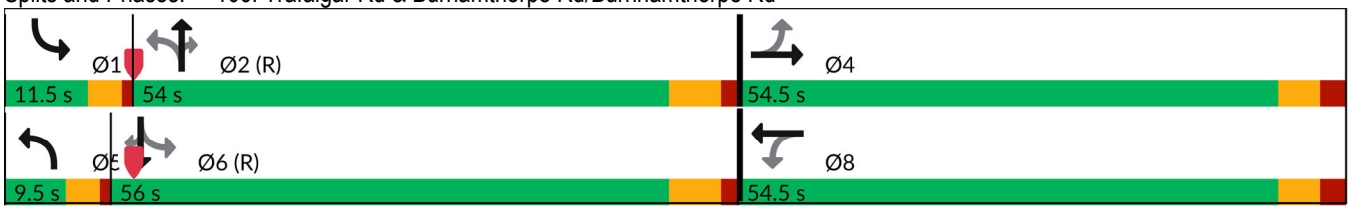


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	208	312	121	199	110	51	59	1522	105	70	1458	55
Future Volume (vph)	208	312	121	199	110	51	59	1522	105	70	1458	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		60.0	60.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	70.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.958			0.934				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1805	0	1770	1775	0	1703	4988	1615	1752	4940	1495
Flt Permitted	0.490			0.220			0.083			0.080		
Satd. Flow (perm)	904	1805	0	410	1775	0	149	4988	1615	148	4940	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			40				88			64
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		828.7			989.6			1077.8			455.6	
Travel Time (s)		49.7			59.4			48.5			20.5	
Peak Hour Factor	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
Adj. Flow (vph)	248	395	153	326	162	128	86	1654	122	108	1568	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	248	548	0	326	290	0	86	1654	122	108	1568	65
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Minimum Split (s)	24.0	24.0		24.0	24.0		9.5	26.0	26.0	11.5	26.0	26.0
Total Split (s)	54.5	54.5		54.5	54.5		9.5	54.0	54.0	11.5	56.0	56.0
Total Split (%)	45.4%	45.4%		45.4%	45.4%		7.9%	45.0%	45.0%	9.6%	46.7%	46.7%
Maximum Green (s)	48.5	48.5		48.5	48.5		5.5	48.0	48.0	7.5	50.0	50.0
Yellow Time (s)	3.7	3.7		3.7	3.7		3.0	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.3	2.3		2.3	2.3		1.0	1.4	1.4	1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Act Effct Green (s)	48.5	48.5		48.5	48.5		55.5	48.0	50.0	59.5	50.0	52.0
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.46	0.40	0.42	0.50	0.42	0.43
v/c Ratio	0.68	0.74		1.98	0.39		0.61	0.83	0.17	0.62	0.76	0.10
Control Delay (s/veh)	40.6	36.5		484.3	23.4		36.2	36.8	8.1	34.4	32.9	5.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (s/veh)	40.6	36.5		484.3	23.4		36.2	36.8	8.1	34.4	32.9	5.4
LOS	D	D		F	C		D	D	A	C	C	A
Approach Delay (s/veh)		37.7			267.3			34.9			32.0	
Approach LOS		D			F			C			C	

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: Pretimed			
Maximum v/c Ratio: 1.98			
Intersection Signal Delay (s/veh): 62.9		Intersection LOS: E	
Intersection Capacity Utilization 88.4%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burhamthorpe Rd/Burnhamthorpe Rd



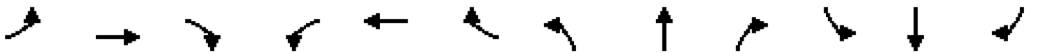


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	248	548	326	290	86	1654	122	108	1568	65
v/c Ratio	0.68	0.74	1.98	0.39	0.61	0.83	0.17	0.62	0.76	0.10
Control Delay (s/veh)	40.6	36.5	484.3	23.4	36.2	36.8	8.1	34.4	32.9	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	40.6	36.5	484.3	23.4	36.2	36.8	8.1	34.4	32.9	5.4
Queue Length 50th (m)	49.8	110.0	~125.4	42.9	10.6	132.9	4.9	13.4	119.6	0.2
Queue Length 95th (m)	75.0	126.1	#111.0	45.1	14.7	153.6	15.7	16.5	139.1	7.4
Internal Link Dist (m)		804.7		965.6		1053.8			431.6	
Turn Bay Length (m)	30.0		15.0		60.0		60.0	60.0		60.0
Base Capacity (vph)	365	741	165	741	140	1995	724	173	2058	684
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.74	1.98	0.39	0.61	0.83	0.17	0.62	0.76	0.10

Intersection Summary

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

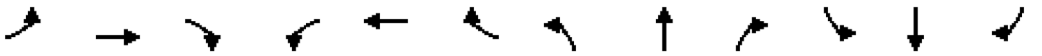
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	208	312	121	199	110	51	59	1522	105	70	1458	55
Future Volume (vph)	208	312	121	199	110	51	59	1522	105	70	1458	55
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		4.0	6.0	4.0	4.0	6.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	1805		1770	1774		1703	4988	1615	1752	4940	1495
Flt Permitted	0.49	1.00		0.22	1.00		0.08	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	903	1805		409	1774		149	4988	1615	148	4940	1495
Peak-hour factor, PHF	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Adj. Flow (vph)	248	395	153	326	162	128	86	1654	122	108	1568	65
RTOR Reduction (vph)	0	12	0	0	24	0	0	0	51	0	0	36
Lane Group Flow (vph)	248	536	0	326	266	0	86	1654	71	108	1568	29
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	48.5	48.5		48.5	48.5		53.5	48.0	48.0	57.5	50.0	50.0
Effective Green, g (s)	48.5	48.5		48.5	48.5		53.5	48.0	50.0	57.5	50.0	52.0
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.45	0.40	0.42	0.48	0.42	0.43
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Grp Cap (vph)	364	729		165	716		137	1995	672	171	2058	647
v/s Ratio Prot		0.30			0.15		0.03	c0.33		c0.04	0.32	
v/s Ratio Perm	0.27			c0.80			0.25		0.04	0.26		0.02
v/c Ratio	0.68	0.74		1.98	0.37		0.63	0.83	0.11	0.63	0.76	0.04
Uniform Delay, d1	29.4	30.3		35.8	25.1		23.0	32.3	21.4	23.3	29.9	19.6
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	9.9	6.5		460.2	1.5		19.8	4.2	0.3	16.4	2.7	0.1
Delay (s)	39.3	36.8		495.9	26.5		42.8	36.5	21.7	39.7	32.6	19.8
Level of Service	D	D		F	C		D	D	C	D	C	B
Approach Delay (s/veh)		37.6			274.9			35.8			32.6	
Approach LOS		D			F			D			C	

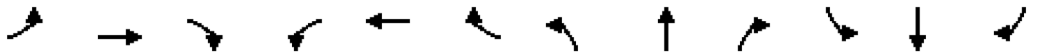
Intersection Summary			
HCM 2000 Control Delay (s/veh)	64.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.35		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	88.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1589	77	0	1183	6	0	0	89	0	0	241
Future Volume (vph)	0	1589	77	0	1183	6	0	0	89	0	0	241
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
Frt		0.993			0.999				0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3514	0	0	3536	0	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3514	0	0	3536	0	0	0	1611	0	0	1611
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		165.2			220.0			185.6			207.5	
Travel Time (s)		11.9			15.8			13.4			14.9	
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
Adj. Flow (vph)	0	1727	84	0	1286	7	0	0	97	0	0	262
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1811	0	0	1293	0	0	0	97	0	0	262
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

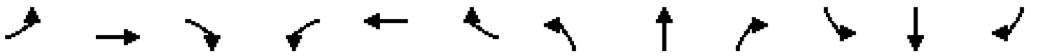
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.6%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1589	77	0	1183	6	0	0	89	0	0	241
Future Volume (Veh/h)	0	1589	77	0	1183	6	0	0	89	0	0	241
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1727	84	0	1286	7	0	0	97	0	0	262
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		165			220							
pX, platoon unblocked	0.78			0.77			0.88	0.88	0.77	0.88	0.88	0.78
vC, conflicting volume	1293			1811			2674	3062	906	2250	3101	647
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	802			1461			1494	1932	288	1014	1976	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	82	100	100	69
cM capacity (veh/h)	635			354			52	58	547	140	54	842

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	1151	660	857	436	97	262
Volume Left	0	0	0	0	0	0
Volume Right	0	84	0	7	97	262
cSH	1700	1700	1700	1700	547	842
Volume to Capacity	0.68	0.39	0.50	0.26	0.18	0.31
Queue Length 95th (m)	0.0	0.0	0.0	0.0	5.1	10.6
Control Delay (s/veh)	0.0	0.0	0.0	0.0	13.0	11.2
Lane LOS					B	B
Approach Delay (s/veh)	0.0		0.0		13.0	11.2
Approach LOS					B	B

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	58.6%	ICU Level of Service		B
Analysis Period (min)	15			

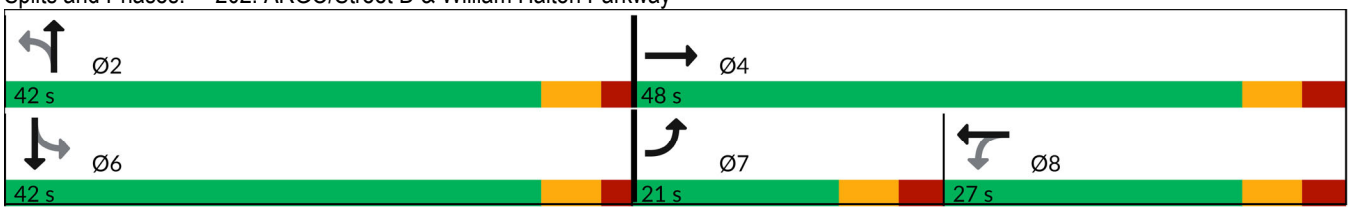


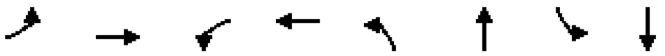
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	482	1119	77	54	771	14	293	10	89	49	10	125
Future Volume (vph)	482	1119	77	54	771	14	293	10	89	49	10	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	50.0		0.0	0.0		0.0
Storage Lanes	2		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990			0.997			0.865			0.861	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3504	0	1770	3529	0	1770	1611	0	1770	1604	0
Flt Permitted	0.950			0.212			0.663			0.687		
Satd. Flow (perm)	3433	3504	0	395	3529	0	1235	1611	0	1280	1604	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			2			29			136	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		220.0			1108.5			243.0			268.9	
Travel Time (s)		15.8			79.8			17.5			19.4	
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
Adj. Flow (vph)	524	1216	84	59	838	15	318	11	97	53	11	136
Shared Lane Traffic (%)												
Lane Group Flow (vph)	524	1300	0	59	853	0	318	108	0	53	147	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)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases				8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	15.0		15.0	15.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	12.0	25.0		25.0	25.0		42.0	42.0		42.0	42.0	
Total Split (s)	21.0	48.0		27.0	27.0		42.0	42.0		42.0	42.0	
Total Split (%)	23.3%	53.3%		30.0%	30.0%		46.7%	46.7%		46.7%	46.7%	
Maximum Green (s)	14.0	41.0		20.0	20.0		36.0	36.0		36.0	36.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	0.2		0.2	0.2		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		Max	Max		None	None		None	None	
Walk Time (s)		7.0		7.0	7.0		14.0	14.0		14.0	14.0	
Flash Don't Walk (s)		11.0		11.0	11.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	14.1	41.4		20.2	20.2		24.8	24.8		24.8	24.8	
Actuated g/C Ratio	0.18	0.52		0.25	0.25		0.31	0.31		0.31	0.31	
v/c Ratio	0.86	0.71		0.59	0.95		0.82	0.21		0.13	0.25	
Control Delay (s/veh)	48.9	18.5		56.6	51.8		42.9	15.1		19.1	5.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	48.9	18.5		56.6	51.8		42.9	15.1		19.1	5.3	
LOS	D	B		E	D		D	B		B	A	
Approach Delay (s/veh)		27.2			52.1			35.9			8.9	
Approach LOS		C			D			D			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 79.3			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay (s/veh): 34.0		Intersection LOS: C	
Intersection Capacity Utilization 92.1%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 202: ARGO/Street D & William Halton Parkway





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	524	1300	59	853	318	108	53	147
v/c Ratio	0.86	0.71	0.59	0.95	0.82	0.21	0.13	0.25
Control Delay (s/veh)	48.9	18.5	56.6	51.8	42.9	15.1	19.1	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	48.9	18.5	56.6	51.8	42.9	15.1	19.1	5.3
Queue Length 50th (m)	41.8	76.7	8.2	69.5	45.7	8.9	5.9	1.2
Queue Length 95th (m)	#82.5	132.1	#31.0	#131.4	76.6	19.6	13.6	12.6
Internal Link Dist (m)		196.0		1084.5		219.0		244.9
Turn Bay Length (m)					50.0			
Base Capacity (vph)	611	1833	100	899	565	753	586	808
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	0.86	0.71	0.59	0.95	0.56	0.14	0.09	0.18

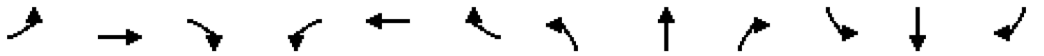
Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	482	1119	77	54	771	14	293	10	89	49	10	125
Future Volume (vph)	482	1119	77	54	771	14	293	10	89	49	10	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.87		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3505		1770	3530		1770	1612		1770	1604	
Flt Permitted	0.95	1.00		0.21	1.00		0.66	1.00		0.69	1.00	
Satd. Flow (perm)	3433	3505		395	3530		1236	1612		1280	1604	
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)	524	1216	84	59	838	15	318	11	97	53	11	136
RTOR Reduction (vph)	0	5	0	0	1	0	0	20	0	0	93	0
Lane Group Flow (vph)	524	1295	0	59	852	0	318	88	0	53	54	0
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases				8			2			6		
Actuated Green, G (s)	14.1	41.4		20.3	20.3		24.8	24.8		24.8	24.8	
Effective Green, g (s)	14.1	41.4		20.3	20.3		24.8	24.8		24.8	24.8	
Actuated g/C Ratio	0.18	0.52		0.26	0.26		0.31	0.31		0.31	0.31	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	0.2		0.2	0.2		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	611	1832		101	904		387	504		400	502	
v/s Ratio Prot	0.15	c0.37			c0.24			0.05			0.03	
v/s Ratio Perm				0.15			c0.26			0.04		
v/c Ratio	0.86	0.71		0.58	0.94		0.82	0.17		0.13	0.11	
Uniform Delay, d1	31.6	14.3		25.8	28.9		25.2	19.8		19.5	19.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.4	1.0		22.4	18.8		13.1	0.2		0.2	0.1	
Delay (s)	43.0	15.3		48.1	47.7		38.3	19.9		19.6	19.4	
Level of Service	D	B		D	D		D	B		B	B	
Approach Delay (s/veh)		23.3			47.7			33.6			19.5	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	31.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	79.2	Sum of lost time (s)	20.0
Intersection Capacity Utilization	92.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

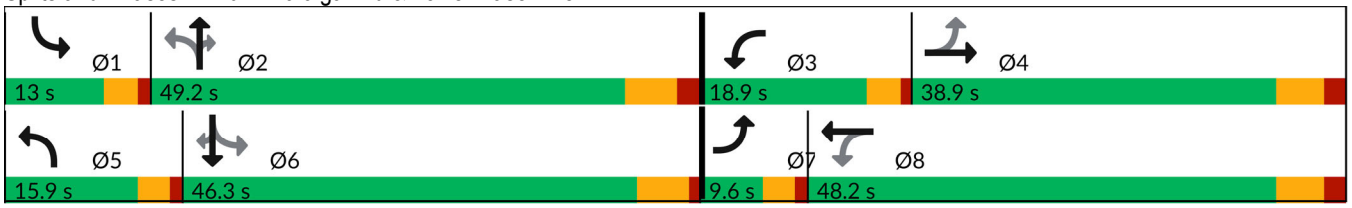


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	205	40	225	260	279	195	1652	299	158	1279	53
Future Volume (vph)	57	205	40	225	260	279	195	1652	299	158	1279	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		90.0	90.0		90.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.965			0.924				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1834	0	1770	1738	0	1805	5036	1599	1752	5085	1615
Flt Permitted	0.117			0.330			0.094			0.098		
Satd. Flow (perm)	218	1834	0	615	1738	0	179	5036	1599	181	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			48				322			138
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			728.6			888.2	
Travel Time (s)		38.5			41.4			32.8			40.0	
Peak Hour Factor	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Adj. Flow (vph)	74	244	74	237	329	340	219	1721	356	178	1405	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	318	0	237	669	0	219	1721	356	178	1405	84
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	pm+pt	NA		pm+pt	NA		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			8			2		2	6		6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		7.0	10.0		5.0	25.0	25.0	7.0	25.0	25.0
Minimum Split (s)	9.5	22.5		11.5	22.5		9.5	31.6	31.6	11.5	30.6	30.6
Total Split (s)	9.6	38.9		18.9	48.2		15.9	49.2	49.2	13.0	46.3	46.3
Total Split (%)	8.0%	32.4%		15.8%	40.2%		13.3%	41.0%	41.0%	10.8%	38.6%	38.6%
Maximum Green (s)	5.6	32.7		14.9	42.0		11.9	42.6	42.6	9.0	40.7	40.7
Yellow Time (s)	3.0	4.2		3.0	4.2		3.0	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0	2.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.2		4.0	6.2		4.0	6.6	6.6	4.0	5.6	5.6
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0		0.2	5.0		3.0	5.0	5.0	0.2	5.0	5.0
Recall Mode	None	None		None	None		None	Max	Max	Max	Max	Max
Act Effct Green (s)	41.2	33.4		51.8	42.1		57.0	42.7	42.7	51.5	40.9	40.9
Actuated g/C Ratio	0.35	0.28		0.44	0.36		0.48	0.36	0.36	0.44	0.35	0.35
v/c Ratio	0.50	0.60		0.61	1.03		0.88	0.95	0.45	0.89	0.80	0.13
Control Delay (s/veh)	31.9	41.1		28.6	79.0		60.9	49.0	6.4	68.8	39.4	1.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	31.9	41.1		28.6	79.0		60.9	49.0	6.4	68.8	39.4	1.0
LOS	C	D		C	E		E	D	A	E	D	A
Approach Delay (s/veh)		39.4			65.8			43.5			40.6	
Approach LOS		D			E			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 118.1			
Natural Cycle: 120			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay (s/veh): 46.1		Intersection LOS: D	
Intersection Capacity Utilization 92.9%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line



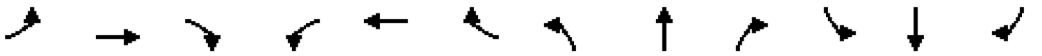


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	74	318	237	669	219	1721	356	178	1405	84
v/c Ratio	0.50	0.60	0.61	1.03	0.88	0.95	0.45	0.89	0.80	0.13
Control Delay (s/veh)	31.9	41.1	28.6	79.0	60.9	49.0	6.4	68.8	39.4	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	31.9	41.1	28.6	79.0	60.9	49.0	6.4	68.8	39.4	1.0
Queue Length 50th (m)	10.3	64.8	36.6	~172.1	36.1	151.9	5.5	27.1	115.7	0.0
Queue Length 95th (m)	16.8	89.8	55.9	#195.2	#80.5	#187.4	20.6	#70.0	135.4	0.0
Internal Link Dist (m)		725.3		666.6		704.6			864.2	
Turn Bay Length (m)	45.0		110.0		90.0		90.0	90.0		90.0
Base Capacity (vph)	149	536	416	649	250	1818	783	199	1760	648
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	0.50	0.59	0.57	1.03	0.88	0.95	0.45	0.89	0.80	0.13

Intersection Summary

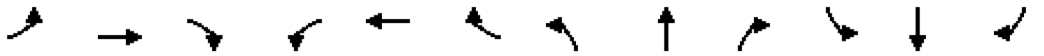
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	205	40	225	260	279	195	1652	299	158	1279	53
Future Volume (vph)	57	205	40	225	260	279	195	1652	299	158	1279	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.2		4.0	6.2		4.0	6.6	6.6	4.0	5.6	5.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.97		1.00	0.92		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1834		1770	1738		1805	5036	1599	1752	5085	1615
Flt Permitted	0.12	1.00		0.33	1.00		0.09	1.00	1.00	0.10	1.00	1.00
Satd. Flow (perm)	218	1834		615	1738		178	5036	1599	180	5085	1615
Peak-hour factor, PHF	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Adj. Flow (vph)	74	244	74	237	329	340	219	1721	356	178	1405	84
RTOR Reduction (vph)	0	9	0	0	31	0	0	0	206	0	0	55
Lane Group Flow (vph)	74	309	0	237	638	0	219	1721	150	178	1405	29
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	38.6	34.2		50.4	42.0		54.5	42.7	42.7	49.9	40.9	40.9
Effective Green, g (s)	38.6	34.2		50.4	42.0		54.5	42.7	42.7	49.9	40.9	40.9
Actuated g/C Ratio	0.32	0.29		0.42	0.35		0.46	0.36	0.36	0.42	0.34	0.34
Clearance Time (s)	4.0	6.2		4.0	6.2		4.0	6.6	6.6	4.0	5.6	5.6
Vehicle Extension (s)	3.0	5.0		0.2	5.0		3.0	5.0	5.0	0.2	5.0	5.0
Lane Grp Cap (vph)	128	527		379	613		243	1808	574	194	1749	555
v/s Ratio Prot	0.02	0.17		c0.06	c0.37		c0.09	c0.34		0.07	0.28	
v/s Ratio Perm	0.17			0.20			0.32		0.09	0.31		0.02
v/c Ratio	0.58	0.59		0.63	1.04		0.90	0.95	0.26	0.92	0.80	0.05
Uniform Delay, d1	32.3	36.3		24.2	38.5		30.4	37.1	26.9	27.7	35.4	26.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.2	2.6		2.3	47.4		32.7	12.5	1.1	46.1	4.0	0.2
Delay (s)	38.5	38.9		26.5	85.8		63.1	49.6	28.0	73.8	39.4	26.2
Level of Service	D	D		C	F		E	D	C	E	D	C
Approach Delay (s/veh)		38.8			70.3			47.5			42.4	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	49.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	118.9	Sum of lost time (s)	20.8
Intersection Capacity Utilization	92.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



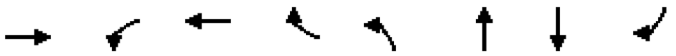
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	18	414	3	27	11	2116	0	0	1539	5
Future Volume (vph)	3	0	18	414	3	27	11	2116	0	0	1539	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.894			0.998	0.850						0.850
Flt Protected		0.989		0.950	0.954		0.950					
Satd. Flow (prot)	0	1525	0	1681	1596	1408	1641	5085	0	0	5085	1615
Flt Permitted		0.919		0.733	0.709		0.084					
Satd. Flow (perm)	0	1417	0	1297	1186	1408	145	5085	0	0	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		97			1	97						85
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			728.6	
Travel Time (s)		9.6			41.3			26.2			52.5	
Peak Hour Factor	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Adj. Flow (vph)	8	0	29	465	8	33	22	2251	0	0	1691	10
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	0	37	0	237	239	30	22	2251	0	0	1691	10
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	4.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	27.0			27.0	27.0
Total Split (s)	34.0	34.0		34.0	34.0	34.0	9.5	56.0			46.5	46.5
Total Split (%)	37.8%	37.8%		37.8%	37.8%	37.8%	10.6%	62.2%			51.7%	51.7%
Maximum Green (s)	28.0	28.0		28.0	28.0	28.0	5.5	49.0			39.5	39.5
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0			2.0	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	4.0	7.0			7.0	7.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	None	Max			Max	Max
Act Effct Green (s)		21.4		21.4	21.4	21.4	52.2	49.2			45.7	45.7
Actuated g/C Ratio		0.26		0.26	0.26	0.26	0.62	0.59			0.55	0.55
v/c Ratio		0.09		0.72	0.79	0.07	0.12	0.75			0.61	0.01
Control Delay (s/veh)		0.4		40.8	47.4	0.3	9.1	15.8			16.2	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		0.4		40.8	47.4	0.3	9.1	15.8			16.2	0.0
LOS		A		D	D	A	A	B			B	A
Approach Delay (s/veh)		0.4			41.5			15.7			16.1	
Approach LOS		A			D			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 83.7			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay (s/veh): 18.6		Intersection LOS: B	
Intersection Capacity Utilization 70.2%		ICU Level of Service C	
Analysis Period (min) 15			

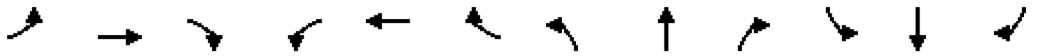
Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off





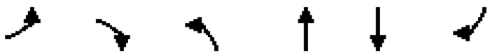
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	37	237	239	30	22	2251	1691	10
v/c Ratio	0.09	0.72	0.79	0.07	0.12	0.75	0.61	0.01
Control Delay (s/veh)	0.4	40.8	47.4	0.3	9.1	15.8	16.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	0.4	40.8	47.4	0.3	9.1	15.8	16.2	0.0
Queue Length 50th (m)	0.0	38.0	40.7	0.0	1.3	96.1	60.3	0.0
Queue Length 95th (m)	0.0	63.5	23.6	0.0	2.6	137.0	110.5	0.0
Internal Link Dist (m)	110.0		550.1			339.6	704.6	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	540	435	399	537	189	2990	2775	920
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	0.54	0.60	0.06	0.12	0.75	0.61	0.01

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	18	414	3	27	11	2116	0	0	1539	5
Future Volume (vph)	3	0	18	414	3	27	11	2116	0	0	1539	5
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	4.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.91			0.91	1.00
Frt		0.89		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1525		1681	1597	1408	1641	5085			5085	1615
Flt Permitted		0.92		0.73	0.71	1.00	0.08	1.00			1.00	1.00
Satd. Flow (perm)		1417		1297	1186	1408	145	5085			5085	1615
Peak-hour factor, PHF	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Adj. Flow (vph)	8	0	29	465	8	33	22	2251	0	0	1691	10
RTOR Reduction (vph)	0	28	0	0	1	23	0	0	0	0	0	5
Lane Group Flow (vph)	0	9	0	237	238	7	22	2251	0	0	1691	5
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		21.4		21.4	21.4	21.4	51.7	51.7			45.7	45.7
Effective Green, g (s)		21.4		21.4	21.4	21.4	51.7	51.7			45.7	45.7
Actuated g/C Ratio		0.25		0.25	0.25	0.25	0.60	0.60			0.53	0.53
Clearance Time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Lane Grp Cap (vph)		352		322	294	349	121	3053			2699	857
v/s Ratio Prot							0.00	c0.44			0.33	
v/s Ratio Perm		0.01		0.18	c0.20	0.01	0.10					0.00
v/c Ratio		0.03		0.74	0.81	0.02	0.18	0.74			0.63	0.01
Uniform Delay, d1		24.5		29.8	30.4	24.4	9.1	12.3			14.2	9.5
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2		0.0		8.7	15.8	0.0	0.5	1.6			1.1	0.0
Delay (s)		24.5		38.5	46.2	24.5	9.6	14.0			15.3	9.5
Level of Service		C		D	D	C	A	B			B	A
Approach Delay (s/veh)		24.5			41.3			13.9			15.3	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	86.1	Sum of lost time (s)	17.0
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

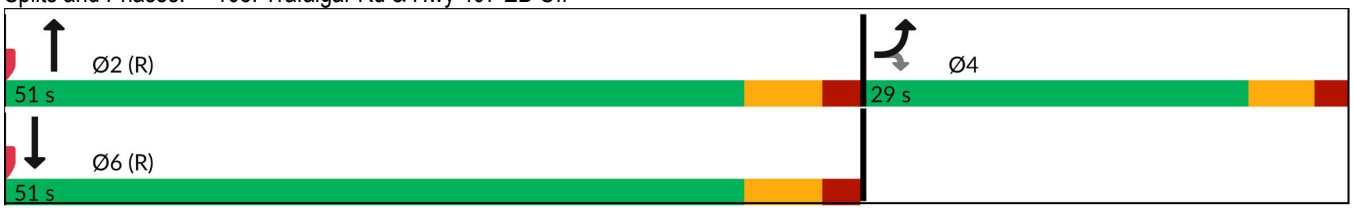


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	38	149	0	2361	1806	0
Future Volume (vph)	38	149	0	2361	1806	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1703	1429	0	5085	5085	0
Flt Permitted	0.950					
Satd. Flow (perm)	1703	1429	0	5085	5085	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		8				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			479.2	363.6	
Travel Time (s)	39.9			34.5	26.2	
Peak Hour Factor	0.75	0.94	0.25	0.94	0.92	0.25
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Adj. Flow (vph)	51	159	0	2512	1963	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	51	159	0	2512	1963	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			7.2	7.2	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	29.0	29.0		24.9	24.9	
Total Split (s)	29.0	29.0		51.0	51.0	
Total Split (%)	36.3%	36.3%		63.8%	63.8%	
Maximum Green (s)	23.0	23.0		44.1	44.1	
Yellow Time (s)	4.0	4.0		4.6	4.6	
All-Red Time (s)	2.0	2.0		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.9	6.9	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	23.0	23.0		44.1	44.1	
Actuated g/C Ratio	0.29	0.29		0.55	0.55	
v/c Ratio	0.10	0.38		0.90	0.70	
Control Delay (s/veh)	21.7	24.9		21.5	14.8	
Queue Delay	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay (s/veh)	21.7	24.9		21.5	14.8	
LOS	C	C		C	B	
Approach Delay (s/veh)	24.1			21.5	14.8	
Approach LOS	C			C	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 75			
Control Type: Pretimed			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay (s/veh): 18.8		Intersection LOS: B	
Intersection Capacity Utilization 60.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off





Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	51	159	2512	1963
v/c Ratio	0.10	0.38	0.90	0.70
Control Delay (s/veh)	21.7	24.9	21.5	14.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	21.7	24.9	21.5	14.8
Queue Length 50th (m)	6.0	19.2	120.9	77.9
Queue Length 95th (m)	11.8	36.1	146.9	94.9
Internal Link Dist (m)	530.6		455.2	339.6
Turn Bay Length (m)				
Base Capacity (vph)	489	416	2803	2803
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.10	0.38	0.90	0.70

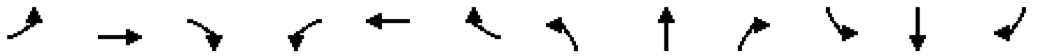
Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	38	149	0	2361	1806	0
Future Volume (vph)	38	149	0	2361	1806	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.9	6.9	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1703	1429		5085	5085	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1703	1429		5085	5085	
Peak-hour factor, PHF	0.75	0.94	0.25	0.94	0.92	0.25
Adj. Flow (vph)	51	159	0	2512	1963	0
RTOR Reduction (vph)	0	6	0	0	0	0
Lane Group Flow (vph)	51	153	0	2512	1963	0
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	23.0	23.0		44.1	44.1	
Effective Green, g (s)	23.0	23.0		44.1	44.1	
Actuated g/C Ratio	0.29	0.29		0.55	0.55	
Clearance Time (s)	6.0	6.0		6.9	6.9	
Lane Grp Cap (vph)	489	410		2803	2803	
v/s Ratio Prot	0.03			c0.49	0.39	
v/s Ratio Perm		c0.11				
v/c Ratio	0.10	0.37		0.90	0.70	
Uniform Delay, d1	20.9	22.8		15.9	13.1	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	2.6		5.0	1.5	
Delay (s)	21.4	25.3		20.9	14.6	
Level of Service	C	C		C	B	
Approach Delay (s/veh)	24.4			20.9	14.6	
Approach LOS	C			C	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

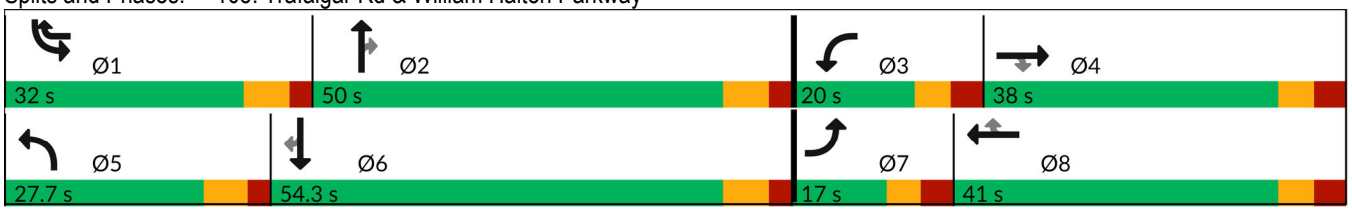


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	299	763	236	352	880	917	284	1535	221	529	1120	306
Future Volume (vph)	299	763	236	352	880	917	284	1535	221	529	1120	306
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		100.0	150.0		150.0	150.0		75.0	150.0		150.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			259			85			185			193
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		1213.9			161.0			461.4			479.2	
Travel Time (s)		87.4			11.6			33.2			34.5	
Peak Hour Factor	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
Adj. Flow (vph)	332	787	259	496	1023	1079	351	1706	351	575	1302	333
Shared Lane Traffic (%)												
Lane Group Flow (vph)	332	787	259	496	1023	1079	351	1706	351	575	1302	333
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	1	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	1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	7.0	7.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	14.0	38.0	38.0	14.0	38.0	13.9	13.9	42.9	42.9	13.9	42.9	42.9
Total Split (s)	17.0	38.0	38.0	20.0	41.0	32.0	27.7	50.0	50.0	32.0	54.3	54.3
Total Split (%)	12.1%	27.1%	27.1%	14.3%	29.3%	22.9%	19.8%	35.7%	35.7%	22.9%	38.8%	38.8%
Maximum Green (s)	10.0	31.0	31.0	13.0	34.0	25.1	20.8	43.1	43.1	25.1	47.4	47.4
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	4.6	4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	3.3	3.3	3.3	3.3	3.3	2.3	2.3	2.3	2.3	2.3	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)	7.0	7.0	7.0	7.0	7.0	6.9	6.9	6.9	6.9	6.9	6.9	6.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	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	3.0	3.0	5.0	5.0	3.0	5.0	5.0
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
Flash Don't Walk (s)		24.0	24.0		24.0			29.0	29.0		29.0	29.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effct Green (s)	10.0	31.0	31.0	13.0	34.0	66.1	18.6	43.1	43.1	25.1	49.6	49.6
Actuated g/C Ratio	0.07	0.22	0.22	0.09	0.24	0.47	0.13	0.31	0.31	0.18	0.35	0.35
v/c Ratio	1.36	1.01	0.47	1.53	1.17	1.36	0.76	1.09	0.56	0.96	0.72	0.48
Control Delay (s/veh)	231.0	87.2	8.0	292.7	133.9	200.7	69.9	96.7	22.2	85.5	42.4	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 (s/veh)	231.0	87.2	8.0	292.7	133.9	200.7	69.9	96.7	22.2	85.5	42.4	17.0
LOS	F	F	A	F	F	F	E	F	C	F	D	B
Approach Delay (s/veh)		107.0			192.0			81.9			49.8	
Approach LOS		F			F			F			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Natural Cycle: 130			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.53			
Intersection Signal Delay (s/veh): 110.9		Intersection LOS: F	
Intersection Capacity Utilization 112.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway



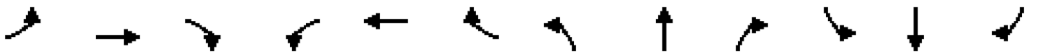


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	332	787	259	496	1023	1079	351	1706	351	575	1302	333
v/c Ratio	1.36	1.01	0.47	1.53	1.17	1.36	0.76	1.09	0.56	0.96	0.72	0.48
Control Delay (s/veh)	231.0	87.2	8.0	292.7	133.9	200.7	69.9	96.7	22.2	85.5	42.4	17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	231.0	87.2	8.0	292.7	133.9	200.7	69.9	96.7	22.2	85.5	42.4	17.0
Queue Length 50th (m)	~65.2	~122.6	0.0	~103.9	~186.0	~401.5	51.2	~204.5	39.8	86.7	121.2	30.2
Queue Length 95th (m)	#97.6	#167.7	23.5	#100.2	#213.4	#445.0	60.4	#235.4	30.7	#124.3	133.4	61.1
Internal Link Dist (m)		1189.9			137.0			437.4			455.2	
Turn Bay Length (m)	150.0		100.0	150.0		150.0	150.0		75.0	150.0		150.0
Base Capacity (vph)	245	783	555	325	876	792	515	1565	625	597	1803	691
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	1.36	1.01	0.47	1.53	1.17	1.36	0.68	1.09	0.56	0.96	0.72	0.48

Intersection Summary

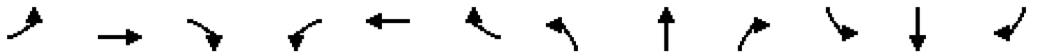
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	299	763	236	352	880	917	284	1535	221	529	1120	306
Future Volume (vph)	299	763	236	352	880	917	284	1535	221	529	1120	306
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	6.9	6.9	6.9	6.9	6.9	6.9	6.9
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
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)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
Peak-hour factor, PHF	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Adj. Flow (vph)	332	787	259	496	1023	1079	351	1706	351	575	1302	333
RTOR Reduction (vph)	0	0	202	0	0	49	0	0	128	0	0	125
Lane Group Flow (vph)	332	787	57	496	1023	1030	351	1706	223	575	1302	208
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	10.0	31.0	31.0	13.0	34.0	59.1	18.6	43.1	43.1	25.1	49.6	49.6
Effective Green, g (s)	10.0	31.0	31.0	13.0	34.0	59.1	18.6	43.1	43.1	25.1	49.6	49.6
Actuated g/C Ratio	0.07	0.22	0.22	0.09	0.24	0.42	0.13	0.31	0.31	0.18	0.35	0.35
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	6.9	6.9	6.9	6.9	6.9	6.9	6.9
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	245	783	354	325	876	668	460	1565	497	597	1801	566
v/s Ratio Prot	0.10	0.22		c0.14	0.28	c0.28	0.10	c0.34		0.17	c0.26	
v/s Ratio Perm			0.04			0.37			0.14			0.13
v/c Ratio	1.36	1.01	0.16	1.53	1.17	1.54	0.76	1.09	0.45	0.96	0.72	0.37
Uniform Delay, d1	65.0	54.5	44.0	63.5	53.0	40.5	58.6	48.5	38.9	57.0	39.2	33.6
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	184.1	33.4	0.5	251.9	87.8	251.2	7.4	51.5	2.9	27.7	2.6	1.8
Delay (s)	249.1	87.9	44.5	315.4	140.8	291.7	65.9	99.9	41.8	84.6	41.8	35.4
Level of Service	F	F	D	F	F	F	E	F	D	F	D	D
Approach Delay (s/veh)		118.6			236.8			86.5			52.0	
Approach LOS		F			F			F			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	128.2	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)	27.8
Intersection Capacity Utilization	112.3%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

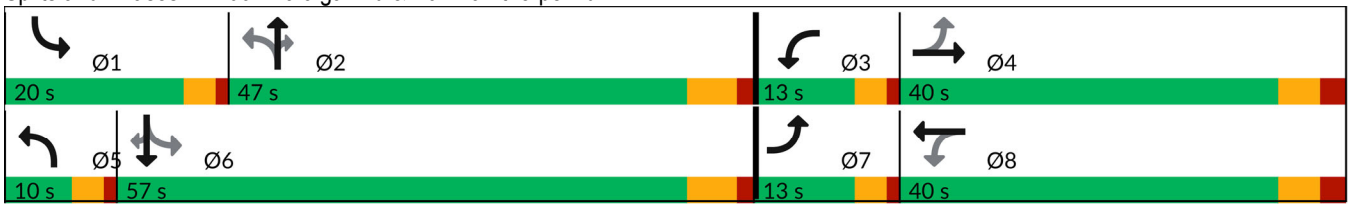


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	403	22	222	357	310	89	1721	131	228	1307	173
Future Volume (vph)	135	403	22	222	357	310	89	1721	131	228	1307	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		60.0	60.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	70.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.993			0.934				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1887	0	1805	1775	0	1805	5036	1615	1480	5085	1599
Flt Permitted	0.118			0.118			0.109			0.089		
Satd. Flow (perm)	220	1887	0	224	1775	0	207	5036	1615	139	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			33				136			169
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		828.7			989.6			1941.0			461.4	
Travel Time (s)		49.7			59.4			87.3			20.8	
Peak Hour Factor	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	1%
Adj. Flow (vph)	161	576	27	281	496	388	114	2025	193	356	1485	201
Shared Lane Traffic (%)												
Lane Group Flow (vph)	161	603	0	281	884	0	114	2025	193	356	1485	201
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	pm+pt	NA		pm+pt	NA		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			8			2		2	6		6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	9.5	24.0		9.5	24.0		9.5	26.0	26.0	11.5	26.0	26.0
Total Split (s)	13.0	40.0		13.0	40.0		10.0	47.0	47.0	20.0	57.0	57.0
Total Split (%)	10.8%	33.3%		10.8%	33.3%		8.3%	39.2%	39.2%	16.7%	47.5%	47.5%
Maximum Green (s)	9.0	34.0		9.0	34.0		6.0	41.0	41.0	16.0	51.0	51.0
Yellow Time (s)	3.0	3.7		3.0	3.7		3.0	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	1.0	2.3		1.0	2.3		1.0	1.4	1.4	1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		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
Recall Mode	None	None		None	None		None	Max	Max	None	Max	Max
Act Effct Green (s)	45.0	34.0		45.0	34.0		49.0	41.0	43.0	63.0	51.0	53.0
Actuated g/C Ratio	0.38	0.28		0.38	0.28		0.41	0.34	0.36	0.53	0.43	0.44
v/c Ratio	0.81	1.13		1.39	1.68		0.70	1.18	0.29	1.42	0.69	0.25
Control Delay (s/veh)	55.3	117.9		228.8	343.2		41.0	122.4	10.1	238.8	30.1	5.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	55.3	117.9		228.8	343.2		41.0	122.4	10.1	238.8	30.1	5.5
LOS	E	F		F	F		D	F	B	F	C	A
Approach Delay (s/veh)		104.7			315.6			109.1			64.0	
Approach LOS		F			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.68			
Intersection Signal Delay (s/veh): 132.1		Intersection LOS: F	
Intersection Capacity Utilization 107.8%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burnhamthorpe Rd



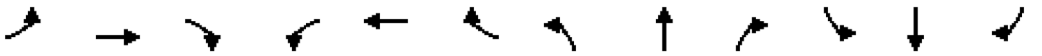


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	161	603	281	884	114	2025	193	356	1485	201
v/c Ratio	0.81	1.13	1.39	1.68	0.70	1.18	0.29	1.42	0.69	0.25
Control Delay (s/veh)	55.3	117.9	228.8	343.2	41.0	122.4	10.1	238.8	30.1	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	55.3	117.9	228.8	343.2	41.0	122.4	10.1	238.8	30.1	5.5
Queue Length 50th (m)	25.6	~173.0	~75.5	~317.0	13.8	~220.0	9.3	~105.1	107.6	4.4
Queue Length 95th (m)	#50.6	#159.4	#106.9	#288.1	21.4	#227.8	13.3	#95.1	121.0	16.7
Internal Link Dist (m)		804.7		965.6		1917.0			437.4	
Turn Bay Length (m)	30.0		15.0		60.0		60.0	60.0		60.0
Base Capacity (vph)	198	536	202	526	164	1720	665	251	2161	800
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	0.81	1.13	1.39	1.68	0.70	1.18	0.29	1.42	0.69	0.25

Intersection Summary

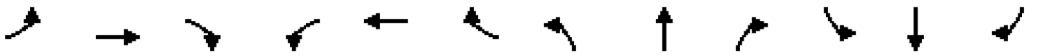
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



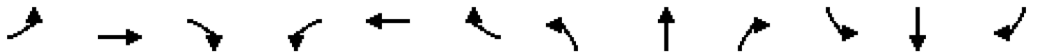
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	403	22	222	357	310	89	1721	131	228	1307	173
Future Volume (vph)	135	403	22	222	357	310	89	1721	131	228	1307	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.99		1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1887		1805	1775		1805	5036	1615	1480	5085	1599
Flt Permitted	0.12	1.00		0.12	1.00		0.11	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	219	1887		224	1775		207	5036	1615	138	5085	1599
Peak-hour factor, PHF	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Adj. Flow (vph)	161	576	27	281	496	388	114	2025	193	356	1485	201
RTOR Reduction (vph)	0	1	0	0	24	0	0	0	87	0	0	94
Lane Group Flow (vph)	161	602	0	281	860	0	114	2025	106	356	1485	107
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	43.0	34.0		43.0	34.0		47.0	41.0	41.0	61.0	51.0	51.0
Effective Green, g (s)	43.0	34.0		43.0	34.0		47.0	41.0	43.0	61.0	51.0	53.0
Actuated g/C Ratio	0.36	0.28		0.36	0.28		0.39	0.34	0.36	0.51	0.43	0.44
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	194	534		198	502		160	1720	578	249	2161	706
v/s Ratio Prot	0.06	0.32		c0.11	c0.48		0.04	0.40		c0.19	0.29	
v/s Ratio Perm	0.23			0.40			0.24		0.07	c0.53		0.07
v/c Ratio	0.83	1.13		1.42	1.71		0.71	1.18	0.18	1.43	0.69	0.15
Uniform Delay, d1	31.3	43.0		33.0	43.0		25.0	39.5	26.4	37.6	28.0	20.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	24.4	78.7		215.6	329.6		13.9	86.2	0.7	215.0	1.8	0.5
Delay (s)	55.7	121.7		248.6	372.6		38.9	125.7	27.1	252.6	29.8	20.5
Level of Service	E	F		F	F		D	F	C	F	C	C
Approach Delay (s/veh)		107.8			342.7			113.3			67.7	
Approach LOS		F			F			F			E	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	140.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.56		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	107.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1414	99	0	1778	13	0	0	37	0	0	371
Future Volume (vph)	0	1414	99	0	1778	13	0	0	37	0	0	371
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
Frt		0.990			0.999				0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3504	0	0	3536	0	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3504	0	0	3536	0	0	0	1611	0	0	1611
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		161.0			234.1			145.8			194.6	
Travel Time (s)		11.6			16.9			10.5			14.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1537	108	0	1933	14	0	0	40	0	0	403
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1645	0	0	1947	0	0	0	40	0	0	403
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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 79.2%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1414	99	0	1778	13	0	0	37	0	0	371
Future Volume (Veh/h)	0	1414	99	0	1778	13	0	0	37	0	0	371
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1537	108	0	1933	14	0	0	40	0	0	403
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		161			234							
pX, platoon unblocked	0.59			0.79			0.70	0.70	0.79	0.70	0.70	0.59
vC, conflicting volume	1947			1645			2961	3538	823	2749	3585	974
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1215			1279			1568	2398	234	1264	2465	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	93	100	100	37
cM capacity (veh/h)	336			424			19	23	605	82	21	640

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	1025	620	1289	658	40	403
Volume Left	0	0	0	0	0	0
Volume Right	0	108	0	14	40	403
cSH	1700	1700	1700	1700	605	640
Volume to Capacity	0.60	0.36	0.76	0.39	0.07	0.63
Queue Length 95th (m)	0.0	0.0	0.0	0.0	1.7	35.5
Control Delay (s/veh)	0.0	0.0	0.0	0.0	11.4	19.7
Lane LOS					B	C
Approach Delay (s/veh)	0.0		0.0		11.4	19.7
Approach LOS					B	C

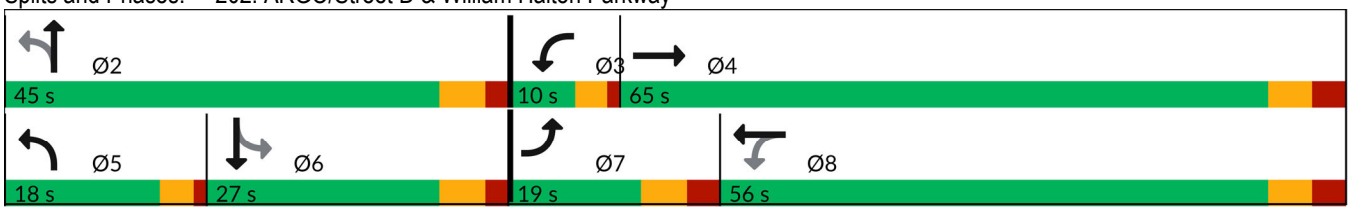
Intersection Summary				
Average Delay	2.1			
Intersection Capacity Utilization	79.2%	ICU Level of Service	D	
Analysis Period (min)	15			

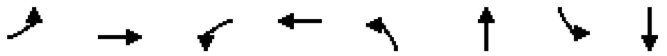
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	533	819	99	111	1350	9	248	10	37	77	10	193
Future Volume (vph)	533	819	99	111	1350	9	248	10	37	77	10	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0		0.0	55.0		0.0	115.0		0.0	0.0		0.0
Storage Lanes	2		0	1		0	1		0	1		0
Taper Length (m)	100.0			100.0			85.0			50.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.984			0.999			0.882			0.857	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3483	0	1770	3536	0	1770	1643	0	1770	1596	0
Flt Permitted	0.950			0.252			0.245			0.724		
Satd. Flow (perm)	3433	3483	0	469	3536	0	456	1643	0	1349	1596	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			1			40			156	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		234.1			1187.2			147.6			240.2	
Travel Time (s)		16.9			85.5			10.6			17.3	
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
Adj. Flow (vph)	579	890	108	121	1467	10	270	11	40	84	11	210
Shared Lane Traffic (%)												
Lane Group Flow (vph)	579	998	0	121	1477	0	270	51	0	84	221	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)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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	Prot	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases				8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	12.0	32.0		9.5	32.0		9.5	42.0		42.0	42.0	
Total Split (s)	19.0	65.0		10.0	56.0		18.0	45.0		27.0	27.0	
Total Split (%)	15.8%	54.2%		8.3%	46.7%		15.0%	37.5%		22.5%	22.5%	
Maximum Green (s)	12.0	58.0		6.0	49.0		14.0	39.0		21.0	21.0	
Yellow Time (s)	4.0	4.0		3.0	4.0		3.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		1.0	3.0		1.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		4.0	7.0		4.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead			Lag	Lag	
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	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Walk Time (s)		10.0			10.0			14.0		14.0	14.0	
Flash Don't Walk (s)		15.0			15.0			22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0			0			0		0	0	
Act Effct Green (s)	12.0	58.1		58.1	49.1		32.3	30.3		12.3	12.3	
Actuated g/C Ratio	0.11	0.52		0.52	0.44		0.29	0.27		0.11	0.11	
v/c Ratio	1.57	0.55		0.39	0.95		0.91	0.11		0.56	0.70	
Control Delay (s/veh)	302.2	19.5		13.3	44.4		68.5	12.6		61.6	28.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	302.2	19.5		13.3	44.4		68.5	12.6		61.6	28.0	
LOS	F	B		B	D		E	B		E	C	
Approach Delay (s/veh)		123.3			42.0			59.6			37.2	
Approach LOS		F			D			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 111.4			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.57			
Intersection Signal Delay (s/veh): 76.8		Intersection LOS: E	
Intersection Capacity Utilization 99.0%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 202: ARGO/Street D & William Halton Parkway





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	579	998	121	1477	270	51	84	221
v/c Ratio	1.57	0.55	0.39	0.95	0.91	0.11	0.56	0.70
Control Delay (s/veh)	302.2	19.5	13.3	44.4	68.5	12.6	61.6	28.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	302.2	19.5	13.3	44.4	68.5	12.6	61.6	28.0
Queue Length 50th (m)	~96.7	75.9	9.9	166.7	51.7	1.9	18.5	14.0
Queue Length 95th (m)	#141.0	106.7	20.1	#241.0	#88.8	11.1	34.9	39.8
Internal Link Dist (m)		210.1		1163.2		123.6		216.2
Turn Bay Length (m)	120.0		55.0		115.0			
Base Capacity (vph)	369	1822	314	1557	297	601	254	427
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	1.57	0.55	0.39	0.95	0.91	0.08	0.33	0.52

Intersection Summary

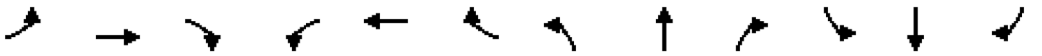
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	533	819	99	111	1350	9	248	10	37	77	10	193
Future Volume (vph)	533	819	99	111	1350	9	248	10	37	77	10	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		4.0	7.0		4.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00		1.00	0.88		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3482		1770	3536		1770	1644		1770	1597	
Flt Permitted	0.95	1.00		0.25	1.00		0.25	1.00		0.72	1.00	
Satd. Flow (perm)	3433	3482		470	3536		457	1644		1348	1597	
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)	579	890	108	121	1467	10	270	11	40	84	11	210
RTOR Reduction (vph)	0	7	0	0	1	0	0	29	0	0	139	0
Lane Group Flow (vph)	579	991	0	121	1476	0	270	22	0	84	82	0
Turn Type	Prot	NA		pm+pt	NA		pm+pt	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases				8			2			6		
Actuated Green, G (s)	12.0	58.1		55.1	49.1		30.3	30.3		12.3	12.3	
Effective Green, g (s)	12.0	58.1		55.1	49.1		30.3	30.3		12.3	12.3	
Actuated g/C Ratio	0.11	0.52		0.49	0.44		0.27	0.27		0.11	0.11	
Clearance Time (s)	7.0	7.0		4.0	7.0		4.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	369	1816		302	1558		289	447		148	176	
v/s Ratio Prot	c0.17	0.28		0.02	c0.42		c0.12	0.01			0.05	
v/s Ratio Perm				0.18			c0.14			0.06		
v/c Ratio	1.57	0.55		0.40	0.95		0.93	0.05		0.57	0.47	
Uniform Delay, d1	49.7	17.8		15.5	29.9		36.0	29.9		47.0	46.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	268.9	0.3		0.9	12.4		35.6	0.0		4.9	2.0	
Delay (s)	318.6	18.2		16.4	42.3		71.7	30.0		51.9	48.4	
Level of Service	F	B		B	D		E	C		D	D	
Approach Delay (s/veh)		128.5			40.3			65.0			49.4	
Approach LOS		F			D			E			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	79.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	111.4	Sum of lost time (s)	24.0
Intersection Capacity Utilization	99.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

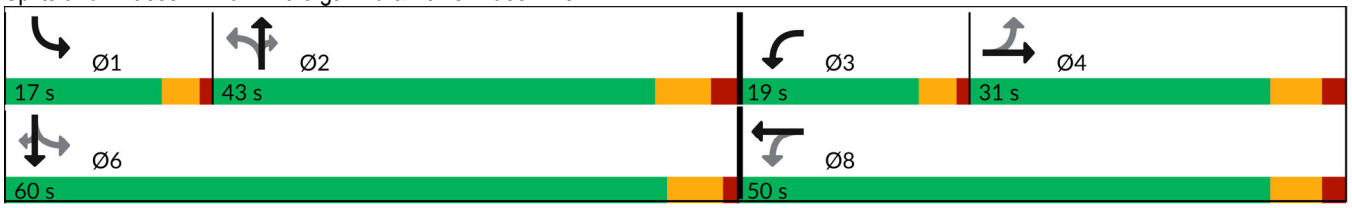


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	102	294	87	285	100	129	31	1430	319	307	1689	58
Future Volume (vph)	102	294	87	285	100	129	31	1430	319	307	1689	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		90.0	90.0		90.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.962			0.912				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1814	0	1736	1666	0	1597	4848	1568	1752	4988	1553
Flt Permitted	0.582			0.139			0.110			0.097		
Satd. Flow (perm)	1063	1814	0	254	1666	0	185	4848	1568	179	4988	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			77				336			82
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			728.7			434.3	
Travel Time (s)		38.5			41.4			32.8			19.5	
Peak Hour Factor	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Adj. Flow (vph)	121	382	128	390	120	170	43	1744	358	349	1987	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	121	510	0	390	290	0	43	1744	358	349	1987	82
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0		5.0	10.0		25.0	25.0	25.0	7.0	25.0	25.0
Minimum Split (s)	22.5	22.5		9.5	22.5		31.6	31.6	31.6	11.5	30.6	30.6
Total Split (s)	31.0	31.0		19.0	50.0		43.0	43.0	43.0	17.0	60.0	60.0
Total Split (%)	28.2%	28.2%		17.3%	45.5%		39.1%	39.1%	39.1%	15.5%	54.5%	54.5%
Maximum Green (s)	24.8	24.8		15.0	43.8		36.4	36.4	36.4	13.0	54.4	54.4
Yellow Time (s)	4.2	4.2		3.0	4.2		4.6	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	2.0	2.0		1.0	2.0		2.0	2.0	2.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes	Yes		
Vehicle Extension (s)	5.0	5.0		3.0	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Recall Mode	None	None		None	None		Max	Max	Max	Max	Max	Max
Act Effct Green (s)	24.8	24.8		46.0	43.8		36.4	36.4	36.4	56.0	54.4	54.4
Actuated g/C Ratio	0.23	0.23		0.42	0.40		0.33	0.33	0.33	0.51	0.49	0.49
v/c Ratio	0.51	1.22		1.27	0.41		0.70	1.09	0.48	1.26	0.81	0.10
Control Delay (s/veh)	45.8	154.5		170.3	19.1		89.3	85.9	6.2	170.3	26.6	3.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	45.8	154.5		170.3	19.1		89.3	85.9	6.2	170.3	26.6	3.6
LOS	D	F		F	B		F	F	A	F	C	A
Approach Delay (s/veh)		133.6			105.8			72.7			46.6	
Approach LOS		F			F			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.27			
Intersection Signal Delay (s/veh): 72.3		Intersection LOS: E	
Intersection Capacity Utilization 108.7%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line



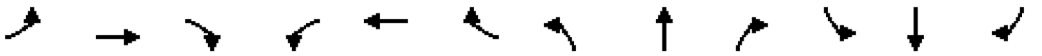


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	121	510	390	290	43	1744	358	349	1987	82
v/c Ratio	0.51	1.22	1.27	0.41	0.70	1.09	0.48	1.26	0.81	0.10
Control Delay (s/veh)	45.8	154.5	170.3	19.1	89.3	85.9	6.2	170.3	26.6	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	45.8	154.5	170.3	19.1	89.3	85.9	6.2	170.3	26.6	3.6
Queue Length 50th (m)	24.0	~139.6	~94.4	33.2	8.4	~162.6	3.4	~82.8	133.5	0.0
Queue Length 95th (m)	40.5	#162.1	#108.8	50.0	#21.4	#163.9	24.1	#137.0	140.0	4.2
Internal Link Dist (m)		725.3		666.6		704.7			410.3	
Turn Bay Length (m)	45.0		110.0		90.0		90.0	90.0		90.0
Base Capacity (vph)	239	419	308	709	61	1604	743	277	2466	809
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	0.51	1.22	1.27	0.41	0.70	1.09	0.48	1.26	0.81	0.10

Intersection Summary

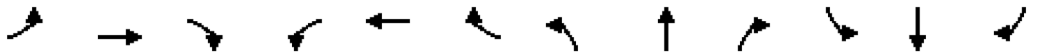
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	102	294	87	285	100	129	31	1430	319	307	1689	58
Future Volume (vph)	102	294	87	285	100	129	31	1430	319	307	1689	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	1815		1736	1666		1597	4848	1568	1752	4988	1553
Flt Permitted	0.58	1.00		0.14	1.00		0.11	1.00	1.00	0.10	1.00	1.00
Satd. Flow (perm)	1064	1815		254	1666		185	4848	1568	178	4988	1553
Peak-hour factor, PHF	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Adj. Flow (vph)	121	382	128	390	120	170	43	1744	358	349	1987	82
RTOR Reduction (vph)	0	11	0	0	46	0	0	0	225	0	0	41
Lane Group Flow (vph)	121	499	0	390	244	0	43	1744	133	349	1987	41
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	24.8	24.8		43.8	43.8		36.4	36.4	36.4	54.4	54.4	54.4
Effective Green, g (s)	24.8	24.8		43.8	43.8		36.4	36.4	36.4	54.4	54.4	54.4
Actuated g/C Ratio	0.23	0.23		0.40	0.40		0.33	0.33	0.33	0.49	0.49	0.49
Clearance Time (s)	6.2	6.2		4.0	6.2		6.6	6.6	6.6	4.0	5.6	5.6
Vehicle Extension (s)	5.0	5.0		3.0	5.0		5.0	5.0	5.0	0.2	5.0	5.0
Lane Grp Cap (vph)	239	409		303	663		61	1604	518	274	2466	768
v/s Ratio Prot		0.28		c0.18	0.15			0.36		c0.15	0.40	
v/s Ratio Perm	0.11			c0.34			0.23		0.08	c0.48		0.03
v/c Ratio	0.51	1.22		1.29	0.37		0.70	1.09	0.26	1.27	0.81	0.05
Uniform Delay, d1	37.2	42.6		30.9	23.3		32.1	36.8	26.9	32.8	23.4	14.4
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	3.5	119.4		151.9	0.7		50.9	50.2	1.2	148.5	2.9	0.1
Delay (s)	40.7	162.0		182.8	24.1		83.1	87.0	28.1	181.3	26.3	14.6
Level of Service	D	F		F	C		F	F	C	F	C	B
Approach Delay (s/veh)		138.8			115.1			77.1			48.3	
Approach LOS		F			F			E			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	76.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.37		
Actuated Cycle Length (s)	110.0	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			

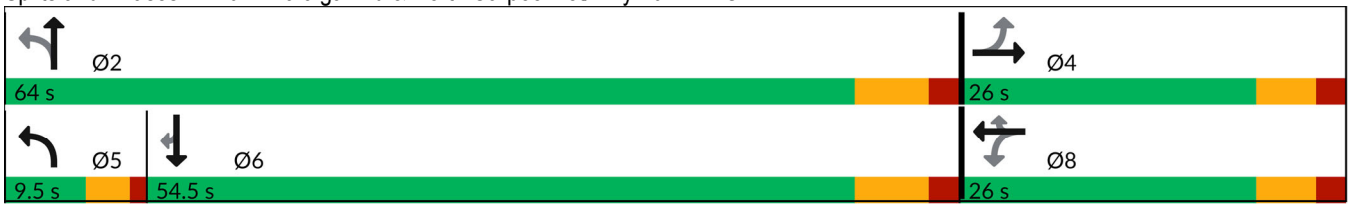


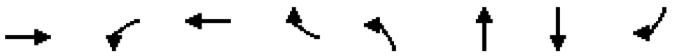
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	10	303	2	6	8	1711	0	0	2059	2
Future Volume (vph)	3	0	10	303	2	6	8	1711	0	0	2059	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.891			0.999	0.850						0.850
Flt Protected		0.990		0.950	0.954		0.950					
Satd. Flow (prot)	0	1474	0	1545	1475	1534	1543	4893	0	0	4988	1615
Flt Permitted		0.927		0.730	0.701		0.070					
Satd. Flow (perm)	0	1380	0	1187	1084	1534	114	4893	0	0	4988	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		97				97						85
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			728.7	
Travel Time (s)		9.6			41.3			26.2			52.5	
Peak Hour Factor	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Adj. Flow (vph)	8	0	33	394	4	14	27	1860	0	0	2367	8
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	0	41	0	201	198	13	27	1860	0	0	2367	8
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	4.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	27.0			27.0	27.0
Total Split (s)	26.0	26.0		26.0	26.0	26.0	9.5	64.0			54.5	54.5
Total Split (%)	28.9%	28.9%		28.9%	28.9%	28.9%	10.6%	71.1%			60.6%	60.6%
Maximum Green (s)	20.0	20.0		20.0	20.0	20.0	5.5	57.0			47.5	47.5
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0			2.0	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	4.0	7.0			7.0	7.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	None	Max			Max	Max
Act Effct Green (s)		18.8		18.8	18.8	18.8	60.1	57.1			53.3	53.3
Actuated g/C Ratio		0.21		0.21	0.21	0.21	0.68	0.64			0.60	0.60
v/c Ratio		0.11		0.80	0.86	0.03	0.17	0.59			0.79	0.01
Control Delay (s/veh)		0.6		57.8	68.6	0.2	7.4	10.4			17.5	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		0.6		57.8	68.6	0.2	7.4	10.4			17.5	0.0
LOS		A		E	E	A	A	B			B	A
Approach Delay (s/veh)		0.6			61.2			10.3			17.4	
Approach LOS		A			E			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 88.9			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay (s/veh): 18.3		Intersection LOS: B	
Intersection Capacity Utilization 65.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off

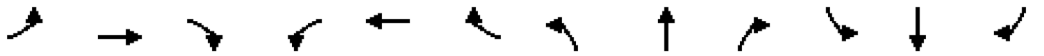




Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	41	201	198	13	27	1860	2367	8
v/c Ratio	0.11	0.80	0.86	0.03	0.17	0.59	0.79	0.01
Control Delay (s/veh)	0.6	57.8	68.6	0.2	7.4	10.4	17.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	0.6	57.8	68.6	0.2	7.4	10.4	17.5	0.0
Queue Length 50th (m)	0.0	36.2	37.9	0.0	1.5	66.0	99.1	0.0
Queue Length 95th (m)	0.0	#53.3	31.9	0.0	1.3	79.4	149.0	0.0
Internal Link Dist (m)	110.0		550.1			339.6	704.7	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	386	267	243	420	165	3139	2990	1002
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	0.75	0.81	0.03	0.16	0.59	0.79	0.01

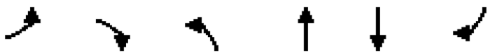
Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	10	303	2	6	8	1711	0	0	2059	2
Future Volume (vph)	3	0	10	303	2	6	8	1711	0	0	2059	2
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	4.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.91			0.91	1.00
Frt		0.89		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1475		1545	1474	1534	1543	4893			4988	1615
Flt Permitted		0.93		0.73	0.70	1.00	0.07	1.00			1.00	1.00
Satd. Flow (perm)		1380		1188	1084	1534	113	4893			4988	1615
Peak-hour factor, PHF	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Adj. Flow (vph)	8	0	33	394	4	14	27	1860	0	0	2367	8
RTOR Reduction (vph)	0	33	0	0	0	10	0	0	0	0	0	3
Lane Group Flow (vph)	0	8	0	201	198	3	27	1860	0	0	2367	5
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		18.8		18.8	18.8	18.8	59.5	59.5			53.3	53.3
Effective Green, g (s)		18.8		18.8	18.8	18.8	59.5	59.5			53.3	53.3
Actuated g/C Ratio		0.21		0.21	0.21	0.21	0.65	0.65			0.58	0.58
Clearance Time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Lane Grp Cap (vph)		284		244	223	315	108	3188			2911	942
v/s Ratio Prot							0.01	c0.38			c0.47	
v/s Ratio Perm		0.01		0.17	c0.18	0.00	0.16					0.00
v/c Ratio		0.03		0.82	0.89	0.01	0.25	0.58			0.81	0.00
Uniform Delay, d1		29.0		34.7	35.2	28.8	12.0	8.9			15.1	7.9
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2		0.1		20.1	32.3	0.0	0.9	0.8			2.6	0.0
Delay (s)		29.0		54.8	67.5	28.8	12.9	9.7			17.7	7.9
Level of Service		C		D	E	C	B	A			B	A
Approach Delay (s/veh)		29.0			60.1			9.8			17.6	
Approach LOS		C			E			A			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	91.3	Sum of lost time (s)	17.0
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

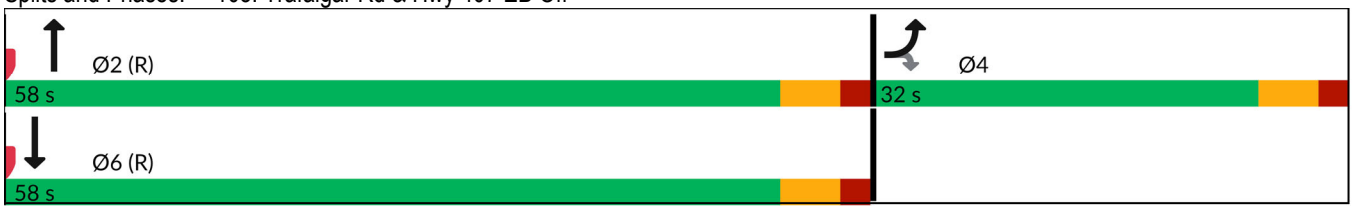


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	73	263	0	1898	2276	0
Future Volume (vph)	73	263	0	1898	2276	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1671	1392	0	4848	4940	0
Flt Permitted	0.950					
Satd. Flow (perm)	1671	1392	0	4848	4940	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		2				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			485.1	363.6	
Travel Time (s)	39.9			34.9	26.2	
Peak Hour Factor	0.79	0.78	0.25	0.85	0.86	0.25
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Adj. Flow (vph)	92	337	0	2233	2647	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	92	337	0	2233	2647	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			7.2	7.2	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	24.0	24.0		24.0	24.0	
Total Split (s)	32.0	32.0		58.0	58.0	
Total Split (%)	35.6%	35.6%		64.4%	64.4%	
Maximum Green (s)	26.0	26.0		52.0	52.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	26.0	26.0		52.0	52.0	
Actuated g/C Ratio	0.29	0.29		0.58	0.58	
v/c Ratio	0.19	0.84		0.80	0.93	
Control Delay (s/veh)	25.5	49.8		17.7	24.6	
Queue Delay	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay (s/veh)	25.5	49.8		17.7	24.6	
LOS	C	D		B	C	
Approach Delay (s/veh)	44.6			17.7	24.6	
Approach LOS	D			B	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 80			
Control Type: Pretimed			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay (s/veh): 23.3		Intersection LOS: C	
Intersection Capacity Utilization 70.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off

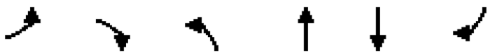




Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	92	337	2233	2647
v/c Ratio	0.19	0.84	0.80	0.93
Control Delay (s/veh)	25.5	49.8	17.7	24.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	25.5	49.8	17.7	24.6
Queue Length 50th (m)	12.6	57.0	107.8	148.7
Queue Length 95th (m)	21.6	#77.4	115.6	160.0
Internal Link Dist (m)	530.6		461.1	339.6
Turn Bay Length (m)				
Base Capacity (vph)	482	403	2801	2854
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.19	0.84	0.80	0.93

Intersection Summary

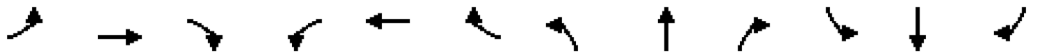
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	73	263	0	1898	2276	0
Future Volume (vph)	73	263	0	1898	2276	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1671	1392		4848	4940	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1671	1392		4848	4940	
Peak-hour factor, PHF	0.79	0.78	0.25	0.85	0.86	0.25
Adj. Flow (vph)	92	337	0	2233	2647	0
RTOR Reduction (vph)	0	1	0	0	0	0
Lane Group Flow (vph)	92	336	0	2233	2647	0
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	26.0	26.0		52.0	52.0	
Effective Green, g (s)	26.0	26.0		52.0	52.0	
Actuated g/C Ratio	0.29	0.29		0.58	0.58	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	482	402		2801	2854	
v/s Ratio Prot	0.06			0.46	c0.54	
v/s Ratio Perm		c0.24				
v/c Ratio	0.19	0.83		0.80	0.93	
Uniform Delay, d1	24.1	30.0		14.9	17.3	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.9	18.2		2.5	6.7	
Delay (s)	25.0	48.2		17.3	24.0	
Level of Service	C	D		B	C	
Approach Delay (s/veh)	43.2			17.3	24.0	
Approach LOS	D			B	C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	22.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

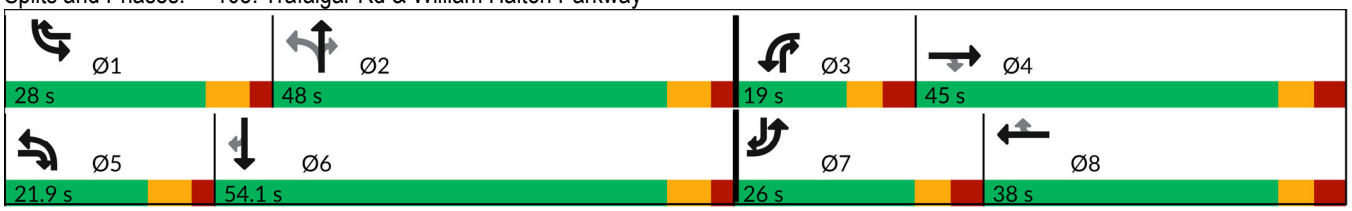


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	584	961	262	303	709	471	387	1383	249	642	1393	505
Future Volume (vph)	584	961	262	303	709	471	387	1383	249	642	1393	505
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	150.0		150.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3467	3574	1599	3273	3574	1429	3303	4988	1615	3433	4893	1538
Flt Permitted	0.950			0.950			0.097			0.950		
Satd. Flow (perm)	3467	3574	1599	3273	3574	1429	337	4988	1615	3433	4893	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			85			85			85			85
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		148.9			165.2			209.3			485.1	
Travel Time (s)		10.7			11.9			15.1			34.9	
Peak Hour Factor	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
Adj. Flow (vph)	687	1056	316	404	909	628	450	1537	296	783	1548	587
Shared Lane Traffic (%)												
Lane Group Flow (vph)	687	1056	316	404	909	628	450	1537	296	783	1548	587
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8	2		2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	20.0	7.0	7.0	20.0	7.0	7.0	20.0	7.0	7.0	20.0	7.0
Minimum Split (s)	14.0	38.0	13.9	14.0	38.0	13.9	13.9	42.9	14.0	13.9	42.9	14.0
Total Split (s)	26.0	45.0	21.9	19.0	38.0	28.0	21.9	48.0	19.0	28.0	54.1	26.0
Total Split (%)	18.6%	32.1%	15.6%	13.6%	27.1%	20.0%	15.6%	34.3%	13.6%	20.0%	38.6%	18.6%
Maximum Green (s)	19.0	38.0	15.0	12.0	31.0	21.1	15.0	41.1	12.0	21.1	47.2	19.0
Yellow Time (s)	3.7	3.7	4.6	3.7	3.7	4.6	4.6	4.6	3.7	4.6	4.6	3.7
All-Red Time (s)	3.3	3.3	2.3	3.3	3.3	2.3	2.3	2.3	3.3	2.3	2.3	3.3
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)	7.0	7.0	6.9	7.0	7.0	6.9	6.9	6.9	7.0	6.9	6.9	7.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0
Recall Mode	None	None	None	None	None	None	None	Max	None	None	Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		24.0			24.0			29.0			29.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	19.0	38.0	60.0	12.0	31.0	59.1	56.1	41.1	60.0	21.1	47.2	73.1
Actuated g/C Ratio	0.14	0.27	0.43	0.09	0.22	0.42	0.40	0.29	0.43	0.15	0.34	0.52
v/c Ratio	1.46	1.09	0.43	1.44	1.15	0.96	1.00	1.05	0.40	1.51	0.94	0.70
Control Delay (s/veh)	260.5	103.4	22.0	261.9	129.5	61.6	81.3	85.2	21.0	280.7	56.8	26.4
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 (s/veh)	260.5	103.4	22.0	261.9	129.5	61.6	81.3	85.2	21.0	280.7	56.8	26.4
LOS	F	F	C	F	F	E	F	F	C	F	E	C
Approach Delay (s/veh)		143.4			135.1			76.1			110.8	
Approach LOS		F			F			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.51			
Intersection Signal Delay (s/veh): 114.6		Intersection LOS: F	
Intersection Capacity Utilization 104.5%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway



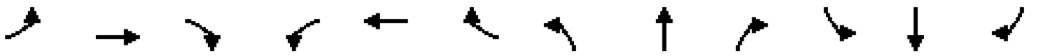


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	687	1056	316	404	909	628	450	1537	296	783	1548	587
v/c Ratio	1.46	1.09	0.43	1.44	1.15	0.96	1.00	1.05	0.40	1.51	0.94	0.70
Control Delay (s/veh)	260.5	103.4	22.0	261.9	129.5	61.6	81.3	85.2	21.0	280.7	56.8	26.4
Queue Delay	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 (s/veh)	260.5	103.4	22.0	261.9	129.5	61.6	81.3	85.2	21.0	280.7	56.8	26.4
Queue Length 50th (m)	~140.8	~181.6	46.0	~82.2	~163.3	159.2	52.6	~178.2	41.1	~163.4	160.1	108.1
Queue Length 95th (m)	#166.6	#225.6	63.5	#90.0	#162.1	159.2	#81.9	#209.4	59.4	#179.0	#191.2	141.9
Internal Link Dist (m)		124.9			141.2			185.3			461.1	
Turn Bay Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	150.0		150.0
Base Capacity (vph)	470	970	733	280	791	652	452	1464	740	517	1649	843
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.46	1.09	0.43	1.44	1.15	0.96	1.00	1.05	0.40	1.51	0.94	0.70

Intersection Summary

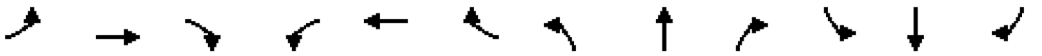
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	584	961	262	303	709	471	387	1383	249	642	1393	505
Future Volume (vph)	584	961	262	303	709	471	387	1383	249	642	1393	505
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	6.9	7.0	7.0	6.9	6.9	6.9	7.0	6.9	6.9	7.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3467	3574	1599	3273	3574	1429	3303	4988	1615	3433	4893	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.10	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3273	3574	1429	338	4988	1615	3433	4893	1538
Peak-hour factor, PHF	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Adj. Flow (vph)	687	1056	316	404	909	628	450	1537	296	783	1548	587
RTOR Reduction (vph)	0	0	53	0	0	53	0	0	53	0	0	45
Lane Group Flow (vph)	687	1056	263	404	909	575	450	1537	243	783	1548	542
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8	2		2			6
Actuated Green, G (s)	19.0	38.0	53.0	12.0	31.0	52.1	56.1	41.1	53.1	21.1	47.2	66.2
Effective Green, g (s)	19.0	38.0	53.0	12.0	31.0	52.1	56.1	41.1	53.1	21.1	47.2	66.2
Actuated g/C Ratio	0.14	0.27	0.38	0.09	0.22	0.37	0.40	0.29	0.38	0.15	0.34	0.47
Clearance Time (s)	7.0	7.0	6.9	7.0	7.0	6.9	6.9	6.9	7.0	6.9	6.9	7.0
Vehicle Extension (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0
Lane Grp Cap (vph)	470	970	605	280	791	531	453	1464	612	517	1649	727
v/s Ratio Prot	c0.20	c0.30	0.05	0.12	0.25	0.16	0.11	c0.31	0.03	c0.23	c0.32	0.10
v/s Ratio Perm			0.12			0.24	0.29		0.12			0.25
v/c Ratio	1.46	1.09	0.44	1.44	1.15	1.08	0.99	1.05	0.40	1.51	0.94	0.75
Uniform Delay, d1	60.5	51.0	32.4	64.0	54.5	44.0	41.0	49.4	31.8	59.5	45.0	30.0
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	219.3	56.1	0.5	218.4	81.6	63.1	40.3	37.8	0.4	241.4	11.7	4.2
Delay (s)	279.8	107.1	32.9	282.4	136.1	107.1	81.3	87.3	32.2	300.8	56.7	34.2
Level of Service	F	F	C	F	F	F	F	F	C	F	E	C
Approach Delay (s/veh)		153.3			157.1			78.9			117.7	
Approach LOS		F			F			E			F	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	124.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.26		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	27.8
Intersection Capacity Utilization	104.5%	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)	389	326	130	203	141	58	193	1634	112	126	1752	58
Future Volume (vph)	389	326	130	203	141	58	193	1634	112	126	1752	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		60.0	60.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	70.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.957			0.938				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1803	0	1770	1782	0	1703	4988	1615	1752	4940	1495
Flt Permitted	0.163			0.194			0.088			0.093		
Satd. Flow (perm)	301	1803	0	361	1782	0	158	4988	1615	172	4940	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			25				136			136
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		258.9			989.6			1077.8			246.4	
Travel Time (s)		15.5			59.4			48.5			11.1	
Peak Hour Factor	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
Adj. Flow (vph)	463	413	165	333	207	145	280	1776	130	194	1884	69
Shared Lane Traffic (%)												
Lane Group Flow (vph)	463	578	0	333	352	0	280	1776	130	194	1884	69
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	pm+pt	NA		pm+pt	NA		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			8			2		2	6		6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	9.5	24.0		9.5	24.0		9.5	26.0	26.0	11.5	26.0	26.0
Total Split (s)	28.4	37.0		18.0	26.6		16.0	51.7	51.7	13.3	49.0	49.0
Total Split (%)	23.7%	30.8%		15.0%	22.2%		13.3%	43.1%	43.1%	11.1%	40.8%	40.8%
Maximum Green (s)	24.4	31.0		14.0	20.6		12.0	45.7	45.7	9.3	43.0	43.0
Yellow Time (s)	3.0	3.7		3.0	3.7		3.0	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	1.0	2.3		1.0	2.3		1.0	1.4	1.4	1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		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
Recall Mode	None	None		None	None		None	Max	Max	None	Max	Max
Act Effct Green (s)	51.0	31.0		36.6	20.6		59.7	45.7	47.7	54.3	43.0	45.0
Actuated g/C Ratio	0.43	0.26		0.31	0.17		0.50	0.38	0.40	0.45	0.36	0.38
v/c Ratio	1.10	1.21		1.22	1.08		1.20	0.94	0.18	0.97	1.06	0.11
Control Delay (s/veh)	105.0	151.4		155.7	116.4		153.7	46.2	4.1	85.2	78.3	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	105.0	151.4		155.7	116.4		153.7	46.2	4.1	85.2	78.3	0.3
LOS	F	F		F	F		F	D	A	F	E	A
Approach Delay (s/veh)		130.8			135.5			57.4			76.4	
Approach LOS		F			F			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 110			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.22			
Intersection Signal Delay (s/veh): 85.6		Intersection LOS: F	
Intersection Capacity Utilization 97.5%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burnhamthorpe Rd



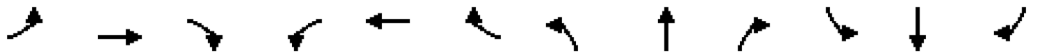


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	463	578	333	352	280	1776	130	194	1884	69
v/c Ratio	1.10	1.21	1.22	1.08	1.20	0.94	0.18	0.97	1.06	0.11
Control Delay (s/veh)	105.0	151.4	155.7	116.4	153.7	46.2	4.1	85.2	78.3	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	105.0	151.4	155.7	116.4	153.7	46.2	4.1	85.2	78.3	0.3
Queue Length 50th (m)	~112.3	~172.7	~82.2	~92.0	~68.0	153.3	0.0	31.4	~188.7	0.0
Queue Length 95th (m)	#159.0	#198.9	#66.9	#93.1	#76.9	#187.0	9.8	#38.0	#219.7	0.0
Internal Link Dist (m)		234.9		965.6		1053.8			222.4	
Turn Bay Length (m)	30.0		15.0		60.0		60.0	60.0		60.0
Base Capacity (vph)	422	477	274	326	233	1899	723	200	1770	645
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.10	1.21	1.22	1.08	1.20	0.94	0.18	0.97	1.06	0.11

Intersection Summary

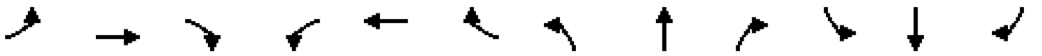
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



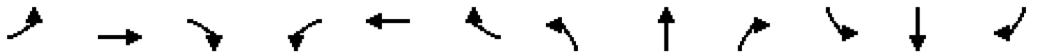
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	389	326	130	203	141	58	193	1634	112	126	1752	58
Future Volume (vph)	389	326	130	203	141	58	193	1634	112	126	1752	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	1803		1770	1783		1703	4988	1615	1752	4940	1495
Flt Permitted	0.16	1.00		0.19	1.00		0.09	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	300	1803		362	1783		157	4988	1615	172	4940	1495
Peak-hour factor, PHF	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Adj. Flow (vph)	463	413	165	333	207	145	280	1776	130	194	1884	69
RTOR Reduction (vph)	0	12	0	0	21	0	0	0	78	0	0	43
Lane Group Flow (vph)	463	566	0	333	331	0	280	1776	52	194	1884	26
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	49.0	31.0		34.6	20.6		57.7	45.7	45.7	52.3	43.0	43.0
Effective Green, g (s)	49.0	31.0		34.6	20.6		57.7	45.7	47.7	52.3	43.0	45.0
Actuated g/C Ratio	0.41	0.26		0.29	0.17		0.48	0.38	0.40	0.44	0.36	0.38
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	417	465		268	306		230	1899	641	197	1770	560
v/s Ratio Prot	c0.23	c0.31		c0.14	0.19		c0.12	0.36		0.08	0.38	
v/s Ratio Perm	0.23			0.21			c0.46		0.03	0.35		0.02
v/c Ratio	1.11	1.22		1.24	1.08		1.22	0.94	0.08	0.98	1.06	0.05
Uniform Delay, d1	35.2	44.5		38.3	49.7		35.7	35.7	22.5	30.8	38.5	23.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	77.5	116.1		136.6	75.3		130.6	10.2	0.2	59.3	40.9	0.2
Delay (s)	112.7	160.6		174.9	125.0		166.4	45.9	22.7	90.1	79.4	24.0
Level of Service	F	F		F	F		F	D	C	F	E	C
Approach Delay (s/veh)		139.3			149.2			59.9			78.6	
Approach LOS		F			F			E			E	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	90.3	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)	20.0
Intersection Capacity Utilization	97.5%	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)	0	1775	77	0	1242	6	0	0	89	0	0	241
Future Volume (vph)	0	1775	77	0	1242	6	0	0	89	0	0	241
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
Frt		0.994			0.999				0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3518	0	0	3536	0	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3518	0	0	3536	0	0	0	1611	0	0	1611
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		165.2			220.0			185.6			207.5	
Travel Time (s)		11.9			15.8			13.4			14.9	
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
Adj. Flow (vph)	0	1929	84	0	1350	7	0	0	97	0	0	262
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2013	0	0	1357	0	0	0	97	0	0	262
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

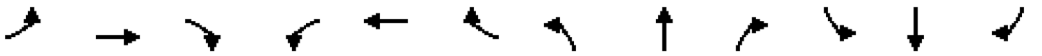
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 63.7%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1775	77	0	1242	6	0	0	89	0	0	241
Future Volume (Veh/h)	0	1775	77	0	1242	6	0	0	89	0	0	241
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1929	84	0	1350	7	0	0	97	0	0	262
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		165			220							
pX, platoon unblocked	0.76			0.73			0.86	0.86	0.73	0.86	0.86	0.76
vC, conflicting volume	1357			2013			2908	3328	1007	2415	3367	679
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	826			1657			1610	2100	287	1034	2145	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	81	100	100	68
cM capacity (veh/h)	605			283			41	44	522	130	41	819

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	1286	727	900	457	97	262
Volume Left	0	0	0	0	0	0
Volume Right	0	84	0	7	97	262
cSH	1700	1700	1700	1700	522	819
Volume to Capacity	0.76	0.43	0.53	0.27	0.19	0.32
Queue Length 95th (m)	0.0	0.0	0.0	0.0	5.4	11.1
Control Delay (s/veh)	0.0	0.0	0.0	0.0	13.5	11.4
Lane LOS					B	B
Approach Delay (s/veh)	0.0		0.0		13.5	11.4
Approach LOS					B	B

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		

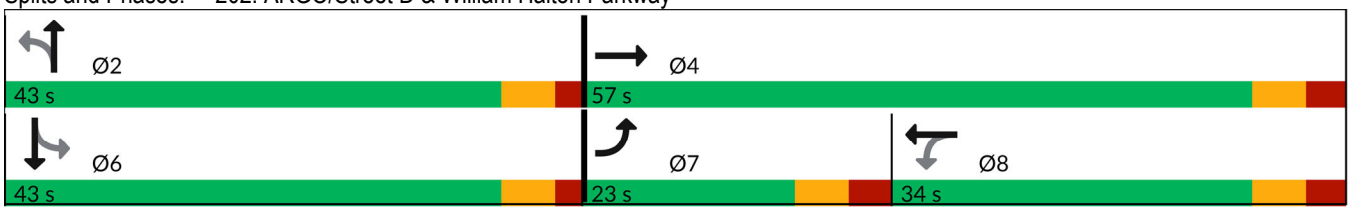


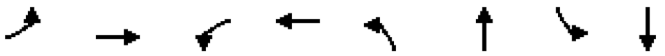
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	482	1305	77	54	830	14	293	10	89	49	10	125
Future Volume (vph)	482	1305	77	54	830	14	293	10	89	49	10	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	50.0		0.0	0.0		0.0
Storage Lanes	2		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.998			0.865			0.861	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3511	0	1770	3532	0	1770	1611	0	1770	1604	0
Flt Permitted	0.950			0.163			0.663			0.687		
Satd. Flow (perm)	3433	3511	0	304	3532	0	1235	1611	0	1280	1604	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			2			23			136	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		220.0			1108.5			243.0			268.9	
Travel Time (s)		15.8			79.8			17.5			19.4	
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
Adj. Flow (vph)	524	1418	84	59	902	15	318	11	97	53	11	136
Shared Lane Traffic (%)												
Lane Group Flow (vph)	524	1502	0	59	917	0	318	108	0	53	147	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)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases				8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	15.0		15.0	15.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	12.0	25.0		25.0	25.0		42.0	42.0		42.0	42.0	
Total Split (s)	23.0	57.0		34.0	34.0		43.0	43.0		43.0	43.0	
Total Split (%)	23.0%	57.0%		34.0%	34.0%		43.0%	43.0%		43.0%	43.0%	
Maximum Green (s)	16.0	50.0		27.0	27.0		37.0	37.0		37.0	37.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	0.2		0.2	0.2		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		Max	Max		None	None		None	None	
Walk Time (s)		7.0		7.0	7.0		14.0	14.0		14.0	14.0	
Flash Don't Walk (s)		11.0		11.0	11.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	16.0	50.3		27.2	27.2		27.3	27.3		27.3	27.3	
Actuated g/C Ratio	0.18	0.55		0.30	0.30		0.30	0.30		0.30	0.30	
v/c Ratio	0.86	0.77		0.65	0.87		0.85	0.22		0.14	0.25	
Control Delay (s/veh)	53.6	20.5		66.4	41.5		51.3	18.8		22.8	5.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	53.6	20.5		66.4	41.5		51.3	18.8		22.8	5.9	
LOS	D	C		E	D		D	B		C	A	
Approach Delay (s/veh)		29.1			43.0			43.1			10.4	
Approach LOS		C			D			D			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 90.7			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay (s/veh): 33.4		Intersection LOS: C	
Intersection Capacity Utilization 97.3%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 202: ARGO/Street D & William Halton Parkway

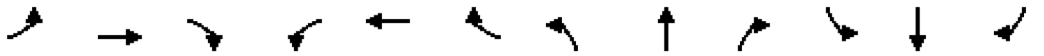




Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	524	1502	59	917	318	108	53	147
v/c Ratio	0.86	0.77	0.65	0.87	0.85	0.22	0.14	0.25
Control Delay (s/veh)	53.6	20.5	66.4	41.5	51.3	18.8	22.8	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	53.6	20.5	66.4	41.5	51.3	18.8	22.8	5.9
Queue Length 50th (m)	49.0	107.5	9.5	84.1	54.3	11.4	7.0	1.4
Queue Length 95th (m)	#88.0	168.1	#34.6	#139.0	88.1	23.7	15.7	14.1
Internal Link Dist (m)		196.0		1084.5		219.0		244.9
Turn Bay Length (m)					50.0			
Base Capacity (vph)	609	1952	91	1059	507	675	525	738
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	0.86	0.77	0.65	0.87	0.63	0.16	0.10	0.20

Intersection Summary

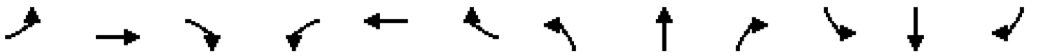
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	482	1305	77	54	830	14	293	10	89	49	10	125
Future Volume (vph)	482	1305	77	54	830	14	293	10	89	49	10	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.87		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3510		1770	3531		1770	1612		1770	1604	
Flt Permitted	0.95	1.00		0.16	1.00		0.66	1.00		0.69	1.00	
Satd. Flow (perm)	3433	3510		303	3531		1236	1612		1280	1604	
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)	524	1418	84	59	902	15	318	11	97	53	11	136
RTOR Reduction (vph)	0	4	0	0	1	0	0	16	0	0	95	0
Lane Group Flow (vph)	524	1498	0	59	916	0	318	92	0	53	52	0
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases				8			2			6		
Actuated Green, G (s)	16.0	50.3		27.3	27.3		27.4	27.4		27.4	27.4	
Effective Green, g (s)	16.0	50.3		27.3	27.3		27.4	27.4		27.4	27.4	
Actuated g/C Ratio	0.18	0.55		0.30	0.30		0.30	0.30		0.30	0.30	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	0.2		0.2	0.2		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	605	1946		91	1062		373	486		386	484	
v/s Ratio Prot	0.15	c0.43			c0.26			0.06			0.03	
v/s Ratio Perm				0.19			c0.26			0.04		
v/c Ratio	0.87	0.77		0.65	0.86		0.85	0.19		0.14	0.11	
Uniform Delay, d1	36.3	15.7		27.5	29.9		29.8	23.4		23.0	22.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	12.4	1.7		30.6	9.2		16.9	0.2		0.2	0.1	
Delay (s)	48.7	17.4		58.1	39.2		46.7	23.6		23.2	22.9	
Level of Service	D	B		E	D		D	C		C	C	
Approach Delay (s/veh)		25.5			40.3			40.8			23.0	
Approach LOS		C			D			D			C	

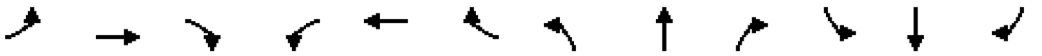
Intersection Summary			
HCM 2000 Control Delay (s/veh)	31.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	90.7	Sum of lost time (s)	20.0
Intersection Capacity Utilization	97.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1725	18	0	1344	257	0	0	82	0	0	378
Future Volume (vph)	0	1725	18	0	1344	257	0	0	82	0	0	378
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		50.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.998				0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3532	0	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3532	0	0	3539	1583	0	0	1611	0	0	1611
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		249.0			148.9			206.9			234.9	
Travel Time (s)		17.9			10.7			14.9			16.9	
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
Adj. Flow (vph)	0	1875	20	0	1461	279	0	0	89	0	0	411
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1895	0	0	1461	279	0	0	89	0	0	411
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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 67.2%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1725	18	0	1344	257	0	0	82	0	0	378
Future Volume (Veh/h)	0	1725	18	0	1344	257	0	0	82	0	0	378
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1875	20	0	1461	279	0	0	89	0	0	411
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		249			149							
pX, platoon unblocked	0.71			0.59			0.73	0.73	0.59	0.73	0.73	0.71
vC, conflicting volume	1740			1895			3027	3625	948	2488	3356	731
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1235			1111			1268	2090	0	528	1721	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	86	100	100	47
cM capacity (veh/h)	400			365			43	38	634	271	64	774

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1250	645	731	731	279	89	411
Volume Left	0	0	0	0	0	0	0
Volume Right	0	20	0	0	279	89	411
cSH	1700	1700	1700	1700	1700	634	774
Volume to Capacity	0.74	0.38	0.43	0.43	0.16	0.14	0.53
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	3.9	25.4
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	11.6	14.8
Lane LOS						B	B
Approach Delay (s/veh)	0.0		0.0			11.6	14.8
Approach LOS						B	B

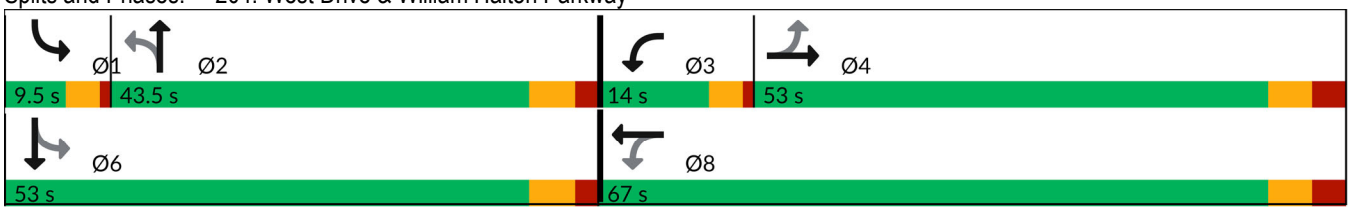
Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	67.2%	ICU Level of Service		C
Analysis Period (min)	15			

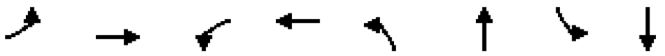
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1329	45	231	1440	51	29	31	317	97	3	5
Future Volume (vph)	11	1329	45	231	1440	51	29	31	317	97	3	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	100.0		0.0	50.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	100.0			100.0			50.0			50.0		
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
Frt		0.995			0.995			0.863			0.906	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3522	0	1770	3522	0	1770	1608	0	1770	1688	0
Flt Permitted	0.105			0.080			0.752			0.189		
Satd. Flow (perm)	196	3522	0	149	3522	0	1401	1608	0	352	1688	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			4			212			5	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		825.3			249.0			160.5			291.6	
Travel Time (s)		59.4			17.9			11.6			21.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	1445	49	251	1565	55	32	34	345	105	3	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	1494	0	251	1620	0	32	379	0	105	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)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		3	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		5.0	15.0		10.0	10.0		5.0	10.0	
Minimum Split (s)	25.0	25.0		9.5	25.0		42.0	42.0		9.5	42.0	
Total Split (s)	53.0	53.0		14.0	67.0		43.5	43.5		9.5	53.0	
Total Split (%)	44.2%	44.2%		11.7%	55.8%		36.3%	36.3%		7.9%	44.2%	
Maximum Green (s)	46.0	46.0		10.0	60.0		37.5	37.5		5.5	47.0	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		1.0	3.0		2.0	2.0		1.0	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)	7.0	7.0		4.0	7.0		6.0	6.0		4.0	6.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes		Yes		
Vehicle Extension (s)	0.2	0.2		3.0	0.2		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Walk Time (s)	7.0	7.0			7.0		14.0	14.0			14.0	
Flash Don't Walk (s)	11.0	11.0			11.0		22.0	22.0			22.0	
Pedestrian Calls (#/hr)	0	0			0		0	0			0	
Act Effct Green (s)	46.2	46.2		63.3	60.2		17.2	17.2		28.7	26.7	
Actuated g/C Ratio	0.46	0.46		0.63	0.60		0.17	0.17		0.29	0.27	
v/c Ratio	0.13	0.92		0.98	0.76		0.13	0.84		0.59	0.02	
Control Delay (s/veh)	23.2	36.5		77.2	18.9		34.9	34.0		40.5	18.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	23.2	36.5		77.2	18.9		34.9	34.0		40.5	18.1	
LOS	C	D		E	B		C	C		D	B	
Approach Delay (s/veh)		36.4			26.7			34.1			39.0	
Approach LOS		D			C			C			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 100			
Natural Cycle: 130			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay (s/veh): 31.6		Intersection LOS: C	
Intersection Capacity Utilization 100.5%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 204: West Drive & William Halton Parkway

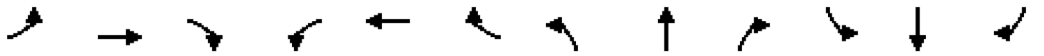




Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	12	1494	251	1620	32	379	105	8
v/c Ratio	0.13	0.92	0.98	0.76	0.13	0.84	0.59	0.02
Control Delay (s/veh)	23.2	36.5	77.2	18.9	34.9	34.0	40.5	18.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	23.2	36.5	77.2	18.9	34.9	34.0	40.5	18.1
Queue Length 50th (m)	1.3	141.7	33.4	114.9	5.6	33.5	16.1	0.5
Queue Length 95th (m)	6.6	#235.1	#99.7	191.9	13.9	68.9	29.1	4.1
Internal Link Dist (m)		801.3		225.0		136.5		267.6
Turn Bay Length (m)	100.0		100.0		50.0		50.0	
Base Capacity (vph)	90	1628	257	2123	527	737	179	799
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	0.92	0.98	0.76	0.06	0.51	0.59	0.01

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1329	45	231	1440	51	29	31	317	97	3	5
Future Volume (vph)	11	1329	45	231	1440	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)	7.0	7.0		4.0	7.0		6.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.86		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3522		1770	3521		1770	1608		1770	1688	
Flt Permitted	0.10	1.00		0.08	1.00		0.75	1.00		0.19	1.00	
Satd. Flow (perm)	195	3522		148	3521		1402	1608		351	1688	
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)	12	1445	49	251	1565	55	32	34	345	105	3	5
RTOR Reduction (vph)	0	2	0	0	2	0	0	176	0	0	4	0
Lane Group Flow (vph)	12	1492	0	251	1618	0	32	203	0	105	4	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	46.3	46.3		60.3	60.3		17.2	17.2		26.7	26.7	
Effective Green, g (s)	46.3	46.3		60.3	60.3		17.2	17.2		26.7	26.7	
Actuated g/C Ratio	0.46	0.46		0.60	0.60		0.17	0.17		0.27	0.27	
Clearance Time (s)	7.0	7.0		4.0	7.0		6.0	6.0		4.0	6.0	
Vehicle Extension (s)	0.2	0.2		3.0	0.2		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	90	1630		251	2123		241	276		171	450	
v/s Ratio Prot		0.42		c0.10	0.46			c0.13		c0.03	0.00	
v/s Ratio Perm	0.06			c0.50			0.02			0.13		
v/c Ratio	0.13	0.92		1.00	0.76		0.13	0.74		0.61	0.01	
Uniform Delay, d1	15.4	25.0		30.0	14.6		35.1	39.3		30.1	26.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	8.2		56.8	1.5		0.3	9.8		6.4	0.0	
Delay (s)	15.6	33.3		86.8	16.1		35.3	49.1		36.5	26.9	
Level of Service	B	C		F	B		D	D		D	C	
Approach Delay (s/veh)		33.1			25.6			48.0			35.8	
Approach LOS		C			C			D			D	

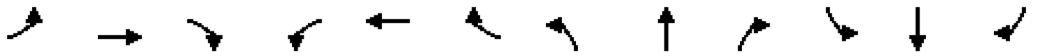
Intersection Summary			
HCM 2000 Control Delay (s/veh)	31.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	100.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	9	3	6	73	281	45	49	77	76	178	22
Future Volume (vph)	31	9	3	6	73	281	45	49	77	76	178	22
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		0.991			0.895			0.939			0.989	
Flt Protected		0.965			0.999			0.987			0.986	
Satd. Flow (prot)	0	1781	0	0	1665	0	0	1726	0	0	1816	0
Flt Permitted		0.965			0.999			0.987			0.986	
Satd. Flow (perm)	0	1781	0	0	1665	0	0	1726	0	0	1816	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		333.0			150.5			112.8			152.1	
Travel Time (s)		24.0			10.8			8.1			11.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	10	3	7	79	305	49	53	84	83	193	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	47	0	0	391	0	0	186	0	0	300	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)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

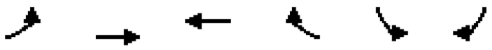
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 48.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	9	3	6	73	281	45	49	77	76	178	22
Future Volume (Veh/h)	31	9	3	6	73	281	45	49	77	76	178	22
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	10	3	7	79	305	49	53	84	83	193	24
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	384			13			446	478	12	436	327	232
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	384			13			446	478	12	436	327	232
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			87	89	92	81	66	97
cM capacity (veh/h)	1174			1606			366	471	1069	436	572	808

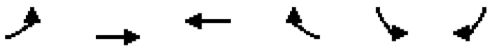
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	47	391	186	300
Volume Left	34	7	49	83
Volume Right	3	305	84	24
cSH	1174	1606	572	538
Volume to Capacity	0.03	0.00	0.33	0.56
Queue Length 95th (m)	0.7	0.1	11.2	27.1
Control Delay (s/veh)	6.0	0.2	14.3	19.8
Lane LOS	A	A	B	C
Approach Delay (s/veh)	6.0	0.2	14.3	19.8
Approach LOS			B	C

Intersection Summary			
Average Delay	9.7		
Intersection Capacity Utilization	48.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	33	122	203	97	96	191
Future Volume (vph)	33	122	203	97	96	191
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			0.957		0.910	
Flt Protected		0.989			0.984	
Satd. Flow (prot)	0	1842	1783	0	1668	0
Flt Permitted		0.989			0.984	
Satd. Flow (perm)	0	1842	1783	0	1668	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		24.2	152.6		206.9	
Travel Time (s)		1.7	11.0		14.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	133	221	105	104	208
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	169	326	0	312	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

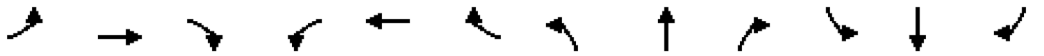
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 51.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	33	122	203	97	96	191
Future Volume (Veh/h)	33	122	203	97	96	191
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)	36	133	221	105	104	208
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	326				479	274
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	326				479	274
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				80	73
cM capacity (veh/h)	1234				530	765

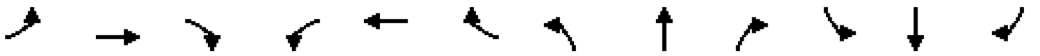
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	169	326	312
Volume Left	36	0	104
Volume Right	0	105	208
cSH	1234	1700	667
Volume to Capacity	0.03	0.19	0.47
Queue Length 95th (m)	0.7	0.0	20.0
Control Delay (s/veh)	1.9	0.0	15.1
Lane LOS	A		C
Approach Delay (s/veh)	1.9	0.0	15.1
Approach LOS			C

Intersection Summary			
Average Delay	6.2		
Intersection Capacity Utilization	51.9%	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)	0	0	210	0	0	80	0	1940	141	0	1726	233
Future Volume (vph)	0	0	210	0	0	80	0	1940	141	0	1726	233
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	0.91	1.00	1.00	0.91	1.00
Frt			0.865			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	1611	0	0	1611	0	5085	1583	0	5085	1583
Flt Permitted												
Satd. Flow (perm)	0	0	1611	0	0	1611	0	5085	1583	0	5085	1583
Link Speed (k/h)		50			50			50			80	
Link Distance (m)		152.6			80.3			246.4			209.3	
Travel Time (s)		11.0			5.8			17.7			9.4	
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
Adj. Flow (vph)	0	0	228	0	0	87	0	2109	153	0	1876	253
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	228	0	0	87	0	2109	153	0	1876	253
Enter Blocked Intersection	No	No	No	No	No	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			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

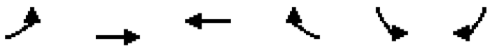
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.0%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	210	0	0	80	0	1940	141	0	1726	233
Future Volume (Veh/h)	0	0	210	0	0	80	0	1940	141	0	1726	233
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	228	0	0	87	0	2109	153	0	1876	253
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								246			209	
pX, platoon unblocked	0.82	0.82	0.71	0.82	0.82	0.68	0.71			0.68		
vC, conflicting volume	2666	4138	625	2962	4238	703	2129			2262		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	1687	0	255	1809	0	1167			1193		
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	70	100	100	88	100			100		
cM capacity (veh/h)	740	76	771	392	64	734	423			393		

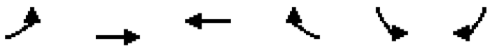
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	228	87	703	703	703	153	625	625	625	253
Volume Left	0	0	0	0	0	0	0	0	0	0
Volume Right	228	87	0	0	0	153	0	0	0	253
cSH	771	734	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.30	0.12	0.41	0.41	0.41	0.09	0.37	0.37	0.37	0.15
Queue Length 95th (m)	9.9	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s/veh)	11.6	10.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	B								
Approach Delay (s/veh)	11.6	10.6	0.0				0.0			
Approach LOS	B	B								

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	53.0%	ICU Level of Service		A
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	12	676	235	157	171	16
Future Volume (vph)	12	676	235	157	171	16
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			0.946		0.989	
Flt Protected		0.999			0.956	
Satd. Flow (prot)	0	1861	1762	0	1761	0
Flt Permitted		0.999			0.956	
Satd. Flow (perm)	0	1861	1762	0	1761	0
Link Speed (k/h)		60	50		50	
Link Distance (m)		569.8	258.9		157.5	
Travel Time (s)		34.2	18.6		11.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	735	255	171	186	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	748	426	0	203	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

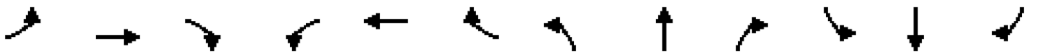
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 62.3%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	676	235	157	171	16
Future Volume (Veh/h)	12	676	235	157	171	16
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	735	255	171	186	17
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			259			
pX, platoon unblocked	0.94				0.94	0.94
vC, conflicting volume	426				1102	341
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	354				1075	263
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				17	98
cM capacity (veh/h)	1129				225	727

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	748	426	203
Volume Left	13	0	186
Volume Right	0	171	17
cSH	1129	1700	239
Volume to Capacity	0.01	0.25	0.85
Queue Length 95th (m)	0.3	0.0	54.0
Control Delay (s/veh)	0.3	0.0	69.2
Lane LOS	A		F
Approach Delay (s/veh)	0.3	0.0	69.2
Approach LOS			F

Intersection Summary			
Average Delay	10.4		
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		

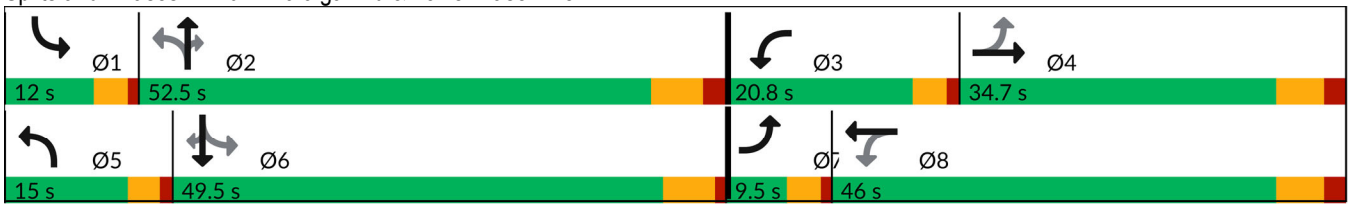


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	221	43	270	280	301	208	1990	389	170	1645	57
Future Volume (vph)	61	221	43	270	280	301	208	1990	389	170	1645	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		90.0	90.0		90.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.965			0.924				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1834	0	1770	1738	0	1805	5036	1599	1752	5085	1615
Flt Permitted	0.137			0.240			0.087			0.091		
Satd. Flow (perm)	255	1834	0	447	1738	0	165	5036	1599	168	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			47				363			138
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			728.6			888.2	
Travel Time (s)		38.5			41.4			32.8			40.0	
Peak Hour Factor	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Adj. Flow (vph)	79	263	80	284	354	367	234	2073	463	191	1808	90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	79	343	0	284	721	0	234	2073	463	191	1808	90
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	pm+pt	NA		pm+pt	NA		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			8			2		2	6		6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		7.0	10.0		5.0	25.0	25.0	7.0	25.0	25.0
Minimum Split (s)	9.5	22.5		11.5	22.5		9.5	31.6	31.6	11.5	30.6	30.6
Total Split (s)	9.5	34.7		20.8	46.0		15.0	52.5	52.5	12.0	49.5	49.5
Total Split (%)	7.9%	28.9%		17.3%	38.3%		12.5%	43.8%	43.8%	10.0%	41.3%	41.3%
Maximum Green (s)	5.5	28.5		16.8	39.8		11.0	45.9	45.9	8.0	43.9	43.9
Yellow Time (s)	3.0	4.2		3.0	4.2		3.0	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0	2.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.2		4.0	6.2		4.0	6.6	6.6	4.0	5.6	5.6
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0		0.2	5.0		3.0	5.0	5.0	0.2	5.0	5.0
Recall Mode	None	None		None	None		None	Max	Max	Max	Max	Max
Act Effct Green (s)	36.2	28.5		49.5	39.8		59.6	45.9	45.9	53.6	43.9	43.9
Actuated g/C Ratio	0.31	0.24		0.42	0.34		0.50	0.39	0.39	0.45	0.37	0.37
v/c Ratio	0.53	0.76		0.80	1.17		0.99	1.06	0.55	1.04	0.96	0.13
Control Delay (s/veh)	36.0	52.6		42.1	126.7		86.7	73.4	9.0	106.3	49.3	1.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	36.0	52.6		42.1	126.7		86.7	73.4	9.0	106.3	49.3	1.4
LOS	D	D		D	F		F	E	A	F	D	A
Approach Delay (s/veh)		49.5			102.8			63.7			52.4	
Approach LOS		D			F			E			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 118.1			
Natural Cycle: 140			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.17			
Intersection Signal Delay (s/veh): 65.3		Intersection LOS: E	
Intersection Capacity Utilization 102.5%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line



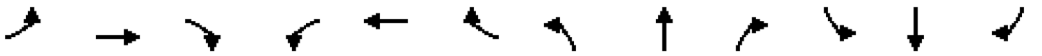


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	79	343	284	721	234	2073	463	191	1808	90
v/c Ratio	0.53	0.76	0.80	1.17	0.99	1.06	0.55	1.04	0.96	0.13
Control Delay (s/veh)	36.0	52.6	42.1	126.7	86.7	73.4	9.0	106.3	49.3	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	36.0	52.6	42.1	126.7	86.7	73.4	9.0	106.3	49.3	1.4
Queue Length 50th (m)	11.5	76.8	47.0	~207.8	~41.7	~209.7	16.2	~35.1	160.0	0.0
Queue Length 95th (m)	18.2	102.9	#74.6	#228.7	#94.0	#240.2	36.3	#82.3	#196.8	0.0
Internal Link Dist (m)		725.3		666.6		704.6			864.2	
Turn Bay Length (m)	45.0		110.0		90.0		90.0	90.0		90.0
Base Capacity (vph)	148	461	376	617	236	1959	843	183	1892	687
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	0.53	0.74	0.76	1.17	0.99	1.06	0.55	1.04	0.96	0.13

Intersection Summary

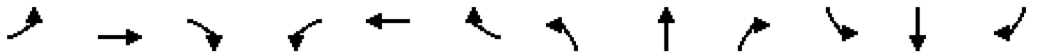
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	221	43	270	280	301	208	1990	389	170	1645	57
Future Volume (vph)	61	221	43	270	280	301	208	1990	389	170	1645	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.2		4.0	6.2		4.0	6.6	6.6	4.0	5.6	5.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.97		1.00	0.92		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1834		1770	1738		1805	5036	1599	1752	5085	1615
Flt Permitted	0.14	1.00		0.24	1.00		0.09	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	254	1834		448	1738		166	5036	1599	168	5085	1615
Peak-hour factor, PHF	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Adj. Flow (vph)	79	263	80	284	354	367	234	2073	463	191	1808	90
RTOR Reduction (vph)	0	9	0	0	31	0	0	0	223	0	0	57
Lane Group Flow (vph)	79	334	0	284	690	0	234	2073	240	191	1808	33
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	33.6	29.3		48.1	39.8		56.9	45.9	45.9	51.9	43.9	43.9
Effective Green, g (s)	33.6	29.3		48.1	39.8		56.9	45.9	45.9	51.9	43.9	43.9
Actuated g/C Ratio	0.28	0.25		0.40	0.34		0.48	0.39	0.39	0.44	0.37	0.37
Clearance Time (s)	4.0	6.2		4.0	6.2		4.0	6.6	6.6	4.0	5.6	5.6
Vehicle Extension (s)	3.0	5.0		0.2	5.0		3.0	5.0	5.0	0.2	5.0	5.0
Lane Grp Cap (vph)	126	452		346	582		231	1945	617	180	1879	596
v/s Ratio Prot	0.02	0.18		c0.10	c0.40		c0.09	c0.41		0.07	0.36	
v/s Ratio Perm	0.15			0.23			0.39		0.15	0.39		0.02
v/c Ratio	0.63	0.74		0.82	1.19		1.01	1.07	0.39	1.06	0.96	0.06
Uniform Delay, d1	34.8	41.2		27.1	39.5		34.6	36.5	26.3	30.2	36.6	24.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.4	7.5		13.8	99.8		62.6	40.6	1.8	84.2	13.6	0.2
Delay (s)	44.2	48.7		40.9	139.3		97.1	77.0	28.2	114.4	50.2	24.3
Level of Service	D	D		D	F		F	E	C	F	D	C
Approach Delay (s/veh)		47.9			111.5			70.5			55.0	
Approach LOS		D			F			E			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	70.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	118.8	Sum of lost time (s)	20.8
Intersection Capacity Utilization	102.5%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

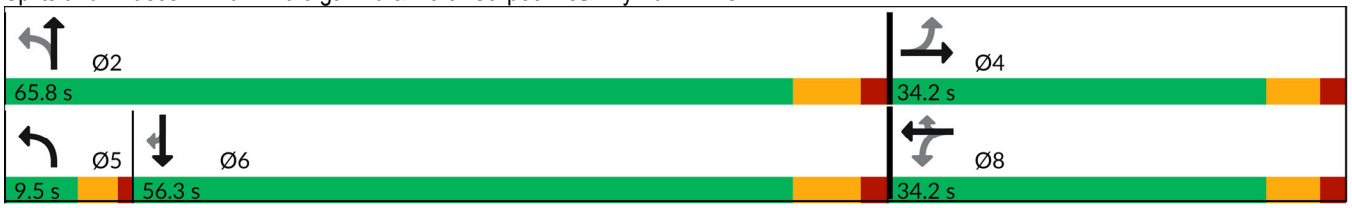


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	19	547	3	29	12	2565	0	0	1953	5
Future Volume (vph)	3	0	19	547	3	29	12	2565	0	0	1953	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.893			0.998	0.850						0.850
Flt Protected		0.990		0.950	0.954		0.950					
Satd. Flow (prot)	0	1523	0	1681	1600	1408	1641	5085	0	0	5085	1615
Flt Permitted		0.915		0.732	0.706		0.068					
Satd. Flow (perm)	0	1408	0	1295	1184	1408	117	5085	0	0	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		87			1	87						76
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			728.6	
Travel Time (s)		9.6			41.3			26.2			52.5	
Peak Hour Factor	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Adj. Flow (vph)	8	0	30	615	8	35	24	2729	0	0	2146	10
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	0	38	0	314	313	31	24	2729	0	0	2146	10
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	4.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	27.0			27.0	27.0
Total Split (s)	34.2	34.2		34.2	34.2	34.2	9.5	65.8			56.3	56.3
Total Split (%)	34.2%	34.2%		34.2%	34.2%	34.2%	9.5%	65.8%			56.3%	56.3%
Maximum Green (s)	28.2	28.2		28.2	28.2	28.2	5.5	58.8			49.3	49.3
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0			2.0	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	4.0	7.0			7.0	7.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	None	Max			Max	Max
Act Effct Green (s)		27.6		27.6	27.6	27.6	61.8	58.8			55.0	55.0
Actuated g/C Ratio		0.28		0.28	0.28	0.28	0.62	0.59			0.55	0.55
v/c Ratio		0.08		0.87	0.95	0.07	0.16	0.91			0.76	0.01
Control Delay (s/veh)		0.4		60.0	75.6	0.3	9.6	23.8			20.4	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		0.4		60.0	75.6	0.3	9.6	23.8			20.4	0.0
LOS		A		E	E	A	A	C			C	A
Approach Delay (s/veh)		0.4			64.6			23.7			20.3	
Approach LOS		A			E			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 99.4			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay (s/veh): 27.0		Intersection LOS: C	
Intersection Capacity Utilization 82.6%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off

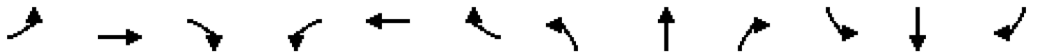




Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	38	314	313	31	24	2729	2146	10
v/c Ratio	0.08	0.87	0.95	0.07	0.16	0.91	0.76	0.01
Control Delay (s/veh)	0.4	60.0	75.6	0.3	9.6	23.8	20.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	0.4	60.0	75.6	0.3	9.6	23.8	20.4	0.0
Queue Length 50th (m)	0.0	63.7	68.1	0.0	1.8	169.1	106.4	0.0
Queue Length 95th (m)	0.0	#113.4	35.0	0.0	2.7	196.9	158.2	0.0
Internal Link Dist (m)	110.0		550.1			339.6	704.6	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	461	367	336	461	157	3007	2814	927
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	0.86	0.93	0.07	0.15	0.91	0.76	0.01

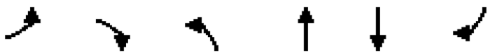
Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	19	547	3	29	12	2565	0	0	1953	5
Future Volume (vph)	3	0	19	547	3	29	12	2565	0	0	1953	5
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	4.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.91			0.91	1.00
Frt		0.89		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1523		1681	1600	1408	1641	5085			5085	1615
Flt Permitted		0.91		0.73	0.71	1.00	0.07	1.00			1.00	1.00
Satd. Flow (perm)		1408		1296	1185	1408	117	5085			5085	1615
Peak-hour factor, PHF	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Adj. Flow (vph)	8	0	30	615	8	35	24	2729	0	0	2146	10
RTOR Reduction (vph)	0	28	0	0	1	23	0	0	0	0	0	5
Lane Group Flow (vph)	0	10	0	314	312	8	24	2729	0	0	2146	5
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		27.6		27.6	27.6	27.6	61.2	61.2			55.0	55.0
Effective Green, g (s)		27.6		27.6	27.6	27.6	61.2	61.2			55.0	55.0
Actuated g/C Ratio		0.27		0.27	0.27	0.27	0.60	0.60			0.54	0.54
Clearance Time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Lane Grp Cap (vph)		381		351	321	381	103	3056			2747	872
v/s Ratio Prot							0.01	c0.54			0.42	
v/s Ratio Perm		0.01		0.24	c0.26	0.01	0.13					0.00
v/c Ratio		0.03		0.89	0.97	0.02	0.23	0.89			0.78	0.01
Uniform Delay, d1		27.2		35.7	36.7	27.2	14.2	17.5			18.6	10.8
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2		0.0		24.3	42.8	0.0	0.8	4.5			2.3	0.0
Delay (s)		27.3		60.0	79.5	27.2	15.0	22.0			20.9	10.8
Level of Service		C		E	E	C	B	C			C	B
Approach Delay (s/veh)		27.3			67.7			21.9			20.9	
Approach LOS		C			E			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	26.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	101.8	Sum of lost time (s)	17.0
Intersection Capacity Utilization	82.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

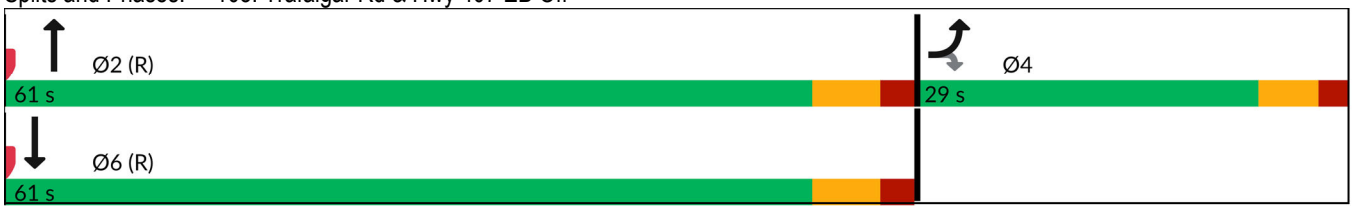


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	41	286	0	2863	2341	0
Future Volume (vph)	41	286	0	2863	2341	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1703	1429	0	5085	5085	0
Flt Permitted	0.950					
Satd. Flow (perm)	1703	1429	0	5085	5085	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		3				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			479.2	363.6	
Travel Time (s)	39.9			34.5	26.2	
Peak Hour Factor	0.75	0.94	0.25	0.94	0.92	0.25
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Adj. Flow (vph)	55	304	0	3046	2545	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	55	304	0	3046	2545	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			7.2	7.2	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	29.0	29.0		24.9	24.9	
Total Split (s)	29.0	29.0		61.0	61.0	
Total Split (%)	32.2%	32.2%		67.8%	67.8%	
Maximum Green (s)	23.0	23.0		54.1	54.1	
Yellow Time (s)	4.0	4.0		4.6	4.6	
All-Red Time (s)	2.0	2.0		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.9	6.9	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	23.0	23.0		54.1	54.1	
Actuated g/C Ratio	0.26	0.26		0.60	0.60	
v/c Ratio	0.13	0.83		1.00	0.83	
Control Delay (s/veh)	26.8	52.0		34.3	17.5	
Queue Delay	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay (s/veh)	26.8	52.0		34.3	17.5	
LOS	C	D		C	B	
Approach Delay (s/veh)	48.1			34.3	17.5	
Approach LOS	D			C	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 90			
Control Type: Pretimed			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay (s/veh): 27.9		Intersection LOS: C	
Intersection Capacity Utilization 73.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off





Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	55	304	3046	2545
v/c Ratio	0.13	0.83	1.00	0.83
Control Delay (s/veh)	26.8	52.0	34.3	17.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	26.8	52.0	34.3	17.5
Queue Length 50th (m)	7.7	51.8	185.3	124.2
Queue Length 95th (m)	14.3	#97.0	#242.3	147.6
Internal Link Dist (m)	530.6		455.2	339.6
Turn Bay Length (m)				
Base Capacity (vph)	435	367	3056	3056
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.13	0.83	1.00	0.83

Intersection Summary

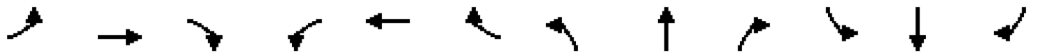
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	41	286	0	2863	2341	0
Future Volume (vph)	41	286	0	2863	2341	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.9	6.9	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1703	1429		5085	5085	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1703	1429		5085	5085	
Peak-hour factor, PHF	0.75	0.94	0.25	0.94	0.92	0.25
Adj. Flow (vph)	55	304	0	3046	2545	0
RTOR Reduction (vph)	0	2	0	0	0	0
Lane Group Flow (vph)	55	302	0	3046	2545	0
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	23.0	23.0		54.1	54.1	
Effective Green, g (s)	23.0	23.0		54.1	54.1	
Actuated g/C Ratio	0.26	0.26		0.60	0.60	
Clearance Time (s)	6.0	6.0		6.9	6.9	
Lane Grp Cap (vph)	435	365		3056	3056	
v/s Ratio Prot	0.03			c0.60	0.50	
v/s Ratio Perm		c0.21				
v/c Ratio	0.13	0.83		1.00	0.83	
Uniform Delay, d1	25.8	31.6		17.9	14.3	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	18.9		15.5	2.8	
Delay (s)	26.4	50.6		33.4	17.2	
Level of Service	C	D		C	B	
Approach Delay (s/veh)	46.8			33.4	17.2	
Approach LOS	D			C	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	27.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

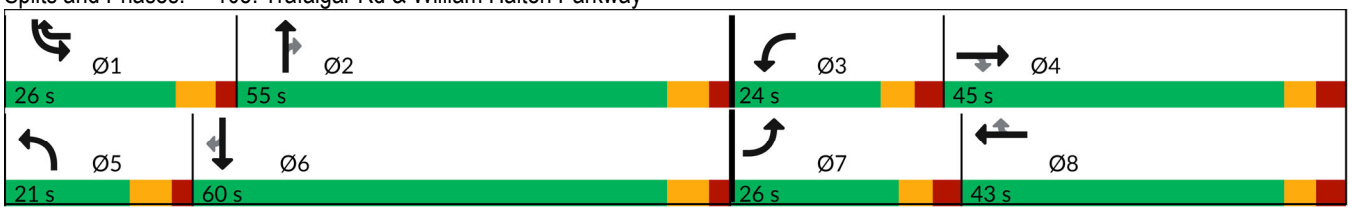


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	709	873	295	380	936	962	418	1740	242	545	1551	530
Future Volume (vph)	709	873	295	380	936	962	418	1740	242	545	1551	530
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		100.0	150.0		150.0	150.0		75.0	150.0		150.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			195			79			199			277
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		165.7			161.0			258.3			479.2	
Travel Time (s)		11.9			11.6			18.6			34.5	
Peak Hour Factor	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
Adj. Flow (vph)	788	900	324	535	1088	1132	516	1933	384	592	1803	576
Shared Lane Traffic (%)												
Lane Group Flow (vph)	788	900	324	535	1088	1132	516	1933	384	592	1803	576
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	1	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	1	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	7.0	7.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	14.0	38.0	38.0	14.0	38.0	13.9	13.9	42.9	42.9	13.9	42.9	42.9
Total Split (s)	26.0	45.0	45.0	24.0	43.0	26.0	21.0	55.0	55.0	26.0	60.0	60.0
Total Split (%)	17.3%	30.0%	30.0%	16.0%	28.7%	17.3%	14.0%	36.7%	36.7%	17.3%	40.0%	40.0%
Maximum Green (s)	19.0	38.0	38.0	17.0	36.0	19.1	14.1	48.1	48.1	19.1	53.1	53.1
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	4.6	4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	3.3	3.3	3.3	3.3	3.3	2.3	2.3	2.3	2.3	2.3	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)	7.0	7.0	7.0	7.0	7.0	6.9	6.9	6.9	6.9	6.9	6.9	6.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	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	3.0	3.0	5.0	5.0	3.0	5.0	5.0
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
Flash Don't Walk (s)		24.0	24.0		24.0			29.0	29.0		29.0	29.0
Pedestrian Calls (#/hr)		0	0		0			0	0		0	0
Act Effct Green (s)	19.0	38.0	38.0	17.0	36.0	62.1	14.1	48.1	48.1	19.1	53.1	53.1
Actuated g/C Ratio	0.13	0.25	0.25	0.11	0.24	0.41	0.09	0.32	0.32	0.13	0.35	0.35
v/c Ratio	1.82	1.00	0.59	1.35	1.26	1.61	1.59	1.19	0.59	1.40	1.00	0.77
Control Delay (s/veh)	410.8	86.3	23.6	221.8	170.6	312.3	319.6	134.3	23.7	237.9	69.6	29.7
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 (s/veh)	410.8	86.3	23.6	221.8	170.6	312.3	319.6	134.3	23.7	237.9	69.6	29.7
LOS	F	F	C	F	F	F	F	F	C	F	E	C
Approach Delay (s/veh)		203.3			238.8			153.1			95.4	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.82			
Intersection Signal Delay (s/veh): 168.7		Intersection LOS: F	
Intersection Capacity Utilization 130.7%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway



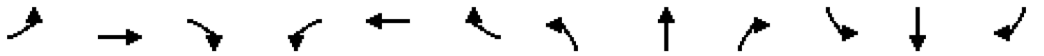


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	788	900	324	535	1088	1132	516	1933	384	592	1803	576
v/c Ratio	1.82	1.00	0.59	1.35	1.26	1.61	1.59	1.19	0.59	1.40	1.00	0.77
Control Delay (s/veh)	410.8	86.3	23.6	221.8	170.6	312.3	319.6	134.3	23.7	237.9	69.6	29.7
Queue Delay	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 (s/veh)	410.8	86.3	23.6	221.8	170.6	312.3	319.6	134.3	23.7	237.9	69.6	29.7
Queue Length 50th (m)	~190.9	~150.5	34.9	~112.6	~223.6	~495.4	~118.1	~265.7	48.3	~127.0	~207.3	88.8
Queue Length 95th (m)	#232.7	#198.0	69.2	#104.8	#249.6	#535.5	#134.8	#295.4	35.0	#166.1	#224.6	141.4
Internal Link Dist (m)		141.7			137.0			234.3			455.2	
Turn Bay Length (m)	150.0		100.0	150.0		150.0	150.0		75.0	150.0		150.0
Base Capacity (vph)	434	896	550	396	866	701	325	1630	653	424	1800	744
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	1.82	1.00	0.59	1.35	1.26	1.61	1.59	1.19	0.59	1.40	1.00	0.77

Intersection Summary

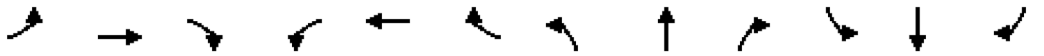
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	709	873	295	380	936	962	418	1740	242	545	1551	530
Future Volume (vph)	709	873	295	380	936	962	418	1740	242	545	1551	530
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	6.9	6.9	6.9	6.9	6.9	6.9	6.9
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
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)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
Peak-hour factor, PHF	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Adj. Flow (vph)	788	900	324	535	1088	1132	516	1933	384	592	1803	576
RTOR Reduction (vph)	0	0	146	0	0	50	0	0	135	0	0	179
Lane Group Flow (vph)	788	900	178	535	1088	1082	516	1933	249	592	1803	397
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	19.0	38.0	38.0	17.0	36.0	55.1	14.1	48.1	48.1	19.1	53.1	53.1
Effective Green, g (s)	19.0	38.0	38.0	17.0	36.0	55.1	14.1	48.1	48.1	19.1	53.1	53.1
Actuated g/C Ratio	0.13	0.25	0.25	0.11	0.24	0.37	0.09	0.32	0.32	0.13	0.35	0.35
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	6.9	6.9	6.9	6.9	6.9	6.9	6.9
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	434	896	405	396	866	581	325	1630	517	424	1800	566
v/s Ratio Prot	c0.23	0.25		0.15	0.30	c0.24	0.15	c0.38		0.18	c0.35	
v/s Ratio Perm			0.11			0.45			0.15			0.25
v/c Ratio	1.82	1.00	0.44	1.35	1.26	1.86	1.59	1.19	0.48	1.40	1.00	0.70
Uniform Delay, d1	65.5	56.0	47.1	66.5	57.0	47.5	68.0	51.0	40.9	65.5	48.4	41.6
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	376.1	31.2	1.6	173.9	124.8	394.6	278.7	90.2	3.2	192.2	21.6	7.1
Delay (s)	441.6	87.2	48.7	240.4	181.8	442.1	346.6	141.1	44.1	257.6	70.1	48.7
Level of Service	F	F	D	F	F	F	F	F	D	F	E	D
Approach Delay (s/veh)		219.8			300.1			165.4			103.3	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	193.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.60		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	27.8
Intersection Capacity Utilization	130.7%	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)	288	431	23	230	414	345	295	1893	140	288	1579	184
Future Volume (vph)	288	431	23	230	414	345	295	1893	140	288	1579	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		60.0	60.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	70.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.993			0.936				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1887	0	1805	1778	0	1805	5036	1615	1480	5085	1599
Flt Permitted	0.095			0.098			0.100			0.091		
Satd. Flow (perm)	177	1887	0	186	1778	0	190	5036	1615	142	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			30				126			122
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		277.8			989.6			1941.0			203.1	
Travel Time (s)		16.7			59.4			87.3			9.1	
Peak Hour Factor	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	1%
Adj. Flow (vph)	343	616	28	291	575	431	378	2227	206	450	1794	214
Shared Lane Traffic (%)												
Lane Group Flow (vph)	343	644	0	291	1006	0	378	2227	206	450	1794	214
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	pm+pt	NA		pm+pt	NA		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			8			2		2	6		6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	9.5	24.0		9.5	24.0		9.5	26.0	26.0	11.5	26.0	26.0
Total Split (s)	15.0	48.0		14.0	47.0		16.0	46.0	46.0	22.0	52.0	52.0
Total Split (%)	11.5%	36.9%		10.8%	36.2%		12.3%	35.4%	35.4%	16.9%	40.0%	40.0%
Maximum Green (s)	11.0	42.0		10.0	41.0		12.0	40.0	40.0	18.0	46.0	46.0
Yellow Time (s)	3.0	3.7		3.0	3.7		3.0	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	1.0	2.3		1.0	2.3		1.0	1.4	1.4	1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		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
Recall Mode	None	None		None	None		None	Max	Max	None	Max	Max
Act Effct Green (s)	55.0	42.0		53.0	41.0		54.0	40.0	42.0	64.0	46.0	48.0
Actuated g/C Ratio	0.42	0.32		0.41	0.32		0.42	0.31	0.32	0.49	0.35	0.37
v/c Ratio	1.64	1.05		1.46	1.73		1.66	1.44	0.34	1.76	1.00	0.32
Control Delay (s/veh)	334.9	93.9		257.2	365.1		341.5	235.2	14.7	386.2	62.5	13.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	334.9	93.9		257.2	365.1		341.5	235.2	14.7	386.2	62.5	13.7
LOS	F	F		F	F		F	F	B	F	E	B
Approach Delay (s/veh)		177.6			340.9			233.3			117.5	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Natural Cycle: 130			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.76			
Intersection Signal Delay (s/veh): 206.8		Intersection LOS: F	
Intersection Capacity Utilization 128.0%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burnhamthorpe Rd



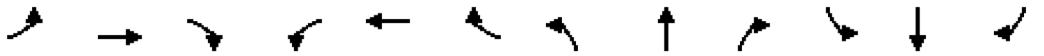


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	343	644	291	1006	378	2227	206	450	1794	214
v/c Ratio	1.64	1.05	1.46	1.73	1.66	1.44	0.34	1.76	1.00	0.32
Control Delay (s/veh)	334.9	93.9	257.2	365.1	341.5	235.2	14.7	386.2	62.5	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	334.9	93.9	257.2	365.1	341.5	235.2	14.7	386.2	62.5	13.7
Queue Length 50th (m)	~117.3	~189.5	~89.9	~398.6	~131.5	~298.0	15.4	~167.8	176.0	16.5
Queue Length 95th (m)	#162.8	161.7	#121.8	#350.8	#158.8	#300.8	19.0	#142.8	#205.7	33.4
Internal Link Dist (m)		253.8		965.6		1917.0			179.1	
Turn Bay Length (m)	30.0		15.0		60.0		60.0	60.0		60.0
Base Capacity (vph)	209	611	200	581	228	1549	607	255	1799	667
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.64	1.05	1.46	1.73	1.66	1.44	0.34	1.76	1.00	0.32

Intersection Summary

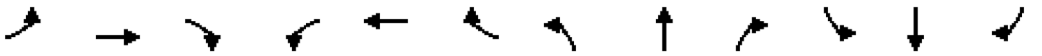
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



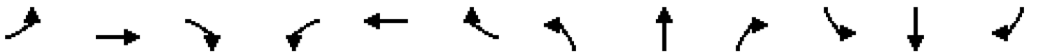
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	288	431	23	230	414	345	295	1893	140	288	1579	184
Future Volume (vph)	288	431	23	230	414	345	295	1893	140	288	1579	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.99		1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1888		1805	1778		1805	5036	1615	1480	5085	1599
Flt Permitted	0.10	1.00		0.10	1.00		0.10	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	177	1888		185	1778		190	5036	1615	142	5085	1599
Peak-hour factor, PHF	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Adj. Flow (vph)	343	616	28	291	575	431	378	2227	206	450	1794	214
RTOR Reduction (vph)	0	1	0	0	21	0	0	0	85	0	0	77
Lane Group Flow (vph)	343	643	0	291	985	0	378	2227	121	450	1794	137
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	53.0	42.0		51.0	41.0		52.0	40.0	40.0	62.0	46.0	46.0
Effective Green, g (s)	53.0	42.0		51.0	41.0		52.0	40.0	42.0	62.0	46.0	48.0
Actuated g/C Ratio	0.41	0.32		0.39	0.32		0.40	0.31	0.32	0.48	0.35	0.37
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	206	609		197	560		225	1549	521	252	1799	590
v/s Ratio Prot	c0.14	0.34		0.11	c0.55		0.16	0.44		c0.25	0.35	
v/s Ratio Perm	0.53			0.46			0.52		0.07	c0.60		0.09
v/c Ratio	1.67	1.06		1.48	1.76		1.68	1.44	0.23	1.79	1.00	0.23
Uniform Delay, d1	36.0	44.0		34.5	44.5		36.7	45.0	32.2	41.0	41.9	28.3
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	319.7	51.9		240.0	349.2		324.6	200.7	1.0	369.1	20.6	0.9
Delay (s)	355.7	95.9		274.5	393.7		361.3	245.7	33.2	410.1	62.5	29.2
Level of Service	F	F		F	F		F	F	C	F	E	C
Approach Delay (s/veh)		186.2			366.9			245.7			123.2	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	218.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.80		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	128.0%	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)	0	1561	99	0	1907	13	0	0	37	0	0	371
Future Volume (vph)	0	1561	99	0	1907	13	0	0	37	0	0	371
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
Frt		0.991			0.999				0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3507	0	0	3536	0	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3507	0	0	3536	0	0	0	1611	0	0	1611
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		161.0			234.1			145.8			194.6	
Travel Time (s)		11.6			16.9			10.5			14.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1697	108	0	2073	14	0	0	40	0	0	403
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1805	0	0	2087	0	0	0	40	0	0	403
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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 82.8%		ICU Level of Service E	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1561	99	0	1907	13	0	0	37	0	0	371
Future Volume (Veh/h)	0	1561	99	0	1907	13	0	0	37	0	0	371
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1697	108	0	2073	14	0	0	40	0	0	403
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		161			234							
pX, platoon unblocked	0.61			0.75			0.74	0.74	0.75	0.74	0.74	0.61
vC, conflicting volume	2087			1805			3191	3838	903	2969	3885	1044
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1514			1416			1761	2639	221	1460	2703	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	93	100	100	40
cM capacity (veh/h)	269			360			16	17	591	62	15	666

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	1131	674	1382	705	40	403
Volume Left	0	0	0	0	0	0
Volume Right	0	108	0	14	40	403
cSH	1700	1700	1700	1700	591	666
Volume to Capacity	0.67	0.40	0.81	0.41	0.07	0.60
Queue Length 95th (m)	0.0	0.0	0.0	0.0	1.7	32.7
Control Delay (s/veh)	0.0	0.0	0.0	0.0	11.5	18.3
Lane LOS					B	C
Approach Delay (s/veh)	0.0		0.0		11.5	18.3
Approach LOS					B	C

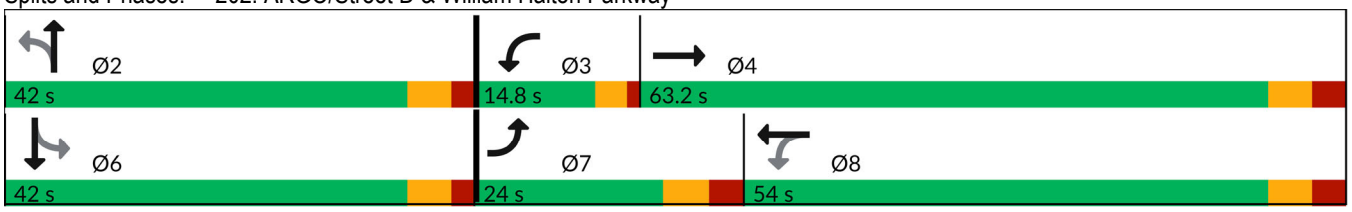
Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	82.8%	ICU Level of Service		E
Analysis Period (min)	15			

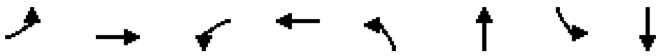
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	533	966	99	111	1479	9	248	10	37	77	10	193
Future Volume (vph)	533	966	99	111	1479	9	248	10	37	77	10	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0		0.0	55.0		0.0	115.0		0.0	0.0		0.0
Storage Lanes	2		0	1		0	1		0	1		0
Taper Length (m)	100.0			100.0			85.0			50.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.986			0.999			0.882			0.857	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3490	0	1770	3536	0	1770	1643	0	1770	1596	0
Flt Permitted	0.950			0.179			0.517			0.724		
Satd. Flow (perm)	3433	3490	0	333	3536	0	963	1643	0	1349	1596	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			1			40			210	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		234.1			1187.2			147.6			240.2	
Travel Time (s)		16.9			85.5			10.6			17.3	
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
Adj. Flow (vph)	579	1050	108	121	1608	10	270	11	40	84	11	210
Shared Lane Traffic (%)												
Lane Group Flow (vph)	579	1158	0	121	1618	0	270	51	0	84	221	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)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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	Prot	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases				8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	12.0	32.0		9.5	32.0		42.0	42.0		42.0	42.0	
Total Split (s)	24.0	63.2		14.8	54.0		42.0	42.0		42.0	42.0	
Total Split (%)	20.0%	52.7%		12.3%	45.0%		35.0%	35.0%		35.0%	35.0%	
Maximum Green (s)	17.0	56.2		10.8	47.0		36.0	36.0		36.0	36.0	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		1.0	3.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		4.0	7.0		6.0	6.0		6.0	6.0	
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	Min	Min		None	Min		None	None		None	None	
Walk Time (s)		10.0			10.0		14.0	14.0		14.0	14.0	
Flash Don't Walk (s)		15.0			15.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	17.0	58.3		58.7	47.0		34.6	34.6		34.6	34.6	
Actuated g/C Ratio	0.14	0.49		0.49	0.40		0.29	0.29		0.29	0.29	
v/c Ratio	1.18	0.67		0.45	1.15		0.96	0.10		0.21	0.36	
Control Delay (s/veh)	143.8	25.6		16.4	111.9		87.6	12.8		33.3	6.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	143.8	25.6		16.4	111.9		87.6	12.8		33.3	6.8	
LOS	F	C		B	F		F	B		C	A	
Approach Delay (s/veh)		65.0			105.2			75.7			14.1	
Approach LOS		E			F			E			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 118.6			
Natural Cycle: 140			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.18			
Intersection Signal Delay (s/veh): 79.1		Intersection LOS: E	
Intersection Capacity Utilization 104.2%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 202: ARGO/Street D & William Halton Parkway





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	579	1158	121	1618	270	51	84	221
v/c Ratio	1.18	0.67	0.45	1.15	0.96	0.10	0.21	0.36
Control Delay (s/veh)	143.8	25.6	16.4	111.9	87.6	12.8	33.3	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	143.8	25.6	16.4	111.9	87.6	12.8	33.3	6.8
Queue Length 50th (m)	~89.2	111.8	11.6	~252.1	65.1	1.9	15.5	1.9
Queue Length 95th (m)	#125.7	142.0	19.8	#297.4	#119.4	11.6	29.3	20.5
Internal Link Dist (m)		210.1		1163.2		123.6		216.2
Turn Bay Length (m)	120.0		55.0		115.0			
Base Capacity (vph)	492	1721	301	1402	292	526	409	630
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	1.18	0.67	0.40	1.15	0.92	0.10	0.21	0.35

Intersection Summary

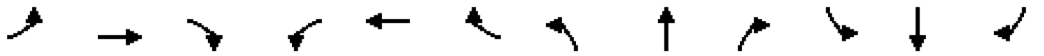
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	533	966	99	111	1479	9	248	10	37	77	10	193
Future Volume (vph)	533	966	99	111	1479	9	248	10	37	77	10	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		4.0	7.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.88		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3490		1770	3536		1770	1644		1770	1597	
Flt Permitted	0.95	1.00		0.18	1.00		0.52	1.00		0.72	1.00	
Satd. Flow (perm)	3433	3490		334	3536		963	1644		1348	1597	
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)	579	1050	108	121	1608	10	270	11	40	84	11	210
RTOR Reduction (vph)	0	6	0	0	1	0	0	28	0	0	149	0
Lane Group Flow (vph)	579	1152	0	121	1617	0	270	23	0	84	72	0
Turn Type	Prot	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases				8			2			6		
Actuated Green, G (s)	17.0	58.3		55.7	47.0		34.6	34.6		34.6	34.6	
Effective Green, g (s)	17.0	58.3		55.7	47.0		34.6	34.6		34.6	34.6	
Actuated g/C Ratio	0.14	0.49		0.47	0.40		0.29	0.29		0.29	0.29	
Clearance Time (s)	7.0	7.0		4.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	492	1715		262	1401		280	479		393	465	
v/s Ratio Prot	c0.17	0.33		0.03	c0.46			0.01			0.05	
v/s Ratio Perm				0.18			c0.28			0.06		
v/c Ratio	1.18	0.67		0.46	1.15		0.96	0.05		0.21	0.16	
Uniform Delay, d1	50.8	22.9		18.8	35.8		41.4	30.2		31.7	31.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	99.1	1.0		1.3	78.1		43.7	0.0		0.3	0.2	
Delay (s)	149.9	23.9		20.1	113.9		85.1	30.2		32.0	31.3	
Level of Service	F	C		C	F		F	C		C	C	
Approach Delay (s/veh)		65.9			107.3			76.4			31.5	
Approach LOS		E			F			E			C	

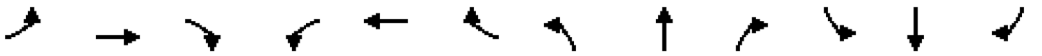
Intersection Summary			
HCM 2000 Control Delay (s/veh)	81.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	118.6	Sum of lost time (s)	20.0
Intersection Capacity Utilization	104.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1799	59	0	1499	385	0	0	78	0	0	340
Future Volume (vph)	0	1799	59	0	1499	385	0	0	78	0	0	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		50.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.995				0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3522	0	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3522	0	0	3539	1583	0	0	1611	0	0	1611
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		226.3			165.7			202.5			251.2	
Travel Time (s)		16.3			11.9			14.6			18.1	
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
Adj. Flow (vph)	0	1955	64	0	1629	418	0	0	85	0	0	370
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2019	0	0	1629	418	0	0	85	0	0	370
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

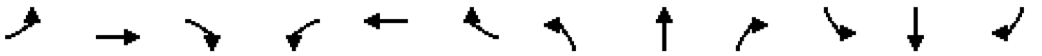
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 69.2%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1799	59	0	1499	385	0	0	78	0	0	340
Future Volume (Veh/h)	0	1799	59	0	1499	385	0	0	78	0	0	340
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1955	64	0	1629	418	0	0	85	0	0	370
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		226			166							
pX, platoon unblocked	0.77			0.57			0.68	0.68	0.57	0.68	0.68	0.77
vC, conflicting volume	2047			2019			3172	4034	1010	2692	3648	815
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1760			1272			1728	2990	0	1025	2425	157
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	44
cM capacity (veh/h)	270			308			17	9	616	111	22	662

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1303	716	815	815	418	85	370
Volume Left	0	0	0	0	0	0	0
Volume Right	0	64	0	0	418	85	370
cSH	1700	1700	1700	1700	1700	616	662
Volume to Capacity	0.77	0.42	0.48	0.48	0.25	0.14	0.56
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	3.8	27.8
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	11.8	17.1
Lane LOS						B	C
Approach Delay (s/veh)	0.0		0.0			11.8	17.1
Approach LOS						B	C

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	69.2%	ICU Level of Service	C	
Analysis Period (min)	15			

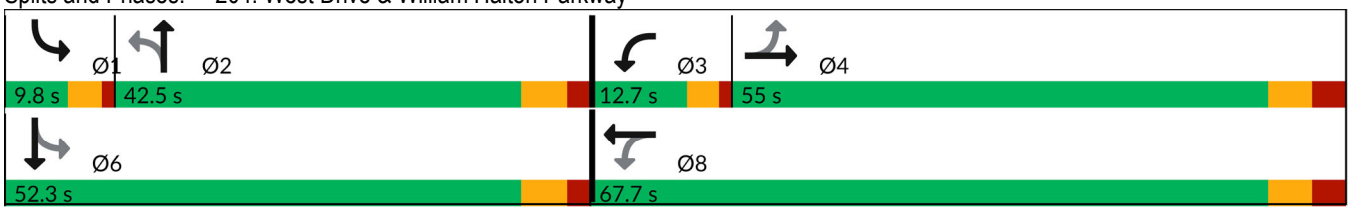


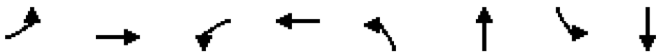
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	1396	56	164	1604	71	32	40	352	110	1	6
Future Volume (vph)	16	1396	56	164	1604	71	32	40	352	110	1	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	100.0		0.0	50.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	100.0			100.0			50.0			50.0		
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
Frt		0.994			0.994			0.865			0.869	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3518	0	1770	3518	0	1770	1611	0	1770	1619	0
Flt Permitted	0.083			0.076			0.752			0.148		
Satd. Flow (perm)	155	3518	0	142	3518	0	1401	1611	0	276	1619	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			5			179			7	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		824.7			226.3			176.0			195.5	
Travel Time (s)		59.4			16.3			12.7			14.1	
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
Adj. Flow (vph)	17	1517	61	178	1743	77	35	43	383	120	1	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	1578	0	178	1820	0	35	426	0	120	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)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		3	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	20.0	20.0		5.0	20.0		10.0	10.0		5.0	10.0	
Minimum Split (s)	27.0	27.0		9.5	27.0		42.0	42.0		9.5	42.0	
Total Split (s)	55.0	55.0		12.7	67.7		42.5	42.5		9.8	52.3	
Total Split (%)	45.8%	45.8%		10.6%	56.4%		35.4%	35.4%		8.2%	43.6%	
Maximum Green (s)	48.0	48.0		8.7	60.7		36.5	36.5		5.8	46.3	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		1.0	3.0		2.0	2.0		1.0	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)	7.0	7.0		4.0	7.0		6.0	6.0		4.0	6.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes		Yes		
Vehicle Extension (s)	0.2	0.2		3.0	0.2		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Walk Time (s)	7.0	7.0			7.0		14.0	14.0			14.0	
Flash Don't Walk (s)	11.0	11.0			11.0		22.0	22.0			22.0	
Pedestrian Calls (#/hr)	0	0			0		0	0			0	
Act Effct Green (s)	48.3	48.3		64.1	61.1		22.9	22.9		34.8	32.8	
Actuated g/C Ratio	0.45	0.45		0.60	0.57		0.21	0.21		0.33	0.31	
v/c Ratio	0.24	0.99		0.82	0.91		0.12	0.88		0.70	0.02	
Control Delay (s/veh)	33.4	51.4		50.4	29.7		32.9	42.4		48.7	14.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	33.4	51.4		50.4	29.7		32.9	42.4		48.7	14.0	
LOS	C	D		D	C		C	D		D	B	
Approach Delay (s/veh)		51.2			31.5			41.7			46.5	
Approach LOS		D			C			D			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 107			
Natural Cycle: 130			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay (s/veh): 40.6		Intersection LOS: D	
Intersection Capacity Utilization 113.2%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 204: West Drive & William Halton Parkway

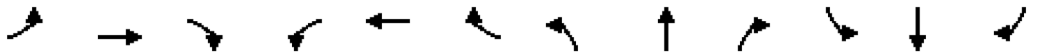




Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	17	1578	178	1820	35	426	120	8
v/c Ratio	0.24	0.99	0.82	0.91	0.12	0.88	0.70	0.02
Control Delay (s/veh)	33.4	51.4	50.4	29.7	32.9	42.4	48.7	14.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	33.4	51.4	50.4	29.7	32.9	42.4	48.7	14.0
Queue Length 50th (m)	2.2	174.9	21.0	174.6	6.2	54.7	18.8	0.2
Queue Length 95th (m)	10.5	#282.7	#71.7	#297.3	14.4	93.8	#36.2	3.5
Internal Link Dist (m)		800.7		202.3		152.0		171.5
Turn Bay Length (m)	100.0		100.0		50.0		50.0	
Base Capacity (vph)	70	1590	218	2011	481	670	171	709
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.99	0.82	0.91	0.07	0.64	0.70	0.01

Intersection Summary

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



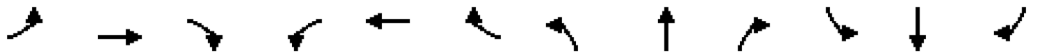
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	1396	56	164	1604	71	32	40	352	110	1	6
Future Volume (vph)	16	1396	56	164	1604	71	32	40	352	110	1	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		4.0	7.0		6.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.87		1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3519		1770	3517		1770	1612		1770	1618	
Flt Permitted	0.08	1.00		0.08	1.00		0.75	1.00		0.15	1.00	
Satd. Flow (perm)	154	3519		142	3517		1402	1612		276	1618	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	1517	61	178	1743	77	35	43	383	120	1	7
RTOR Reduction (vph)	0	2	0	0	2	0	0	140	0	0	5	0
Lane Group Flow (vph)	17	1576	0	178	1818	0	35	286	0	120	3	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	48.3	48.3		61.1	61.1		23.0	23.0		32.8	32.8	
Effective Green, g (s)	48.3	48.3		61.1	61.1		23.0	23.0		32.8	32.8	
Actuated g/C Ratio	0.45	0.45		0.57	0.57		0.22	0.22		0.31	0.31	
Clearance Time (s)	7.0	7.0		4.0	7.0		6.0	6.0		4.0	6.0	
Vehicle Extension (s)	0.2	0.2		3.0	0.2		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	69	1589		215	2010		301	346		165	496	
v/s Ratio Prot		c0.45		0.07	c0.52			c0.18		c0.04	0.00	
v/s Ratio Perm	0.11			0.40			0.02			0.18		
v/c Ratio	0.25	0.99		0.83	0.90		0.12	0.83		0.73	0.01	
Uniform Delay, d1	18.1	29.1		27.7	20.3		33.8	40.0		30.2	25.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	20.5		22.3	6.1		0.2	14.7		14.8	0.0	
Delay (s)	18.8	49.6		50.0	26.4		33.9	54.8		44.9	25.7	
Level of Service	B	D		D	C		C	D		D	C	
Approach Delay (s/veh)		49.3			28.5			53.2			43.7	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	39.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	106.9	Sum of lost time (s)	21.0
Intersection Capacity Utilization	113.2%	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)	95	30	10	3	36	250	23	62	167	52	150	12
Future Volume (vph)	95	30	10	3	36	250	23	62	167	52	150	12
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		0.990			0.883			0.910			0.992	
Flt Protected		0.966						0.995			0.988	
Satd. Flow (prot)	0	1781	0	0	1645	0	0	1687	0	0	1826	0
Flt Permitted		0.966						0.995			0.988	
Satd. Flow (perm)	0	1781	0	0	1645	0	0	1687	0	0	1826	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		276.8			164.9			130.3			140.1	
Travel Time (s)		19.9			11.9			9.4			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
Adj. Flow (vph)	103	33	11	3	39	272	25	67	182	57	163	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	147	0	0	314	0	0	274	0	0	233	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)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

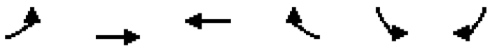
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.9%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	30	10	3	36	250	23	62	167	52	150	12
Future Volume (Veh/h)	95	30	10	3	36	250	23	62	167	52	150	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	103	33	11	3	39	272	25	67	182	57	163	13
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	311			44			520	562	39	641	431	175
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	311			44			520	562	39	641	431	175
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			100			92	83	82	78	66	99
cM capacity (veh/h)	1249			1564			317	399	1033	261	474	868

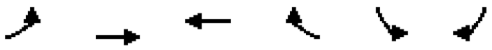
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	147	314	274	233
Volume Left	103	3	25	57
Volume Right	11	272	182	13
cSH	1249	1564	648	403
Volume to Capacity	0.08	0.00	0.42	0.58
Queue Length 95th (m)	2.2	0.0	16.8	28.2
Control Delay (s/veh)	5.9	0.1	14.6	25.4
Lane LOS	A	A	B	D
Approach Delay (s/veh)	5.9	0.1	14.6	25.4
Approach LOS			B	D

Intersection Summary				
Average Delay	11.2			
Intersection Capacity Utilization	57.9%	ICU Level of Service	B	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	114	149	119	238	87	147
Future Volume (vph)	114	149	119	238	87	147
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			0.910		0.915	
Flt Protected		0.979			0.982	
Satd. Flow (prot)	0	1824	1695	0	1674	0
Flt Permitted		0.979			0.982	
Satd. Flow (perm)	0	1824	1695	0	1674	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		164.9	188.6		202.5	
Travel Time (s)		11.9	13.6		14.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	124	162	129	259	95	160
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	286	388	0	255	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

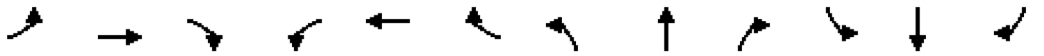
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.9%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	114	149	119	238	87	147
Future Volume (Veh/h)	114	149	119	238	87	147
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)	124	162	129	259	95	160
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	388				669	259
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	388				669	259
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	89				75	79
cM capacity (veh/h)	1170				378	780

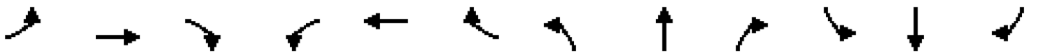
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	286	388	255
Volume Left	124	0	95
Volume Right	0	259	160
cSH	1170	1700	559
Volume to Capacity	0.11	0.23	0.46
Queue Length 95th (m)	2.8	0.0	19.0
Control Delay (s/veh)	4.2	0.0	16.7
Lane LOS	A		C
Approach Delay (s/veh)	4.2	0.0	16.7
Approach LOS			C

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	58.9%	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)	0	0	198	0	0	66	0	2333	193	0	1853	373
Future Volume (vph)	0	0	198	0	0	66	0	2333	193	0	1853	373
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		50.0	0.0		50.0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.865			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	1611	0	0	1611	0	5085	1583	0	5085	1583
Flt Permitted												
Satd. Flow (perm)	0	0	1611	0	0	1611	0	5085	1583	0	5085	1583
Link Speed (k/h)		50			50			50			80	
Link Distance (m)		188.6			84.7			203.1			258.3	
Travel Time (s)		13.6			6.1			14.6			11.6	
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
Adj. Flow (vph)	0	0	215	0	0	72	0	2536	210	0	2014	405
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	215	0	0	72	0	2536	210	0	2014	405
Enter Blocked Intersection	No	No	No	No	No	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			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

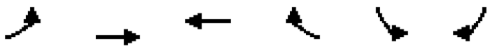
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 55.8%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	198	0	0	66	0	2333	193	0	1853	373
Future Volume (Veh/h)	0	0	198	0	0	66	0	2333	193	0	1853	373
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	215	0	0	72	0	2536	210	0	2014	405
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								203			258	
pX, platoon unblocked	0.82	0.82	0.68	0.82	0.82	0.71	0.68			0.71		
vC, conflicting volume	2931	4760	671	3422	4955	845	2419			2746		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	173	2396	0	770	2633	0	1418			2012		
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	71	100	100	91	100			100		
cM capacity (veh/h)	577	27	732	169	19	764	322			197		

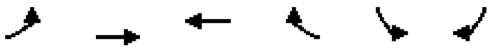
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	215	72	845	845	845	210	671	671	671	405
Volume Left	0	0	0	0	0	0	0	0	0	0
Volume Right	215	72	0	0	0	210	0	0	0	405
cSH	732	764	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.29	0.09	0.50	0.50	0.50	0.12	0.39	0.39	0.39	0.24
Queue Length 95th (m)	9.8	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s/veh)	11.9	10.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	B								
Approach Delay (s/veh)	11.9	10.2	0.0				0.0			
Approach LOS	B	B								

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	55.8%	ICU Level of Service	B	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	7	596	653	240	151	12
Future Volume (vph)	7	596	653	240	151	12
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			0.964		0.990	
Flt Protected		0.999			0.956	
Satd. Flow (prot)	0	1861	1796	0	1763	0
Flt Permitted		0.999			0.956	
Satd. Flow (perm)	0	1861	1796	0	1763	0
Link Speed (k/h)		60	50		50	
Link Distance (m)		550.9	277.8		134.0	
Travel Time (s)		33.1	20.0		9.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	648	710	261	164	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	656	971	0	177	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

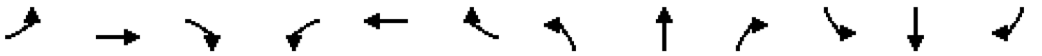
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 64.7%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	596	653	240	151	12
Future Volume (Veh/h)	7	596	653	240	151	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	648	710	261	164	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)			278			
pX, platoon unblocked	0.56				0.56	0.56
vC, conflicting volume	971				1505	841
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	556				1508	323
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				0	97
cM capacity (veh/h)	568				73	402

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	656	971	177
Volume Left	8	0	164
Volume Right	0	261	13
cSH	568	1700	78
Volume to Capacity	0.01	0.57	2.27
Queue Length 95th (m)	0.3	0.0	131.3
Control Delay (s/veh)	0.4	0.0	694.4
Lane LOS	A		F
Approach Delay (s/veh)	0.4	0.0	694.4
Approach LOS			F

Intersection Summary			
Average Delay	68.3		
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		

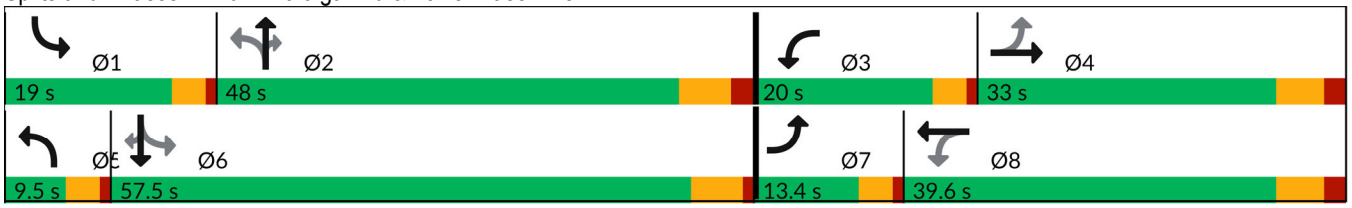


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	309	90	300	105	136	32	1496	333	323	1791	61
Future Volume (vph)	107	309	90	300	105	136	32	1496	333	323	1791	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		90.0	90.0		90.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.963			0.912				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1816	0	1736	1666	0	1597	4848	1568	1752	4988	1553
Flt Permitted	0.475			0.130			0.095			0.085		
Satd. Flow (perm)	868	1816	0	238	1666	0	160	4848	1568	157	4988	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			59				314			138
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			728.7			434.3	
Travel Time (s)		38.5			41.4			32.8			19.5	
Peak Hour Factor	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Adj. Flow (vph)	127	401	132	411	127	179	44	1824	374	367	2107	86
Shared Lane Traffic (%)												
Lane Group Flow (vph)	127	533	0	411	306	0	44	1824	374	367	2107	86
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	pm+pt	NA		pm+pt	NA		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			8			2		2	6		6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		7.0	10.0		5.0	25.0	25.0	7.0	25.0	25.0
Minimum Split (s)	9.5	22.5		11.5	22.5		9.5	31.6	31.6	11.5	30.6	30.6
Total Split (s)	13.4	33.0		20.0	39.6		9.5	48.0	48.0	19.0	57.5	57.5
Total Split (%)	11.2%	27.5%		16.7%	33.0%		7.9%	40.0%	40.0%	15.8%	47.9%	47.9%
Maximum Green (s)	9.4	26.8		16.0	33.4		5.5	41.4	41.4	15.0	51.9	51.9
Yellow Time (s)	3.0	4.2		3.0	4.2		3.0	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0	2.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.2		4.0	6.2		4.0	6.6	6.6	4.0	5.6	5.6
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0		0.2	5.0		3.0	5.0	5.0	0.2	5.0	5.0
Recall Mode	None	None		None	None		None	Max	Max	Max	Max	Max
Act Effct Green (s)	38.0	26.8		49.0	33.8		49.5	41.4	41.4	63.0	53.8	53.8
Actuated g/C Ratio	0.32	0.22		0.41	0.28		0.41	0.35	0.35	0.53	0.45	0.45
v/c Ratio	0.37	1.28		1.39	0.60		0.34	1.09	0.50	1.31	0.94	0.11
Control Delay (s/veh)	26.8	182.9		222.5	35.5		22.3	88.8	8.3	191.1	42.0	0.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	26.8	182.9		222.5	35.5		22.3	88.8	8.3	191.1	42.0	0.9
LOS	C	F		F	D		C	F	A	F	D	A
Approach Delay (s/veh)		152.9			142.7			74.1			62.0	
Approach LOS		F			F			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 120			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.39			
Intersection Signal Delay (s/veh): 85.5		Intersection LOS: F	
Intersection Capacity Utilization 102.5%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line



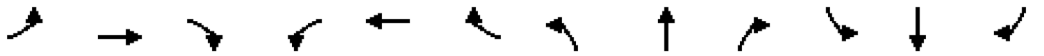


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	127	533	411	306	44	1824	374	367	2107	86
v/c Ratio	0.37	1.28	1.39	0.60	0.34	1.09	0.50	1.31	0.94	0.11
Control Delay (s/veh)	26.8	182.9	222.5	35.5	22.3	88.8	8.3	191.1	42.0	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	26.8	182.9	222.5	35.5	22.3	88.8	8.3	191.1	42.0	0.9
Queue Length 50th (m)	19.8	~166.1	~119.0	53.3	5.1	~186.5	10.1	~100.6	184.6	0.0
Queue Length 95th (m)	31.2	#186.0	#131.0	74.9	8.9	#184.1	34.7	#157.3	190.0	0.0
Internal Link Dist (m)		725.3		666.6		704.7			410.3	
Turn Bay Length (m)	45.0		110.0		90.0		90.0	90.0		90.0
Base Capacity (vph)	345	415	296	511	131	1672	746	281	2236	772
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	0.37	1.28	1.39	0.60	0.34	1.09	0.50	1.31	0.94	0.11

Intersection Summary

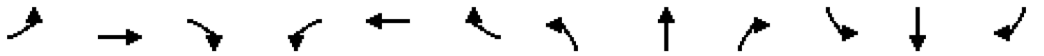
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	309	90	300	105	136	32	1496	333	323	1791	61
Future Volume (vph)	107	309	90	300	105	136	32	1496	333	323	1791	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.2		4.0	6.2		4.0	6.6	6.6	4.0	5.6	5.6
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	1816		1736	1667		1597	4848	1568	1752	4988	1553
Flt Permitted	0.47	1.00		0.13	1.00		0.09	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	868	1816		237	1667		159	4848	1568	156	4988	1553
Peak-hour factor, PHF	0.84	0.77	0.68	0.73	0.83	0.76	0.72	0.82	0.89	0.88	0.85	0.71
Adj. Flow (vph)	127	401	132	411	127	179	44	1824	374	367	2107	86
RTOR Reduction (vph)	0	10	0	0	42	0	0	0	204	0	0	48
Lane Group Flow (vph)	127	523	0	411	264	0	44	1824	170	367	2107	38
Heavy Vehicles (%)	4%	1%	0%	4%	4%	4%	13%	7%	3%	3%	4%	4%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	35.8	26.8		46.8	33.8		46.6	42.2	42.2	62.2	53.8	53.8
Effective Green, g (s)	35.8	26.8		46.8	33.8		46.6	42.2	42.2	62.2	53.8	53.8
Actuated g/C Ratio	0.30	0.22		0.39	0.28		0.39	0.35	0.35	0.51	0.45	0.45
Clearance Time (s)	4.0	6.2		4.0	6.2		4.0	6.6	6.6	4.0	5.6	5.6
Vehicle Extension (s)	3.0	5.0		0.2	5.0		3.0	5.0	5.0	0.2	5.0	5.0
Lane Grp Cap (vph)	321	402		290	466		113	1693	547	278	2221	691
v/s Ratio Prot	0.03	0.29		c0.19	0.16		0.01	0.38		c0.16	0.42	
v/s Ratio Perm	0.09			c0.36			0.13		0.11	c0.51		0.02
v/c Ratio	0.40	1.30		1.42	0.57		0.39	1.08	0.31	1.32	0.95	0.06
Uniform Delay, d1	32.4	47.0		34.9	37.2		28.5	39.3	28.7	37.9	32.2	19.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	152.5		206.9	2.6		2.2	46.0	1.5	167.1	10.3	0.2
Delay (s)	33.2	199.5		241.8	39.8		30.7	85.3	30.2	205.0	42.5	19.2
Level of Service	C	F		F	D		C	F	C	F	D	B
Approach Delay (s/veh)		167.5			155.6			75.0			65.0	
Approach LOS		F			F			E			E	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	90.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.45		
Actuated Cycle Length (s)	120.8	Sum of lost time (s)	20.8
Intersection Capacity Utilization	102.5%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

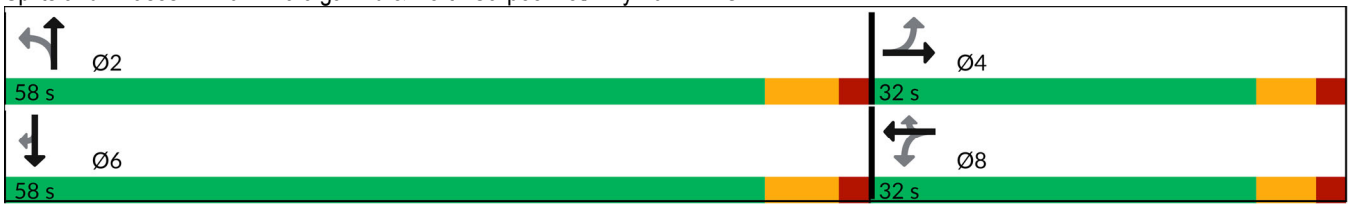


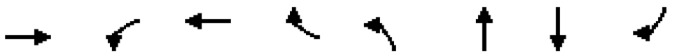
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	10	325	2	6	8	1852	0	0	2180	2
Future Volume (vph)	3	0	10	325	2	6	8	1852	0	0	2180	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.891			0.999	0.850						0.850
Flt Protected		0.990		0.950	0.953		0.950					
Satd. Flow (prot)	0	1474	0	1545	1474	1534	1543	4893	0	0	4988	1615
Flt Permitted		0.930		0.730	0.701		0.078					
Satd. Flow (perm)	0	1385	0	1187	1084	1534	127	4893	0	0	4988	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		48				48						36
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			728.7	
Travel Time (s)		9.6			41.3			26.2			52.5	
Peak Hour Factor	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Adj. Flow (vph)	8	0	33	422	4	14	27	2013	0	0	2506	8
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	0	41	0	215	212	13	27	2013	0	0	2506	8
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	Perm	NA			NA	Perm
Protected Phases		4			8			2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	2	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	20.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	27.0	27.0			27.0	27.0
Total Split (s)	32.0	32.0		32.0	32.0	32.0	58.0	58.0			58.0	58.0
Total Split (%)	35.6%	35.6%		35.6%	35.6%	35.6%	64.4%	64.4%			64.4%	64.4%
Maximum Green (s)	26.0	26.0		26.0	26.0	26.0	51.0	51.0			51.0	51.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	5.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0			2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Lost Time (s)		6.0		6.0	6.0	6.0	7.0	7.0			7.0	7.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	7.0	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	Max	Max			Max	Max
Act Effct Green (s)		20.9		20.9	20.9	20.9	51.2	51.2			51.2	51.2
Actuated g/C Ratio		0.25		0.25	0.25	0.25	0.60	0.60			0.60	0.60
v/c Ratio		0.11		0.74	0.80	0.03	0.36	0.68			0.84	0.01
Control Delay (s/veh)		7.0		45.5	52.4	0.2	27.1	13.8			17.9	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		7.0		45.5	52.4	0.2	27.1	13.8			17.9	0.0
LOS		A		D	D	A	C	B			B	A
Approach Delay (s/veh)		7.0			47.5			13.9			17.8	
Approach LOS		A			D			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 85.1			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay (s/veh): 18.8		Intersection LOS: B	
Intersection Capacity Utilization 68.7%		ICU Level of Service C	
Analysis Period (min) 15			

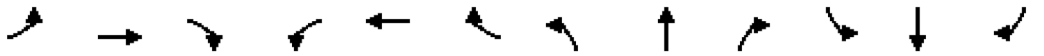
Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off





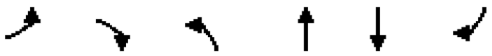
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	41	215	212	13	27	2013	2506	8
v/c Ratio	0.11	0.74	0.80	0.03	0.36	0.68	0.84	0.01
Control Delay (s/veh)	7.0	45.5	52.4	0.2	27.1	13.8	17.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	7.0	45.5	52.4	0.2	27.1	13.8	17.9	0.0
Queue Length 50th (m)	0.0	35.6	37.3	0.0	2.3	82.3	121.4	0.0
Queue Length 95th (m)	0.0	50.4	30.9	0.0	2.2	110.3	149.9	0.0
Internal Link Dist (m)	110.0		550.1			339.6	704.7	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	458	363	332	503	76	2943	3000	985
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	0.59	0.64	0.03	0.36	0.68	0.84	0.01

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	10	325	2	6	8	1852	0	0	2180	2
Future Volume (vph)	3	0	10	325	2	6	8	1852	0	0	2180	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0	6.0	7.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.91			0.91	1.00
Frt		0.89		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1475		1545	1475	1534	1543	4893			4988	1615
Flt Permitted		0.93		0.73	0.70	1.00	0.08	1.00			1.00	1.00
Satd. Flow (perm)		1385		1188	1084	1534	127	4893			4988	1615
Peak-hour factor, PHF	0.38	0.25	0.30	0.77	0.50	0.42	0.30	0.92	0.25	0.25	0.87	0.25
Adj. Flow (vph)	8	0	33	422	4	14	27	2013	0	0	2506	8
RTOR Reduction (vph)	0	31	0	0	0	10	0	0	0	0	0	3
Lane Group Flow (vph)	0	10	0	215	212	3	27	2013	0	0	2506	5
Heavy Vehicles (%)	0%	0%	17%	11%	50%	0%	17%	6%	0%	0%	4%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA			NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		20.9		20.9	20.9	20.9	51.2	51.2			51.2	51.2
Effective Green, g (s)		20.9		20.9	20.9	20.9	51.2	51.2			51.2	51.2
Actuated g/C Ratio		0.25		0.25	0.25	0.25	0.60	0.60			0.60	0.60
Clearance Time (s)		6.0		6.0	6.0	6.0	7.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	7.0	7.0			7.0	7.0
Lane Grp Cap (vph)		340		291	266	376	76	2943			3001	971
v/s Ratio Prot								0.41			c0.50	
v/s Ratio Perm		0.01		0.18	c0.20	0.00	0.21					0.00
v/c Ratio		0.03		0.74	0.80	0.01	0.36	0.68			0.84	0.00
Uniform Delay, d1		24.4		29.6	30.1	24.3	8.6	11.5			13.6	6.8
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2		0.0		9.7	15.6	0.0	12.5	1.3			2.9	0.0
Delay (s)		24.4		39.3	45.7	24.3	21.1	12.8			16.5	6.8
Level of Service		C		D	D	C	C	B			B	A
Approach Delay (s/veh)		24.4			41.9			12.9			16.5	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	85.1	Sum of lost time (s)	13.0
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

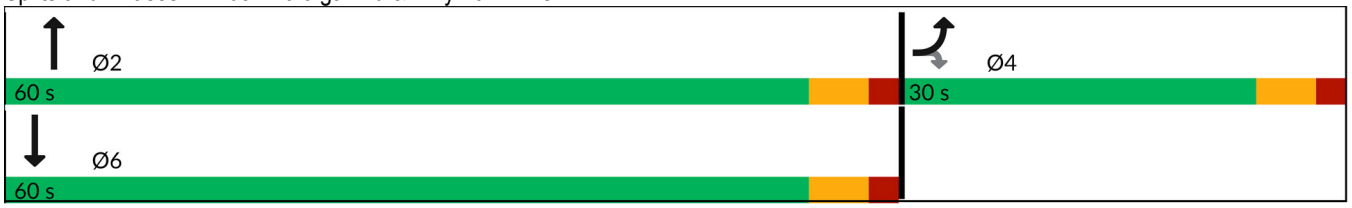


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	77	287	0	1984	2414	0
Future Volume (vph)	77	287	0	1984	2414	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1671	1392	0	4848	4940	0
Flt Permitted	0.950					
Satd. Flow (perm)	1671	1392	0	4848	4940	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		2				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			485.1	363.6	
Travel Time (s)	39.9			34.9	26.2	
Peak Hour Factor	0.79	0.78	0.25	0.85	0.86	0.25
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Adj. Flow (vph)	97	368	0	2334	2807	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	97	368	0	2334	2807	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			7.2	7.2	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
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)	5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0	
Total Split (s)	30.0	30.0		60.0	60.0	
Total Split (%)	33.3%	33.3%		66.7%	66.7%	
Maximum Green (s)	24.0	24.0		54.0	54.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	24.0	24.0		54.0	54.0	
Actuated g/C Ratio	0.27	0.27		0.60	0.60	
v/c Ratio	0.22	0.99		0.80	0.95	
Control Delay (s/veh)	27.3	79.1		16.7	25.5	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay (s/veh)	27.3	79.1		16.7	25.5	
LOS	C	E		B	C	
Approach Delay (s/veh)	68.3			16.7	25.5	
Approach LOS	E			B	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay (s/veh): 25.4		Intersection LOS: C	
Intersection Capacity Utilization 74.4%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off

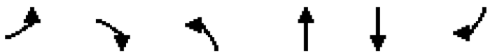




Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	97	368	2334	2807
v/c Ratio	0.22	0.99	0.80	0.95
Control Delay (s/veh)	27.3	79.1	16.7	25.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	27.3	79.1	16.7	25.5
Queue Length 50th (m)	13.7	66.3	110.1	158.9
Queue Length 95th (m)	23.1	#98.5	117.2	170.0
Internal Link Dist (m)	530.6		461.1	339.6
Turn Bay Length (m)				
Base Capacity (vph)	445	372	2908	2964
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.22	0.99	0.80	0.95

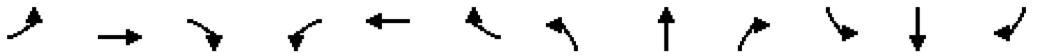
Intersection Summary

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



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	77	287	0	1984	2414	0
Future Volume (vph)	77	287	0	1984	2414	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1671	1392		4848	4940	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1671	1392		4848	4940	
Peak-hour factor, PHF	0.79	0.78	0.25	0.85	0.86	0.25
Adj. Flow (vph)	97	368	0	2334	2807	0
RTOR Reduction (vph)	0	1	0	0	0	0
Lane Group Flow (vph)	97	367	0	2334	2807	0
Heavy Vehicles (%)	8%	16%	0%	7%	5%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	24.0	24.0		54.0	54.0	
Effective Green, g (s)	24.0	24.0		54.0	54.0	
Actuated g/C Ratio	0.27	0.27		0.60	0.60	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	445	371		2908	2964	
v/s Ratio Prot	0.06			0.48	c0.57	
v/s Ratio Perm		c0.26				
v/c Ratio	0.22	0.99		0.80	0.95	
Uniform Delay, d1	25.7	32.9		13.9	16.7	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	43.1		2.4	8.1	
Delay (s)	25.9	75.9		16.3	24.8	
Level of Service	C	E		B	C	
Approach Delay (s/veh)	65.5			16.3	24.8	
Approach LOS	E			B	C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	24.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	594	1012	272	320	721	510	400	1440	299	735	1449	519
Future Volume (vph)	594	1012	272	320	721	510	400	1440	299	735	1449	519
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	150.0		150.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3467	3574	1599	3273	3574	1429	3303	4988	1615	3433	4893	1538
Flt Permitted	0.950			0.950			0.093			0.950		
Satd. Flow (perm)	3467	3574	1599	3273	3574	1429	323	4988	1615	3433	4893	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			129			79			129			79
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		148.9			165.2			209.3			485.1	
Travel Time (s)		10.7			11.9			15.1			34.9	
Peak Hour Factor	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
Adj. Flow (vph)	699	1112	328	427	924	680	465	1600	356	896	1610	603
Shared Lane Traffic (%)												
Lane Group Flow (vph)	699	1112	328	427	924	680	465	1600	356	896	1610	603
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8	2		2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	20.0	7.0	7.0	20.0	7.0	7.0	20.0	7.0	7.0	20.0	7.0
Minimum Split (s)	14.0	38.0	13.9	14.0	38.0	13.9	13.9	42.9	14.0	13.9	42.9	14.0
Total Split (s)	27.0	46.0	23.8	21.0	40.0	33.0	23.8	50.0	21.0	33.0	59.2	27.0
Total Split (%)	18.0%	30.7%	15.9%	14.0%	26.7%	22.0%	15.9%	33.3%	14.0%	22.0%	39.5%	18.0%
Maximum Green (s)	20.0	39.0	16.9	14.0	33.0	26.1	16.9	43.1	14.0	26.1	52.3	20.0
Yellow Time (s)	3.7	3.7	4.6	3.7	3.7	4.6	4.6	4.6	3.7	4.6	4.6	3.7
All-Red Time (s)	3.3	3.3	2.3	3.3	3.3	2.3	2.3	2.3	3.3	2.3	2.3	3.3
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)	7.0	7.0	6.9	7.0	7.0	6.9	6.9	6.9	7.0	6.9	6.9	7.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0
Recall Mode	None	None	Max	None	None	Max	Max	Max	None	Max	Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		24.0			24.0			29.0			29.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	20.0	39.0	62.9	14.0	33.0	66.1	60.0	43.1	64.0	26.1	52.3	79.2
Actuated g/C Ratio	0.13	0.26	0.42	0.09	0.22	0.44	0.40	0.29	0.43	0.17	0.35	0.53
v/c Ratio	1.51	1.20	0.44	1.40	1.18	1.01	1.00	1.12	0.47	1.50	0.94	0.71
Control Delay (s/veh)	283.6	146.1	20.1	245.6	141.9	73.9	87.0	110.9	21.1	274.9	59.4	28.5
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 (s/veh)	283.6	146.1	20.1	245.6	141.9	73.9	87.0	110.9	21.1	274.9	59.4	28.5
LOS	F	F	C	F	F	E	F	F	C	F	E	C
Approach Delay (s/veh)		171.7			140.9			93.1			115.5	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.51			
Intersection Signal Delay (s/veh): 127.6		Intersection LOS: F	
Intersection Capacity Utilization 109.1%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway



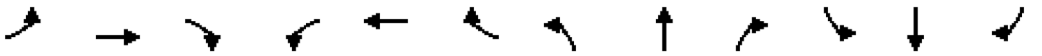


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	699	1112	328	427	924	680	465	1600	356	896	1610	603
v/c Ratio	1.51	1.20	0.44	1.40	1.18	1.01	1.00	1.12	0.47	1.50	0.94	0.71
Control Delay (s/veh)	283.6	146.1	20.1	245.6	141.9	73.9	87.0	110.9	21.1	274.9	59.4	28.5
Queue Delay	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 (s/veh)	283.6	146.1	20.1	245.6	141.9	73.9	87.0	110.9	21.1	274.9	59.4	28.5
Queue Length 50th (m)	~156.5	~221.1	43.0	~91.7	~181.3	~200.5	~60.2	~210.0	49.6	~199.8	179.2	122.5
Queue Length 95th (m)	#181.9	#265.9	60.8	#98.1	#177.2	189.6	#90.6	#240.9	69.7	#211.9	#210.9	157.3
Internal Link Dist (m)		124.9			141.2			185.3			461.1	
Turn Bay Length (m)	100.0		100.0	100.0		150.0	150.0		75.0	150.0		150.0
Base Capacity (vph)	462	929	745	305	786	673	464	1433	763	597	1706	849
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	1.51	1.20	0.44	1.40	1.18	1.01	1.00	1.12	0.47	1.50	0.94	0.71

Intersection Summary

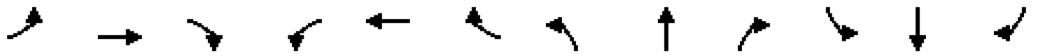
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	594	1012	272	320	721	510	400	1440	299	735	1449	519
Future Volume (vph)	594	1012	272	320	721	510	400	1440	299	735	1449	519
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	6.9	7.0	7.0	6.9	6.9	6.9	7.0	6.9	6.9	7.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3467	3574	1599	3273	3574	1429	3303	4988	1615	3433	4893	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.09	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3574	1599	3273	3574	1429	323	4988	1615	3433	4893	1538
Peak-hour factor, PHF	0.85	0.91	0.83	0.75	0.78	0.75	0.86	0.90	0.84	0.82	0.90	0.86
Adj. Flow (vph)	699	1112	328	427	924	680	465	1600	356	896	1610	603
RTOR Reduction (vph)	0	0	81	0	0	48	0	0	80	0	0	41
Lane Group Flow (vph)	699	1112	247	427	924	632	465	1600	276	896	1610	562
Heavy Vehicles (%)	1%	1%	1%	7%	1%	13%	6%	4%	0%	2%	6%	5%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8	2		2			6
Actuated Green, G (s)	20.0	39.0	55.9	14.0	33.0	59.1	60.0	43.1	57.1	26.1	52.3	72.3
Effective Green, g (s)	20.0	39.0	55.9	14.0	33.0	59.1	60.0	43.1	57.1	26.1	52.3	72.3
Actuated g/C Ratio	0.13	0.26	0.37	0.09	0.22	0.39	0.40	0.29	0.38	0.17	0.35	0.48
Clearance Time (s)	7.0	7.0	6.9	7.0	7.0	6.9	6.9	6.9	7.0	6.9	6.9	7.0
Vehicle Extension (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0
Lane Grp Cap (vph)	462	929	595	305	786	563	464	1433	614	597	1706	741
v/s Ratio Prot	c0.20	c0.31	0.05	0.13	0.26	0.20	0.11	c0.32	0.04	c0.26	0.33	0.10
v/s Ratio Perm			0.11			0.25	0.29		0.13			0.26
v/c Ratio	1.51	1.20	0.42	1.40	1.18	1.12	1.00	1.12	0.45	1.50	0.94	0.76
Uniform Delay, d1	65.0	55.5	34.9	68.0	58.5	45.4	45.7	53.5	34.7	62.0	47.4	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	241.8	99.2	1.0	198.7	92.2	76.4	42.3	62.5	0.5	234.1	12.0	4.5
Delay (s)	306.8	154.7	35.9	266.7	150.7	121.8	88.0	116.0	35.2	296.0	59.4	36.2
Level of Service	F	F	D	F	F	F	F	F	D	F	E	D
Approach Delay (s/veh)		186.2			165.4			98.7			123.1	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	139.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.32		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	27.8
Intersection Capacity Utilization	109.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

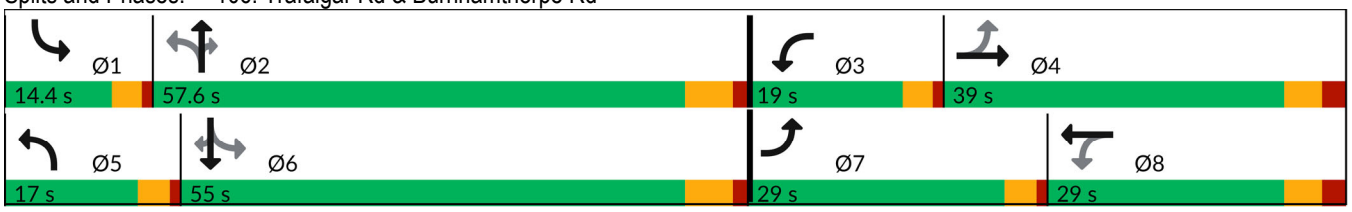


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	401	334	136	206	144	66	196	1733	117	129	1829	61
Future Volume (vph)	401	334	136	206	144	66	196	1733	117	129	1829	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		60.0	60.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	70.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Ped Bike Factor	1.00											
Frt		0.957			0.934				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1803	0	1770	1775	0	1703	4988	1615	1752	4940	1495
Flt Permitted	0.148			0.174			0.078			0.082		
Satd. Flow (perm)	272	1803	0	324	1775	0	140	4988	1615	151	4940	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			26				126			126
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		258.9			989.6			1077.8			246.4	
Travel Time (s)		15.5			59.4			48.5			11.1	
Confl. Peds. (#/hr)	6											
Peak Hour Factor	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
Adj. Flow (vph)	477	423	172	338	212	165	284	1884	136	198	1967	73
Shared Lane Traffic (%)												
Lane Group Flow (vph)	477	595	0	338	377	0	284	1884	136	198	1967	73
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	9.5	24.0		9.5	24.0		9.5	26.0	26.0	11.5	26.0	26.0
Total Split (s)	29.0	39.0		19.0	29.0		17.0	57.6	57.6	14.4	55.0	55.0
Total Split (%)	22.3%	30.0%		14.6%	22.3%		13.1%	44.3%	44.3%	11.1%	42.3%	42.3%
Maximum Green (s)	25.0	33.0		15.0	23.0		13.0	51.6	51.6	10.4	49.0	49.0
Yellow Time (s)	3.0	3.7		3.0	3.7		3.0	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	1.0	2.3		1.0	2.3		1.0	1.4	1.4	1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		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
Recall Mode	None	None		None	None		None	Max	Max	None	Max	Max
Act Effct Green (s)	54.0	33.0		40.0	23.0		66.6	51.6	53.6	61.4	49.0	51.0
Actuated g/C Ratio	0.42	0.25		0.31	0.18		0.51	0.40	0.41	0.47	0.38	0.39
v/c Ratio	1.20	1.27		1.27	1.13		1.25	0.95	0.18	0.99	1.06	0.11
Control Delay (s/veh)	146.2	177.1		179.6	132.3		173.3	49.9	5.4	95.5	76.9	0.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	146.2	177.1		179.6	132.3		173.3	49.9	5.4	95.5	76.9	0.7
LOS	F	F		F	F		F	D	A	F	E	A
Approach Delay (s/veh)		163.4			154.7			62.5			76.0	
Approach LOS		F			F			E			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Natural Cycle: 130			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.27			
Intersection Signal Delay (s/veh): 94.8		Intersection LOS: F	
Intersection Capacity Utilization 100.1%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burnhamthorpe Rd



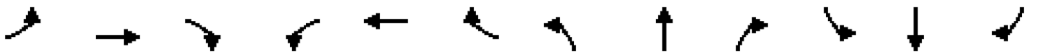


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	477	595	338	377	284	1884	136	198	1967	73
v/c Ratio	1.20	1.27	1.27	1.13	1.25	0.95	0.18	0.99	1.06	0.11
Control Delay (s/veh)	146.2	177.1	179.6	132.3	173.3	49.9	5.4	95.5	76.9	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	146.2	177.1	179.6	132.3	173.3	49.9	5.4	95.5	76.9	0.7
Queue Length 50th (m)	~139.0	~199.9	~97.3	~111.4	~79.0	178.4	1.6	37.1	~212.6	0.0
Queue Length 95th (m)	#185.7	#223.8	#76.6	#108.0	#86.4	#214.2	12.9	#43.6	#243.1	0.0
Internal Link Dist (m)		234.9		965.6		1053.8			222.4	
Turn Bay Length (m)	30.0		15.0		60.0		60.0	60.0		60.0
Base Capacity (vph)	397	468	266	335	228	1979	739	199	1862	663
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.20	1.27	1.27	1.13	1.25	0.95	0.18	0.99	1.06	0.11

Intersection Summary

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

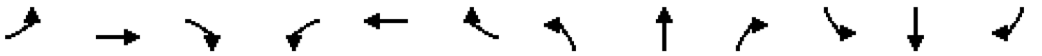
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	401	334	136	206	144	66	196	1733	117	129	1829	61
Future Volume (vph)	401	334	136	206	144	66	196	1733	117	129	1829	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00		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	1.00	1.00
Frt	1.00	0.96		1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1752	1802		1770	1775		1703	4988	1615	1752	4940	1495
Flt Permitted	0.15	1.00		0.17	1.00		0.08	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	273	1802		324	1775		139	4988	1615	151	4940	1495
Peak-hour factor, PHF	0.84	0.79	0.79	0.61	0.68	0.40	0.69	0.92	0.86	0.65	0.93	0.84
Adj. Flow (vph)	477	423	172	338	212	165	284	1884	136	198	1967	73
RTOR Reduction (vph)	0	11	0	0	21	0	0	0	74	0	0	44
Lane Group Flow (vph)	477	584	0	338	356	0	284	1884	62	198	1967	29
Confl. Peds. (#/hr)	6											
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%	6%	4%	0%	3%	5%	8%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	52.0	33.0		38.0	23.0		64.6	51.6	51.6	59.4	49.0	49.0
Effective Green, g (s)	52.0	33.0		38.0	23.0		64.6	51.6	53.6	59.4	49.0	51.0
Actuated g/C Ratio	0.40	0.25		0.29	0.18		0.50	0.40	0.41	0.46	0.38	0.39
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	393	457		261	314		225	1979	665	197	1862	586
v/s Ratio Prot	c0.23	c0.32		0.15	0.20		c0.13	0.38		0.08	0.40	
v/s Ratio Perm	0.25			0.23			c0.50		0.04	0.38		0.02
v/c Ratio	1.21	1.28		1.30	1.13		1.26	0.95	0.09	1.01	1.06	0.05
Uniform Delay, d1	39.1	48.5		40.7	53.5		40.4	38.0	23.3	36.7	40.5	24.5
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	117.5	140.9		158.2	91.5		148.6	11.7	0.3	65.4	37.6	0.2
Delay (s)	156.6	189.4		198.9	145.0		189.0	49.7	23.6	102.1	78.1	24.6
Level of Service	F	F		F	F		F	D	C	F	E	C
Approach Delay (s/veh)		174.8			170.5			65.3			78.5	
Approach LOS		F			F			E			E	

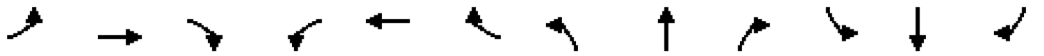
Intersection Summary			
HCM 2000 Control Delay (s/veh)	100.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.31		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	100.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1969	77	0	1310	6	0	0	89	0	0	241
Future Volume (vph)	0	1969	77	0	1310	6	0	0	89	0	0	241
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
Frt		0.994			0.999				0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3518	0	0	3536	0	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3518	0	0	3536	0	0	0	1611	0	0	1611
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		165.2			220.0			185.6			207.5	
Travel Time (s)		11.9			15.8			13.4			14.9	
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
Adj. Flow (vph)	0	2140	84	0	1424	7	0	0	97	0	0	262
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2224	0	0	1431	0	0	0	97	0	0	262
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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 69.1%		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	1969	77	0	1310	6	0	0	89	0	0	241
Future Volume (Veh/h)	0	1969	77	0	1310	6	0	0	89	0	0	241
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2140	84	0	1424	7	0	0	97	0	0	262
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		165			220							
pX, platoon unblocked	0.75			0.75			0.87	0.87	0.75	0.87	0.87	0.75
vC, conflicting volume	1431			2224			3156	3613	1112	2595	3652	716
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	912			1959			1893	2419	468	1248	2463	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	76	100	100	68
cM capacity (veh/h)	558			219			25	28	404	86	26	815

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	1427	797	949	482	97	262
Volume Left	0	0	0	0	0	0
Volume Right	0	84	0	7	97	262
cSH	1700	1700	1700	1700	404	815
Volume to Capacity	0.84	0.47	0.56	0.28	0.24	0.32
Queue Length 95th (m)	0.0	0.0	0.0	0.0	7.4	11.2
Control Delay (s/veh)	0.0	0.0	0.0	0.0	16.7	11.5
Lane LOS					C	B
Approach Delay (s/veh)	0.0		0.0		16.7	11.5
Approach LOS					C	B

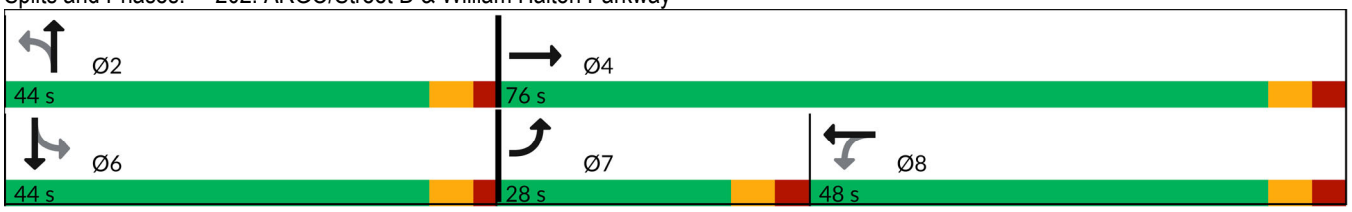
Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	69.1%	ICU Level of Service		C
Analysis Period (min)	15			

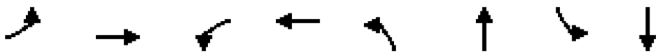
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	534	1447	77	54	884	14	293	10	89	49	10	139
Future Volume (vph)	534	1447	77	54	884	14	293	10	89	49	10	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	100.0		0.0	50.0		0.0	0.0		0.0
Storage Lanes	2		0	1		0	1		0	1		0
Taper Length (m)	100.0			100.0			100.0			7.5		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.998			0.865			0.860	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3511	0	1770	3532	0	1770	1611	0	1770	1602	0
Flt Permitted	0.950			0.112			0.615			0.687		
Satd. Flow (perm)	3433	3511	0	209	3532	0	1146	1611	0	1280	1602	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			1			27			151	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		220.0			345.3			243.0			153.9	
Travel Time (s)		15.8			24.9			17.5			11.1	
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
Adj. Flow (vph)	580	1573	84	59	961	15	318	11	97	53	11	151
Shared Lane Traffic (%)												
Lane Group Flow (vph)	580	1657	0	59	976	0	318	108	0	53	162	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)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases				8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	15.0		15.0	15.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	12.0	25.0		25.0	25.0		42.0	42.0		42.0	42.0	
Total Split (s)	28.0	76.0		48.0	48.0		44.0	44.0		44.0	44.0	
Total Split (%)	23.3%	63.3%		40.0%	40.0%		36.7%	36.7%		36.7%	36.7%	
Maximum Green (s)	21.0	69.0		41.0	41.0		38.0	38.0		38.0	38.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	0.2		0.2	0.2		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		Max	Max		None	None		None	None	
Walk Time (s)		7.0		7.0	7.0		14.0	14.0		14.0	14.0	
Flash Don't Walk (s)		11.0		11.0	11.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	21.0	69.1		41.1	41.1		34.8	34.8		34.8	34.8	
Actuated g/C Ratio	0.18	0.59		0.35	0.35		0.30	0.30		0.30	0.30	
v/c Ratio	0.94	0.80		0.81	0.79		0.94	0.22		0.14	0.28	
Control Delay (s/veh)	72.4	22.8		102.0	40.0		75.1	23.7		31.0	7.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	72.4	22.8		102.0	40.0		75.1	23.7		31.0	7.1	
LOS	E	C		F	D		E	C		C	A	
Approach Delay (s/veh)		35.6			43.6			62.1			13.0	
Approach LOS		D			D			E			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 117			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay (s/veh): 39.4		Intersection LOS: D	
Intersection Capacity Utilization 102.0%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 202: ARGO/Street D & William Halton Parkway

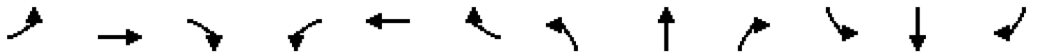




Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	580	1657	59	976	318	108	53	162
v/c Ratio	0.94	0.80	0.81	0.79	0.94	0.22	0.14	0.28
Control Delay (s/veh)	72.4	22.8	102.0	40.0	75.1	23.7	31.0	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	72.4	22.8	102.0	40.0	75.1	23.7	31.0	7.1
Queue Length 50th (m)	74.3	164.1	13.4	115.0	74.3	14.4	9.3	1.6
Queue Length 95th (m)	#110.7	198.4	#40.9	141.8	#128.7	29.1	m19.5	m17.5
Internal Link Dist (m)		196.0		321.3		219.0		129.9
Turn Bay Length (m)	100.0		100.0		50.0			
Base Capacity (vph)	617	2078	73	1240	372	542	416	623
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	0.80	0.81	0.79	0.85	0.20	0.13	0.26

Intersection Summary

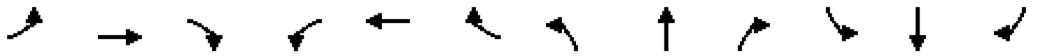
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	534	1447	77	54	884	14	293	10	89	49	10	139
Future Volume (vph)	534	1447	77	54	884	14	293	10	89	49	10	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.87		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3512		1770	3531		1770	1612		1770	1602	
Flt Permitted	0.95	1.00		0.11	1.00		0.61	1.00		0.69	1.00	
Satd. Flow (perm)	3433	3512		209	3531		1145	1612		1280	1602	
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)	580	1573	84	59	961	15	318	11	97	53	11	151
RTOR Reduction (vph)	0	3	0	0	1	0	0	19	0	0	106	0
Lane Group Flow (vph)	580	1654	0	59	975	0	318	89	0	53	56	0
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases				8			2			6		
Actuated Green, G (s)	21.0	69.1		41.1	41.1		34.8	34.8		34.8	34.8	
Effective Green, g (s)	21.0	69.1		41.1	41.1		34.8	34.8		34.8	34.8	
Actuated g/C Ratio	0.18	0.59		0.35	0.35		0.30	0.30		0.30	0.30	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	0.2		0.2	0.2		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	616	2075		73	1241		340	479		381	476	
v/s Ratio Prot	0.17	c0.47			0.28			0.06			0.03	
v/s Ratio Perm				0.28			c0.28			0.04		
v/c Ratio	0.94	0.80		0.81	0.79		0.94	0.19		0.14	0.12	
Uniform Delay, d1	47.3	18.5		34.3	34.0		40.0	30.5		30.1	29.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.01	1.02	
Incremental Delay, d2	22.8	2.1		60.9	5.1		32.2	0.2		0.2	0.1	
Delay (s)	70.1	20.5		95.2	39.0		72.2	30.7		30.6	30.4	
Level of Service	E	C		F	D		E	C		C	C	
Approach Delay (s/veh)		33.4			42.2			61.7			30.5	
Approach LOS		C			D			E			C	

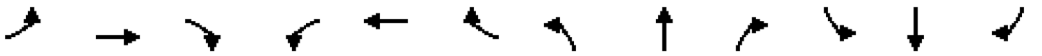
Intersection Summary			
HCM 2000 Control Delay (s/veh)	38.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	116.9	Sum of lost time (s)	20.0
Intersection Capacity Utilization	102.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1796	18	0	1366	274	0	0	82	0	0	391
Future Volume (vph)	0	1796	18	0	1366	274	0	0	82	0	0	391
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		50.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.998				0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3532	0	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3532	0	0	3539	1583	0	0	1611	0	0	1611
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		249.0			148.9			206.9			234.9	
Travel Time (s)		17.9			10.7			14.9			16.9	
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
Adj. Flow (vph)	0	1952	20	0	1485	298	0	0	89	0	0	425
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1972	0	0	1485	298	0	0	89	0	0	425
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

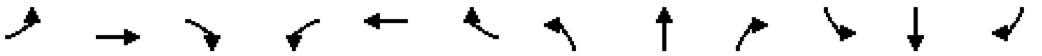
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.6%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1796	18	0	1366	274	0	0	82	0	0	391
Future Volume (Veh/h)	0	1796	18	0	1366	274	0	0	82	0	0	391
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1952	20	0	1485	298	0	0	89	0	0	425
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		249			149							
pX, platoon unblocked	0.71			0.57			0.72	0.72	0.57	0.72	0.72	0.71
vC, conflicting volume	1783			1972			3130	3745	986	2550	3457	743
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1278			1197			1339	2197	0	530	1796	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	86	100	100	45
cM capacity (veh/h)	381			330			35	32	618	265	57	766

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1301	671	743	743	298	89	425
Volume Left	0	0	0	0	0	0	0
Volume Right	0	20	0	0	298	89	425
cSH	1700	1700	1700	1700	1700	618	766
Volume to Capacity	0.77	0.39	0.44	0.44	0.18	0.14	0.55
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	4.0	27.7
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	11.8	15.4
Lane LOS						B	C
Approach Delay (s/veh)	0.0		0.0			11.8	15.4
Approach LOS						B	C

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	68.6%	ICU Level of Service		C
Analysis Period (min)	15			



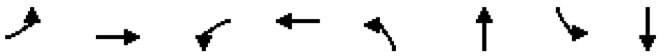
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1400	45	231	1475	51	29	31	317	97	3	5
Future Volume (vph)	11	1400	45	231	1475	51	29	31	317	97	3	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	100.0		0.0	50.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	100.0			100.0			50.0			50.0		
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
Frt		0.995			0.995			0.863			0.906	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3522	0	1770	3522	0	1770	1608	0	1770	1688	0
Flt Permitted	0.100			0.080			0.752			0.193		
Satd. Flow (perm)	186	3522	0	149	3522	0	1401	1608	0	360	1688	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			4			225			5	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		825.3			249.0			160.5			291.6	
Travel Time (s)		59.4			17.9			11.6			21.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	1522	49	251	1603	55	32	34	345	105	3	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	1571	0	251	1658	0	32	379	0	105	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)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		3	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		5.0	15.0		10.0	10.0		5.0	10.0	
Minimum Split (s)	42.0	42.0		9.5	42.0		42.0	42.0		9.5	42.0	
Total Split (s)	53.0	53.0		15.0	68.0		42.5	42.5		9.5	52.0	
Total Split (%)	44.2%	44.2%		12.5%	56.7%		35.4%	35.4%		7.9%	43.3%	
Maximum Green (s)	46.0	46.0		11.0	61.0		36.5	36.5		5.5	46.0	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		1.0	3.0		2.0	2.0		1.0	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)	7.0	7.0		4.0	7.0		6.0	6.0		4.0	6.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes		Yes		
Vehicle Extension (s)	0.2	0.2		3.0	0.2		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Walk Time (s)	7.0	7.0			7.0		14.0	14.0			14.0	
Flash Don't Walk (s)	11.0	11.0			11.0		22.0	22.0			22.0	
Pedestrian Calls (#/hr)	0	0			0		0	0			0	
Act Effct Green (s)	46.2	46.2		64.2	61.2		16.7	16.7		28.2	26.2	
Actuated g/C Ratio	0.46	0.46		0.64	0.61		0.17	0.17		0.28	0.26	
v/c Ratio	0.14	0.97		0.92	0.77		0.14	0.83		0.59	0.02	
Control Delay (s/veh)	24.0	44.4		63.1	18.9		35.7	32.3		41.4	18.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	24.0	44.4		63.1	18.9		35.7	32.3		41.4	18.6	
LOS	C	D		E	B		D	C		D	B	
Approach Delay (s/veh)		44.2			24.7			32.6			39.8	
Approach LOS		D			C			C			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 100.5			
Natural Cycle: 135			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay (s/veh): 33.6		Intersection LOS: C	
Intersection Capacity Utilization 101.5%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 204: West Drive & William Halton Parkway





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	12	1571	251	1658	32	379	105	8
v/c Ratio	0.14	0.97	0.92	0.77	0.14	0.83	0.59	0.02
Control Delay (s/veh)	24.0	44.4	63.1	18.9	35.7	32.3	41.4	18.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	24.0	44.4	63.1	18.9	35.7	32.3	41.4	18.6
Queue Length 50th (m)	1.4	156.2	33.0	117.6	5.6	30.8	16.4	0.5
Queue Length 95th (m)	6.7	#256.6	#95.9	197.5	14.0	65.9	29.6	4.0
Internal Link Dist (m)		801.3		225.0		136.5		267.6
Turn Bay Length (m)	100.0		100.0		50.0		50.0	
Base Capacity (vph)	85	1619	273	2146	510	728	178	778
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	0.97	0.92	0.77	0.06	0.52	0.59	0.01

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1400	45	231	1475	51	29	31	317	97	3	5
Future Volume (vph)	11	1400	45	231	1475	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)	7.0	7.0		4.0	7.0		6.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.86		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3523		1770	3522		1770	1608		1770	1688	
Flt Permitted	0.10	1.00		0.08	1.00		0.75	1.00		0.19	1.00	
Satd. Flow (perm)	186	3523		148	3522		1402	1608		360	1688	
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)	12	1522	49	251	1603	55	32	34	345	105	3	5
RTOR Reduction (vph)	0	2	0	0	2	0	0	188	0	0	4	0
Lane Group Flow (vph)	12	1569	0	251	1656	0	32	191	0	105	4	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	46.2	46.2		61.2	61.2		16.7	16.7		26.2	26.2	
Effective Green, g (s)	46.2	46.2		61.2	61.2		16.7	16.7		26.2	26.2	
Actuated g/C Ratio	0.46	0.46		0.61	0.61		0.17	0.17		0.26	0.26	
Clearance Time (s)	7.0	7.0		4.0	7.0		6.0	6.0		4.0	6.0	
Vehicle Extension (s)	0.2	0.2		3.0	0.2		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	85	1621		267	2146		233	267		171	440	
v/s Ratio Prot		0.45		c0.10	0.47			c0.12		c0.03	0.00	
v/s Ratio Perm	0.06			c0.47			0.02			0.13		
v/c Ratio	0.14	0.97		0.94	0.77		0.14	0.72		0.61	0.01	
Uniform Delay, d1	15.6	26.4		30.1	14.5		35.7	39.6		30.6	27.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	15.2		39.1	1.6		0.3	8.8		6.4	0.0	
Delay (s)	15.9	41.6		69.1	16.1		36.0	48.5		37.0	27.5	
Level of Service	B	D		E	B		D	D		D	C	
Approach Delay (s/veh)		41.4			23.1			47.5			36.3	
Approach LOS		D			C			D			D	

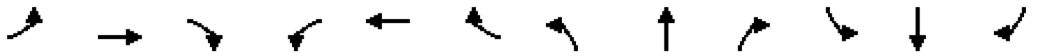
Intersection Summary			
HCM 2000 Control Delay (s/veh)	33.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	100.4	Sum of lost time (s)	21.0
Intersection Capacity Utilization	101.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	9	3	6	73	281	45	49	77	76	178	22
Future Volume (vph)	31	9	3	6	73	281	45	49	77	76	178	22
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		0.991			0.895			0.939			0.989	
Flt Protected		0.965			0.999			0.987			0.986	
Satd. Flow (prot)	0	1781	0	0	1665	0	0	1726	0	0	1816	0
Flt Permitted		0.965			0.999			0.987			0.986	
Satd. Flow (perm)	0	1781	0	0	1665	0	0	1726	0	0	1816	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		333.0			150.5			112.8			152.1	
Travel Time (s)		24.0			10.8			8.1			11.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	10	3	7	79	305	49	53	84	83	193	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	47	0	0	391	0	0	186	0	0	300	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)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

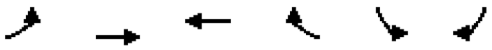
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 48.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	9	3	6	73	281	45	49	77	76	178	22
Future Volume (Veh/h)	31	9	3	6	73	281	45	49	77	76	178	22
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	10	3	7	79	305	49	53	84	83	193	24
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	384			13			446	478	12	436	327	232
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	384			13			446	478	12	436	327	232
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			87	89	92	81	66	97
cM capacity (veh/h)	1174			1606			366	471	1069	436	572	808

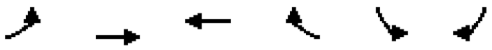
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	47	391	186	300
Volume Left	34	7	49	83
Volume Right	3	305	84	24
cSH	1174	1606	572	538
Volume to Capacity	0.03	0.00	0.33	0.56
Queue Length 95th (m)	0.7	0.1	11.2	27.1
Control Delay (s/veh)	6.0	0.2	14.3	19.8
Lane LOS	A	A	B	C
Approach Delay (s/veh)	6.0	0.2	14.3	19.8
Approach LOS			B	C

Intersection Summary			
Average Delay	9.7		
Intersection Capacity Utilization	48.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	33	122	203	97	96	191
Future Volume (vph)	33	122	203	97	96	191
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			0.957		0.910	
Flt Protected		0.989			0.984	
Satd. Flow (prot)	0	1842	1783	0	1668	0
Flt Permitted		0.989			0.984	
Satd. Flow (perm)	0	1842	1783	0	1668	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		24.2	152.6		206.9	
Travel Time (s)		1.7	11.0		14.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	133	221	105	104	208
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	169	326	0	312	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

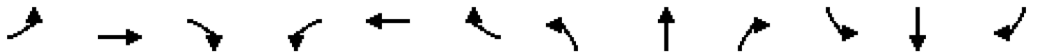
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 51.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	33	122	203	97	96	191
Future Volume (Veh/h)	33	122	203	97	96	191
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)	36	133	221	105	104	208
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	326				479	274
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	326				479	274
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				80	73
cM capacity (veh/h)	1234				530	765

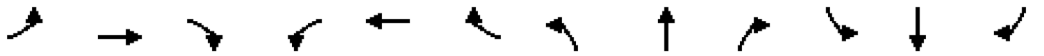
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	169	326	312
Volume Left	36	0	104
Volume Right	0	105	208
cSH	1234	1700	667
Volume to Capacity	0.03	0.19	0.47
Queue Length 95th (m)	0.7	0.0	20.0
Control Delay (s/veh)	1.9	0.0	15.1
Lane LOS	A		C
Approach Delay (s/veh)	1.9	0.0	15.1
Approach LOS			C

Intersection Summary			
Average Delay	6.2		
Intersection Capacity Utilization	51.9%	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)	0	0	210	0	0	80	0	2059	141	0	1808	233
Future Volume (vph)	0	0	210	0	0	80	0	2059	141	0	1808	233
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		100.0	0.0		100.0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.865			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	1611	0	0	1611	0	5085	1583	0	5085	1583
Flt Permitted												
Satd. Flow (perm)	0	0	1611	0	0	1611	0	5085	1583	0	5085	1583
Link Speed (k/h)		50			50			50			80	
Link Distance (m)		152.6			80.3			246.4			209.3	
Travel Time (s)		11.0			5.8			17.7			9.4	
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
Adj. Flow (vph)	0	0	228	0	0	87	0	2238	153	0	1965	253
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	228	0	0	87	0	2238	153	0	1965	253
Enter Blocked Intersection	No	No	No	No	No	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			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

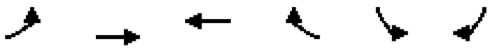
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 54.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	210	0	0	80	0	2059	141	0	1808	233
Future Volume (Veh/h)	0	0	210	0	0	80	0	2059	141	0	1808	233
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	228	0	0	87	0	2238	153	0	1965	253
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								246			209	
pX, platoon unblocked	0.80	0.80	0.70	0.80	0.80	0.65	0.70			0.65		
vC, conflicting volume	2798	4356	655	3121	4456	746	2218			2391		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	1768	0	227	1893	0	1226			1255		
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	70	100	100	88	100			100		
cM capacity (veh/h)	719	66	756	397	55	705	393			357		

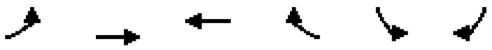
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	228	87	746	746	746	153	655	655	655	253
Volume Left	0	0	0	0	0	0	0	0	0	0
Volume Right	228	87	0	0	0	153	0	0	0	253
cSH	756	705	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.30	0.12	0.44	0.44	0.44	0.09	0.39	0.39	0.39	0.15
Queue Length 95th (m)	10.2	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s/veh)	11.8	10.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	B								
Approach Delay (s/veh)	11.8	10.8	0.0				0.0			
Approach LOS	B	B								

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	54.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	12	700	244	157	171	16
Future Volume (vph)	12	700	244	157	171	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	50.0				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.947		0.989	
Flt Protected	0.950				0.956	
Satd. Flow (prot)	1770	1863	1764	0	1761	0
Flt Permitted	0.950				0.956	
Satd. Flow (perm)	1770	1863	1764	0	1761	0
Link Speed (k/h)		60	50		50	
Link Distance (m)		569.8	258.9		157.5	
Travel Time (s)		34.2	18.6		11.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	761	265	171	186	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	761	436	0	203	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

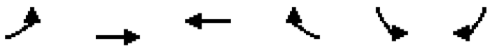
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 54.0%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	700	244	157	171	16
Future Volume (Veh/h)	12	700	244	157	171	16
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	761	265	171	186	17
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			259			
pX, platoon unblocked	0.93				0.93	0.93
vC, conflicting volume	436				1138	351
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	360				1112	268
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				13	98
cM capacity (veh/h)	1119				213	719

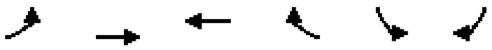
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	13	761	436	203
Volume Left	13	0	0	186
Volume Right	0	0	171	17
cSH	1119	1700	1700	227
Volume to Capacity	0.01	0.45	0.26	0.90
Queue Length 95th (m)	0.3	0.0	0.0	59.0
Control Delay (s/veh)	8.3	0.0	0.0	80.9
Lane LOS	A			F
Approach Delay (s/veh)	0.1		0.0	80.9
Approach LOS				F

Intersection Summary			
Average Delay	11.7		
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	89	1496	923	7	5	29
Future Volume (vph)	89	1496	923	7	5	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	100.0				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.999		0.883	
Flt Protected	0.950				0.993	
Satd. Flow (prot)	1770	3539	3536	0	1633	0
Flt Permitted	0.950				0.993	
Satd. Flow (perm)	1770	3539	3536	0	1633	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		345.3	755.6		140.8	
Travel Time (s)		24.9	54.4		10.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	97	1626	1003	8	5	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	97	1626	1011	0	37	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		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	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	89	1496	923	7	5	29
Future Volume (Veh/h)	89	1496	923	7	5	29
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)	97	1626	1003	8	5	32
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		345				
pX, platoon unblocked					0.63	
vC, conflicting volume	1011				2014	506
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1011				1423	506
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	86				93	94
cM capacity (veh/h)	681				68	512

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	97	813	813	669	342	37
Volume Left	97	0	0	0	0	5
Volume Right	0	0	0	0	8	32
cSH	681	1700	1700	1700	1700	272
Volume to Capacity	0.14	0.48	0.48	0.39	0.20	0.14
Queue Length 95th (m)	4.0	0.0	0.0	0.0	0.0	3.7
Control Delay (s/veh)	11.2	0.0	0.0	0.0	0.0	20.3
Lane LOS	B					C
Approach Delay (s/veh)	0.6			0.0		20.3
Approach LOS						C

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	14	0	352	52	0	56
Future Volume (vph)	14	0	352	52	0	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Frt			0.981			
Flt Protected	0.950					
Satd. Flow (prot)	1770	0	3472	0	0	3539
Flt Permitted	0.950					
Satd. Flow (perm)	1770	0	3472	0	0	3539
Link Speed (k/h)	50		50			50
Link Distance (m)	329.1		153.9			115.0
Travel Time (s)	23.7		11.1			8.3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	0	383	57	0	61
Shared Lane Traffic (%)						
Lane Group Flow (vph)	15	0	440	0	0	61
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 21.4%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	14	0	352	52	0	56
Future Volume (Veh/h)	14	0	352	52	0	56
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	0	383	57	0	61
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			154			
pX, platoon unblocked						
vC, conflicting volume	442	220			440	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	442	220			440	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	100			100	
cM capacity (veh/h)	544	784			1116	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	15	255	185	20	41
Volume Left	15	0	0	0	0
Volume Right	0	0	57	0	0
cSH	544	1700	1700	1116	1700
Volume to Capacity	0.03	0.15	0.11	0.00	0.02
Queue Length 95th (m)	0.7	0.0	0.0	0.0	0.0
Control Delay (s/veh)	11.8	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s/veh)	11.8	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	21.4%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	56	0	0	171	171
Future Volume (vph)	0	56	0	0	171	171
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					0.850
Flt Protected					0.950	
Satd. Flow (prot)	1611	0	0	1863	1770	1583
Flt Permitted					0.950	
Satd. Flow (perm)	1611	0	0	1863	1770	1583
Link Speed (k/h)	50			50	50	
Link Distance (m)	229.4			321.2	115.0	
Travel Time (s)	16.5			23.1	8.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	61	0	0	186	186
Shared Lane Traffic (%)						
Lane Group Flow (vph)	61	0	0	0	186	186
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.7%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	56	0	0	171	171
Future Volume (Veh/h)	0	56	0	0	171	171
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	61	0	0	186	186
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			61		31	31
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			61		31	31
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		81	82
cM capacity (veh/h)			1542		984	1044

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	61	0	186	186
Volume Left	0	0	186	0
Volume Right	61	0	0	186
cSH	1700	1700	984	1044
Volume to Capacity	0.04	0.00	0.19	0.18
Queue Length 95th (m)	0.0	0.0	5.6	5.2
Control Delay (s/veh)	0.0	0.0	9.5	9.2
Lane LOS			A	A
Approach Delay (s/veh)	0.0	0.0	9.4	
Approach LOS			A	

Intersection Summary			
Average Delay	8.0		
Intersection Capacity Utilization	20.7%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	26	0	0	69	0
Future Volume (vph)	0	26	0	0	69	0
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					0.950	
Satd. Flow (prot)	1611	0	0	1863	1770	0
Flt Permitted					0.950	
Satd. Flow (perm)	1611	0	0	1863	1770	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	321.2			52.5	137.0	
Travel Time (s)	23.1			3.8	9.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	28	0	0	75	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	28	0	0	0	75	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	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

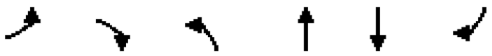
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	26	0	0	69	0
Future Volume (Veh/h)	0	26	0	0	69	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	28	0	0	75	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			28		14	14
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			28		14	14
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		93	100
cM capacity (veh/h)			1585		1005	1066

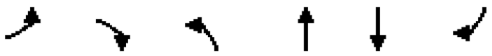
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	28	0	75
Volume Left	0	0	75
Volume Right	28	0	0
cSH	1700	1700	1005
Volume to Capacity	0.02	0.00	0.07
Queue Length 95th (m)	0.0	0.0	1.9
Control Delay (s/veh)	0.0	0.0	8.9
Lane LOS			A
Approach Delay (s/veh)	0.0	0.0	8.9
Approach LOS			A

Intersection Summary			
Average Delay	6.5		
Intersection Capacity Utilization	13.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	1	3	93	33	0
Future Volume (vph)	0	1	3	93	33	0
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				0.999		
Satd. Flow (prot)	1611	0	0	1861	1863	0
Flt Permitted				0.999		
Satd. Flow (perm)	1611	0	0	1861	1863	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	329.1			140.8	137.0	
Travel Time (s)	23.7			10.1	9.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1	3	101	36	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	0	0	104	36	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

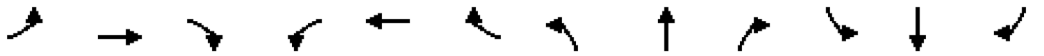
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1	3	93	33	0
Future Volume (Veh/h)	0	1	3	93	33	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	3	101	36	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	143	36	36			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	143	36	36			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	848	1037	1575			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	1	104	36
Volume Left	0	3	0
Volume Right	1	0	0
cSH	1037	1575	1700
Volume to Capacity	0.00	0.00	0.02
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s/veh)	8.5	0.2	0.0
Lane LOS	A	A	
Approach Delay (s/veh)	8.5	0.2	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	17.3%	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)	64	232	45	283	294	316	217	2108	428	179	1722	60
Future Volume (vph)	64	232	45	283	294	316	217	2108	428	179	1722	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	45.0		0.0	110.0		0.0	90.0		90.0	90.0		90.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.965			0.924				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1834	0	1770	1738	0	1805	5036	1599	1752	5085	1615
Flt Permitted	0.140			0.202			0.085			0.087		
Satd. Flow (perm)	261	1834	0	376	1738	0	162	5036	1599	160	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			46				196			102
Link Speed (k/h)		70			60			80			80	
Link Distance (m)		749.3			690.6			728.6			888.2	
Travel Time (s)		38.5			41.4			32.8			40.0	
Peak Hour Factor	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Adj. Flow (vph)	83	276	83	298	372	385	244	2196	510	201	1892	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	83	359	0	298	757	0	244	2196	510	201	1892	95
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	7	4		3	8		5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0		7.0	10.0		5.0	25.0	7.0	7.0	25.0	5.0
Minimum Split (s)	9.5	22.5		11.5	22.5		9.5	31.6	11.5	11.5	30.6	9.5
Total Split (s)	9.5	33.9		20.6	45.0		14.0	53.5	20.6	12.0	51.5	9.5
Total Split (%)	7.9%	28.3%		17.2%	37.5%		11.7%	44.6%	17.2%	10.0%	42.9%	7.9%
Maximum Green (s)	5.5	27.7		16.6	38.8		10.0	46.9	16.6	8.0	45.9	5.5
Yellow Time (s)	3.0	4.2		3.0	4.2		3.0	4.6	3.0	3.0	4.6	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.2		4.0	6.2		4.0	6.6	4.0	4.0	5.6	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0		0.2	5.0		3.0	5.0	0.2	0.2	5.0	3.0
Recall Mode	None	None		None	None		None	Max	None	Max	Max	None
Act Effct Green (s)	36.3	28.6		50.5	38.8		59.5	46.9	69.2	55.5	45.9	57.0
Actuated g/C Ratio	0.30	0.24		0.42	0.32		0.50	0.39	0.58	0.46	0.38	0.48
v/c Ratio	0.56	0.80		0.88	1.28		1.12	1.12	0.51	1.12	0.97	0.12
Control Delay (s/veh)	38.6	56.9		51.7	170.3		127.2	94.7	10.6	129.5	51.6	3.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	38.6	56.9		51.7	170.3		127.2	94.7	10.6	129.5	51.6	3.2
LOS	D	E		D	F		F	F	B	F	D	A
Approach Delay (s/veh)		53.4			136.8			82.9			56.7	
Approach LOS		D			F			F			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.28			
Intersection Signal Delay (s/veh): 80.8		Intersection LOS: F	
Intersection Capacity Utilization 107.0%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 101: Trafalgar Rd & Lower Base Line



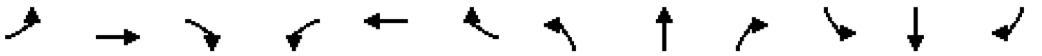


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	83	359	298	757	244	2196	510	201	1892	95
v/c Ratio	0.56	0.80	0.88	1.28	1.12	1.12	0.51	1.12	0.97	0.12
Control Delay (s/veh)	38.6	56.9	51.7	170.3	127.2	94.7	10.6	129.5	51.6	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	38.6	56.9	51.7	170.3	127.2	94.7	10.6	129.5	51.6	3.2
Queue Length 50th (m)	12.3	82.6	50.6	~230.6	~52.2	~228.9	41.1	~40.5	167.1	0.0
Queue Length 95th (m)	19.3	#115.6	#92.6	#250.1	#104.2	#259.1	58.7	#88.8	#204.7	1.7
Internal Link Dist (m)		725.3		666.6		704.6			864.2	
Turn Bay Length (m)	45.0		110.0		90.0		90.0	90.0		90.0
Base Capacity (vph)	148	446	351	593	217	1968	1015	180	1945	820
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	0.56	0.80	0.85	1.28	1.12	1.12	0.50	1.12	0.97	0.12

Intersection Summary

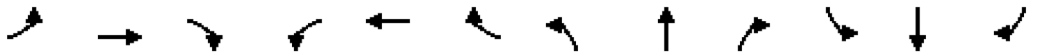
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	232	45	283	294	316	217	2108	428	179	1722	60
Future Volume (vph)	64	232	45	283	294	316	217	2108	428	179	1722	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.2		4.0	6.2		4.0	6.6	4.0	4.0	5.6	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.97		1.00	0.92		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1834		1770	1738		1805	5036	1599	1752	5085	1615
Flt Permitted	0.14	1.00		0.20	1.00		0.09	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	261	1834		376	1738		162	5036	1599	161	5085	1615
Peak-hour factor, PHF	0.77	0.84	0.54	0.95	0.79	0.82	0.89	0.96	0.84	0.89	0.91	0.63
Adj. Flow (vph)	83	276	83	298	372	385	244	2196	510	201	1892	95
RTOR Reduction (vph)	0	9	0	0	31	0	0	0	94	0	0	54
Lane Group Flow (vph)	83	350	0	298	726	0	244	2196	416	201	1892	41
Heavy Vehicles (%)	2%	0%	0%	2%	1%	1%	0%	3%	1%	3%	2%	0%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	34.1	28.6		48.3	38.8		56.9	46.9	62.6	53.9	45.9	51.4
Effective Green, g (s)	34.1	28.6		48.3	38.8		56.9	46.9	62.6	53.9	45.9	51.4
Actuated g/C Ratio	0.28	0.24		0.40	0.32		0.47	0.39	0.52	0.45	0.38	0.43
Clearance Time (s)	4.0	6.2		4.0	6.2		4.0	6.6	4.0	4.0	5.6	4.0
Vehicle Extension (s)	3.0	5.0		0.2	5.0		3.0	5.0	0.2	0.2	5.0	3.0
Lane Grp Cap (vph)	143	437		333	561		213	1968	834	178	1945	691
v/s Ratio Prot	0.03	0.19		c0.12	c0.42		c0.10	0.44	0.07	0.08	0.37	0.00
v/s Ratio Perm	0.14			0.24			c0.45		0.20	0.43		0.02
v/c Ratio	0.58	0.80		0.89	1.29		1.15	1.12	0.50	1.13	0.97	0.06
Uniform Delay, d1	34.9	43.0		28.3	40.6		34.1	36.6	18.6	31.1	36.4	20.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.9	11.4		24.4	145.1		106.4	59.8	0.2	106.4	14.9	0.0
Delay (s)	40.8	54.5		52.6	185.7		140.5	96.4	18.7	137.5	51.3	20.2
Level of Service	D	D		D	F		F	F	B	F	D	C
Approach Delay (s/veh)		51.9			148.1			86.6			57.9	
Approach LOS		D			F			F			E	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	84.6	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)	20.8
Intersection Capacity Utilization	107.0%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



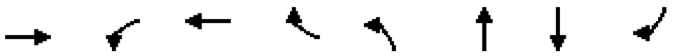
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	20	571	3	30	13	2719	0	0	2044	5
Future Volume (vph)	3	0	20	571	3	30	13	2719	0	0	2044	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		60.0	65.0		0.0	0.0		15.0
Storage Lanes	0		0	1		1	1		0	0		1
Taper Length (m)	7.5			7.5			100.0			7.5		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.892			0.998	0.850						0.850
Flt Protected		0.990		0.950	0.954		0.950					
Satd. Flow (prot)	0	1520	0	1681	1601	1408	1641	5085	0	0	5085	1615
Flt Permitted		0.915		0.731	0.705		0.077					
Satd. Flow (perm)	0	1405	0	1294	1183	1408	133	5085	0	0	5085	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		97			1	97						85
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		134.0			574.1			363.6			728.6	
Travel Time (s)		9.6			41.3			26.2			52.5	
Peak Hour Factor	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Adj. Flow (vph)	8	0	32	642	8	37	26	2893	0	0	2246	10
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	0	40	0	327	327	33	26	2893	0	0	2246	10
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.8			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2			2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	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	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			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
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	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2					6
Detector Phase	4	4		8	8	8	5	2			6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	4.0	20.0			20.0	20.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	27.0			27.0	27.0
Total Split (s)	31.0	31.0		31.0	31.0	31.0	9.5	59.0			49.5	49.5
Total Split (%)	34.4%	34.4%		34.4%	34.4%	34.4%	10.6%	65.6%			55.0%	55.0%
Maximum Green (s)	25.0	25.0		25.0	25.0	25.0	5.5	52.0			42.5	42.5
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	5.0			5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0			2.0	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	4.0	7.0			7.0	7.0
Lead/Lag							Lead				Lag	Lag
Lead-Lag Optimize?							Yes				Yes	Yes
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Recall Mode	None	None		None	None	None	None	Max			Max	Max
Act Effct Green (s)		25.0		25.0	25.0	25.0	55.0	52.0			48.2	48.2
Actuated g/C Ratio		0.28		0.28	0.28	0.28	0.61	0.58			0.54	0.54
v/c Ratio		0.09		0.91	0.99	0.07	0.15	0.98			0.82	0.01
Control Delay (s/veh)		0.4		63.1	83.0	0.3	8.9	32.9			21.9	0.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay (s/veh)		0.4		63.1	83.0	0.3	8.9	32.9			21.9	0.0
LOS		A		E	F	A	A	C			C	A
Approach Delay (s/veh)		0.4			69.6			32.6			21.8	
Approach LOS		A			E			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay (s/veh): 32.6		Intersection LOS: C	
Intersection Capacity Utilization 86.2%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 102: Trafalgar Rd & North Carpool Lot/Hwy 407 WB Off

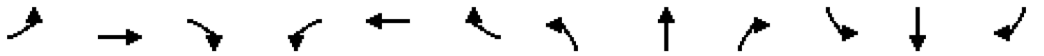




Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	40	327	327	33	26	2893	2246	10
v/c Ratio	0.09	0.91	0.99	0.07	0.15	0.98	0.82	0.01
Control Delay (s/veh)	0.4	63.1	83.0	0.3	8.9	32.9	21.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	0.4	63.1	83.0	0.3	8.9	32.9	21.9	0.0
Queue Length 50th (m)	0.0	60.4	64.9	0.0	1.7	175.0	104.8	0.0
Queue Length 95th (m)	0.0	#112.0	33.6	0.0	2.6	#229.5	#177.1	0.0
Internal Link Dist (m)	110.0		550.1			339.6	704.6	
Turn Bay Length (m)				60.0	65.0			15.0
Base Capacity (vph)	460	359	329	461	173	2938	2723	904
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	0.91	0.99	0.07	0.15	0.98	0.82	0.01

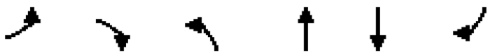
Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	20	571	3	30	13	2719	0	0	2044	5
Future Volume (vph)	3	0	20	571	3	30	13	2719	0	0	2044	5
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	4.0	7.0			7.0	7.0
Lane Util. Factor		1.00		0.95	0.91	0.95	1.00	0.91			0.91	1.00
Frt		0.89		1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		0.99		0.95	0.95	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)		1520		1681	1601	1408	1641	5085			5085	1615
Flt Permitted		0.91		0.73	0.70	1.00	0.08	1.00			1.00	1.00
Satd. Flow (perm)		1404		1294	1182	1408	132	5085			5085	1615
Peak-hour factor, PHF	0.38	0.25	0.63	0.89	0.38	0.82	0.50	0.94	0.25	0.25	0.91	0.50
Adj. Flow (vph)	8	0	32	642	8	37	26	2893	0	0	2246	10
RTOR Reduction (vph)	0	29	0	0	1	24	0	0	0	0	0	5
Lane Group Flow (vph)	0	11	0	327	326	9	26	2893	0	0	2246	5
Heavy Vehicles (%)	0%	0%	13%	2%	33%	9%	10%	2%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8		8	2					6
Actuated Green, G (s)		25.0		25.0	25.0	25.0	54.4	54.4			48.2	48.2
Effective Green, g (s)		25.0		25.0	25.0	25.0	54.4	54.4			48.2	48.2
Actuated g/C Ratio		0.27		0.27	0.27	0.27	0.59	0.59			0.52	0.52
Clearance Time (s)		6.0		6.0	6.0	6.0	4.0	7.0			7.0	7.0
Vehicle Extension (s)		3.5		3.5	3.5	3.5	2.5	7.0			7.0	7.0
Lane Grp Cap (vph)		379		350	319	380	113	2993			2652	842
v/s Ratio Prot							0.01	c0.57			0.44	
v/s Ratio Perm		0.01		0.25	c0.28	0.01	0.13					0.00
v/c Ratio		0.03		0.93	1.02	0.02	0.23	0.97			0.85	0.01
Uniform Delay, d1		24.8		32.9	33.7	24.7	14.7	18.1			18.9	10.6
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2		0.0		31.8	56.3	0.0	0.8	10.3			3.6	0.0
Delay (s)		24.8		64.7	90.0	24.8	15.5	28.5			22.5	10.6
Level of Service		C		E	F	C	B	C			C	B
Approach Delay (s/veh)		24.8			74.8			28.3			22.5	
Approach LOS		C			E			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	31.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	92.4	Sum of lost time (s)	17.0
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

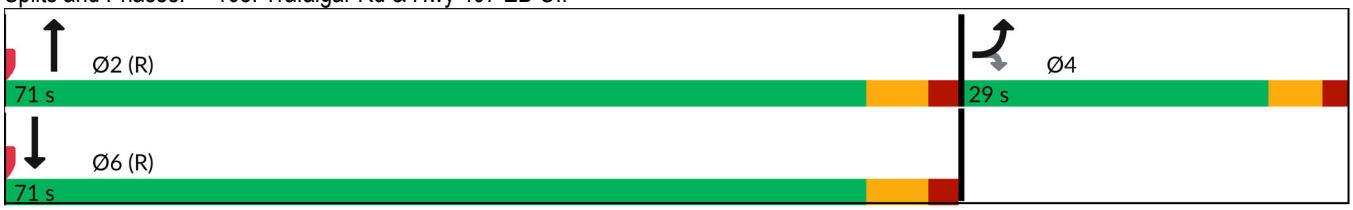


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	43	298	0	3035	2448	0
Future Volume (vph)	43	298	0	3035	2448	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1703	1429	0	5085	5085	0
Flt Permitted	0.950					
Satd. Flow (perm)	1703	1429	0	5085	5085	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		3				
Link Speed (k/h)	50			50	50	
Link Distance (m)	554.6			479.2	363.6	
Travel Time (s)	39.9			34.5	26.2	
Peak Hour Factor	0.75	0.94	0.25	0.94	0.92	0.25
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Adj. Flow (vph)	57	317	0	3229	2661	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	317	0	3229	2661	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			7.2	7.2	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Minimum Split (s)	29.0	29.0		24.9	24.9	
Total Split (s)	29.0	29.0		71.0	71.0	
Total Split (%)	29.0%	29.0%		71.0%	71.0%	
Maximum Green (s)	23.0	23.0		64.1	64.1	
Yellow Time (s)	4.0	4.0		4.6	4.6	
All-Red Time (s)	2.0	2.0		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.9	6.9	
Lead/Lag						
Lead-Lag Optimize?						
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	23.0	23.0		64.1	64.1	
Actuated g/C Ratio	0.23	0.23		0.64	0.64	
v/c Ratio	0.15	0.96		0.99	0.82	
Control Delay (s/veh)	32.0	79.9		32.1	16.2	
Queue Delay	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay (s/veh)	32.0	79.9		32.1	16.2	
LOS	C	E		C	B	
Approach Delay (s/veh)	72.6			32.1	16.2	
Approach LOS	E			C	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 100			
Control Type: Pretimed			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay (s/veh): 27.8		Intersection LOS: C	
Intersection Capacity Utilization 76.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 103: Trafalgar Rd & Hwy 407 EB Off

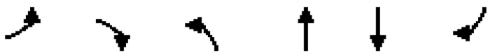




Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	57	317	3229	2661
v/c Ratio	0.15	0.96	0.99	0.82
Control Delay (s/veh)	32.0	79.9	32.1	16.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	32.0	79.9	32.1	16.2
Queue Length 50th (m)	9.3	63.6	215.6	136.1
Queue Length 95th (m)	16.6	#119.4	#278.5	158.4
Internal Link Dist (m)	530.6		455.2	339.6
Turn Bay Length (m)				
Base Capacity (vph)	391	330	3259	3259
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	0.96	0.99	0.82

Intersection Summary

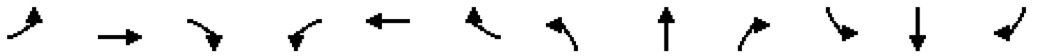
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	43	298	0	3035	2448	0
Future Volume (vph)	43	298	0	3035	2448	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.9	6.9	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1703	1429		5085	5085	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1703	1429		5085	5085	
Peak-hour factor, PHF	0.75	0.94	0.25	0.94	0.92	0.25
Adj. Flow (vph)	57	317	0	3229	2661	0
RTOR Reduction (vph)	0	2	0	0	0	0
Lane Group Flow (vph)	57	315	0	3229	2661	0
Heavy Vehicles (%)	6%	13%	0%	2%	2%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	23.0	23.0		64.1	64.1	
Effective Green, g (s)	23.0	23.0		64.1	64.1	
Actuated g/C Ratio	0.23	0.23		0.64	0.64	
Clearance Time (s)	6.0	6.0		6.9	6.9	
Lane Grp Cap (vph)	391	328		3259	3259	
v/s Ratio Prot	0.03			c0.63	0.52	
v/s Ratio Perm		c0.22				
v/c Ratio	0.15	0.96		0.99	0.82	
Uniform Delay, d1	30.7	38.0		17.7	13.5	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	40.4		13.8	2.4	
Delay (s)	31.5	78.4		31.4	15.9	
Level of Service	C	E		C	B	
Approach Delay (s/veh)	71.3			31.4	15.9	
Approach LOS	E			C	B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	27.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

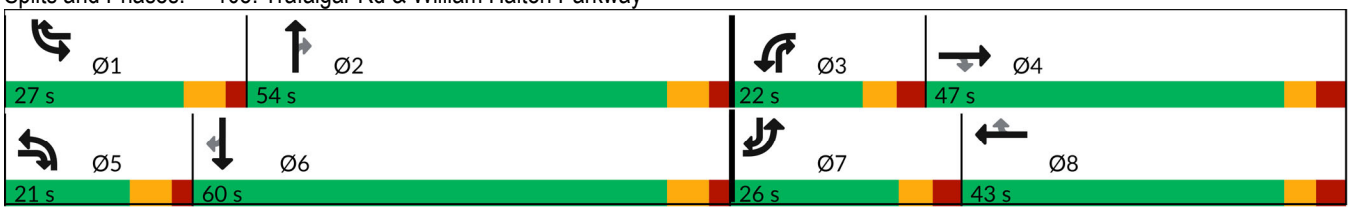


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	717	896	300	436	970	1048	434	1818	266	591	1607	546
Future Volume (vph)	717	896	300	436	970	1048	434	1818	266	591	1607	546
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		100.0	150.0		150.0	150.0		75.0	150.0		150.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	100.0			100.0			100.0			100.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79			79			79			79
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		177.3			161.0			258.3			479.2	
Travel Time (s)		12.8			11.6			18.6			34.5	
Peak Hour Factor	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
Adj. Flow (vph)	797	924	330	614	1128	1233	536	2020	422	642	1869	593
Shared Lane Traffic (%)												
Lane Group Flow (vph)	797	924	330	614	1128	1233	536	2020	422	642	1869	593
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	7.0	20.0	7.0	7.0	20.0	7.0	7.0	20.0	7.0	7.0	20.0	7.0
Minimum Split (s)	14.0	38.0	13.9	14.0	38.0	13.9	13.9	42.9	14.0	13.9	42.9	14.0
Total Split (s)	26.0	47.0	21.0	22.0	43.0	27.0	21.0	54.0	22.0	27.0	60.0	26.0
Total Split (%)	17.3%	31.3%	14.0%	14.7%	28.7%	18.0%	14.0%	36.0%	14.7%	18.0%	40.0%	17.3%
Maximum Green (s)	19.0	40.0	14.1	15.0	36.0	20.1	14.1	47.1	15.0	20.1	53.1	19.0
Yellow Time (s)	3.7	3.7	4.6	3.7	3.7	4.6	4.6	4.6	3.7	4.6	4.6	3.7
All-Red Time (s)	3.3	3.3	2.3	3.3	3.3	2.3	2.3	2.3	3.3	2.3	2.3	3.3
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)	7.0	7.0	6.9	7.0	7.0	6.9	6.9	6.9	7.0	6.9	6.9	7.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0
Recall Mode	None	None	None	None	None	None	None	Max	None	None	Max	None
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Don't Walk (s)		24.0			24.0			29.0			29.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	19.0	40.0	61.1	15.0	36.0	63.1	14.1	47.1	69.0	20.1	53.1	79.0
Actuated g/C Ratio	0.13	0.27	0.41	0.10	0.24	0.42	0.09	0.31	0.46	0.13	0.35	0.53
v/c Ratio	1.84	0.98	0.47	1.75	1.30	1.73	1.65	1.27	0.54	1.44	1.04	0.67
Control Delay (s/veh)	419.6	78.9	26.8	387.6	188.8	363.7	344.9	166.7	26.1	254.2	78.7	26.8
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 (s/veh)	419.6	78.9	26.8	387.6	188.8	363.7	344.9	166.7	26.1	254.2	78.7	26.8
LOS	F	E	C	F	F	F	F	F	C	F	E	C
Approach Delay (s/veh)		202.9			302.3			178.9			105.1	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.84			
Intersection Signal Delay (s/veh): 195.8		Intersection LOS: F	
Intersection Capacity Utilization 137.8%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 105: Trafalgar Rd & William Halton Parkway



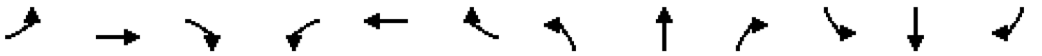


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	797	924	330	614	1128	1233	536	2020	422	642	1869	593
v/c Ratio	1.84	0.98	0.47	1.75	1.30	1.73	1.65	1.27	0.54	1.44	1.04	0.67
Control Delay (s/veh)	419.6	78.9	26.8	387.6	188.8	363.7	344.9	166.7	26.1	254.2	78.7	26.8
Queue Delay	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 (s/veh)	419.6	78.9	26.8	387.6	188.8	363.7	344.9	166.7	26.1	254.2	78.7	26.8
Queue Length 50th (m)	~193.9	152.1	57.0	~146.8	~237.3	~558.7	~124.8	~290.4	76.0	~140.0	~230.4	116.4
Queue Length 95th (m)	#236.0	#198.2	86.3	#134.7	#263.0	#595.5	#141.5	#319.9	61.6	#179.8	#239.4	162.1
Internal Link Dist (m)		153.3			137.0			234.3			455.2	
Turn Bay Length (m)	150.0		100.0	150.0		150.0	150.0		75.0	150.0		150.0
Base Capacity (vph)	434	943	698	350	866	711	325	1596	785	446	1800	879
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	0.98	0.47	1.75	1.30	1.73	1.65	1.27	0.54	1.44	1.04	0.67

Intersection Summary

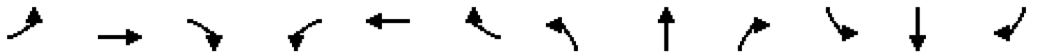
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	717	896	300	436	970	1048	434	1818	266	591	1607	546
Future Volume (vph)	717	896	300	436	970	1048	434	1818	266	591	1607	546
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	6.9	7.0	7.0	6.9	6.9	6.9	7.0	6.9	6.9	7.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	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)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
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)	3433	3539	1599	3502	3610	1583	3467	5085	1615	3335	5085	1599
Peak-hour factor, PHF	0.90	0.97	0.91	0.71	0.86	0.85	0.81	0.90	0.63	0.92	0.86	0.92
Adj. Flow (vph)	797	924	330	614	1128	1233	536	2020	422	642	1869	593
RTOR Reduction (vph)	0	0	51	0	0	49	0	0	46	0	0	41
Lane Group Flow (vph)	797	924	279	614	1128	1184	536	2020	376	642	1869	552
Heavy Vehicles (%)	2%	2%	1%	0%	0%	2%	1%	2%	0%	5%	2%	1%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	19.0	40.0	54.1	15.0	36.0	56.1	14.1	47.1	62.1	20.1	53.1	72.1
Effective Green, g (s)	19.0	40.0	54.1	15.0	36.0	56.1	14.1	47.1	62.1	20.1	53.1	72.1
Actuated g/C Ratio	0.13	0.27	0.36	0.10	0.24	0.37	0.09	0.31	0.41	0.13	0.35	0.48
Clearance Time (s)	7.0	7.0	6.9	7.0	7.0	6.9	6.9	6.9	7.0	6.9	6.9	7.0
Vehicle Extension (s)	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0	3.0	5.0	3.0
Lane Grp Cap (vph)	434	943	576	350	866	592	325	1596	668	446	1800	768
v/s Ratio Prot	c0.23	c0.26	0.05	0.18	0.31	c0.27	0.15	c0.40	0.06	0.19	c0.37	0.09
v/s Ratio Perm			0.13			0.48			0.18			0.25
v/c Ratio	1.84	0.98	0.49	1.75	1.30	2.00	1.65	1.27	0.56	1.44	1.04	0.72
Uniform Delay, d1	65.5	54.6	37.2	67.5	57.0	47.0	68.0	51.5	33.6	65.0	48.4	30.9
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	385.3	24.4	0.6	351.0	144.6	455.7	305.6	124.7	1.1	210.2	31.9	3.2
Delay (s)	450.8	79.0	37.8	418.5	201.6	502.6	373.6	176.2	34.7	275.1	80.3	34.1
Level of Service	F	E	D	F	F	F	F	F	C	F	F	C
Approach Delay (s/veh)		216.8			371.1			191.6			111.8	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	222.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.71		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	27.8
Intersection Capacity Utilization	137.8%	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)	293	445	24	236	426	364	299	1986	146	302	1674	193
Future Volume (vph)	293	445	24	236	426	364	299	1986	146	302	1674	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	60.0		60.0	60.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	70.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.993			0.935				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1887	0	1805	1776	0	1805	5036	1615	1480	5085	1599
Flt Permitted	0.105			0.108			0.108			0.098		
Satd. Flow (perm)	196	1887	0	205	1776	0	205	5036	1615	153	5085	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			33				136			129
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		277.8			989.6			1941.0			203.1	
Travel Time (s)		16.7			59.4			87.3			9.1	
Peak Hour Factor	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	1%
Adj. Flow (vph)	349	636	30	299	592	455	383	2336	215	472	1902	224
Shared Lane Traffic (%)												
Lane Group Flow (vph)	349	666	0	299	1047	0	383	2336	215	472	1902	224
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	0.6		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
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	
Turn Type	pm+pt	NA		pm+pt	NA		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			8			2		2	6		6
Detector Phase	7	4		3	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	9.5	24.0		9.5	24.0		9.5	26.0	26.0	11.5	26.0	26.0
Total Split (s)	14.0	44.0		13.0	43.0		15.0	43.0	43.0	20.0	48.0	48.0
Total Split (%)	11.7%	36.7%		10.8%	35.8%		12.5%	35.8%	35.8%	16.7%	40.0%	40.0%
Maximum Green (s)	10.0	38.0		9.0	37.0		11.0	37.0	37.0	16.0	42.0	42.0
Yellow Time (s)	3.0	3.7		3.0	3.7		3.0	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	1.0	2.3		1.0	2.3		1.0	1.4	1.4	1.0	1.4	1.4
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	-2.0	0.0	0.0	-2.0
Total Lost Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		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
Recall Mode	None	None		None	None		None	Max	Max	None	Max	Max
Act Effct Green (s)	50.0	38.0		48.0	37.0		50.0	37.0	39.0	59.0	42.0	44.0
Actuated g/C Ratio	0.42	0.32		0.40	0.31		0.42	0.31	0.33	0.49	0.35	0.37
v/c Ratio	1.65	1.11		1.48	1.84		1.65	1.51	0.35	1.87	1.07	0.34
Control Delay (s/veh)	335.2	110.7		265.6	409.8		336.6	262.4	13.3	431.8	80.3	12.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	335.2	110.7		265.6	409.8		336.6	262.4	13.3	431.8	80.3	12.9
LOS	F	F		F	F		F	F	B	F	F	B
Approach Delay (s/veh)		187.9			377.8			253.8			138.4	
Approach LOS		F			F			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 120			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.87			
Intersection Signal Delay (s/veh): 228.5		Intersection LOS: F	
Intersection Capacity Utilization 132.7%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 106: Trafalgar Rd & Burnhamthorpe Rd



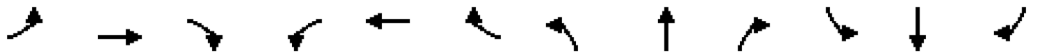


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	349	666	299	1047	383	2336	215	472	1902	224
v/c Ratio	1.65	1.11	1.48	1.84	1.65	1.51	0.35	1.87	1.07	0.34
Control Delay (s/veh)	335.2	110.7	265.6	409.8	336.6	262.4	13.3	431.8	80.3	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	335.2	110.7	265.6	409.8	336.6	262.4	13.3	431.8	80.3	12.9
Queue Length 50th (m)	~108.9	~189.3	~85.2	~391.0	~121.3	~294.6	13.9	~165.7	~191.2	15.7
Queue Length 95th (m)	#153.5	#169.9	#116.7	#347.5	#149.1	#298.2	17.8	#142.6	#213.5	32.6
Internal Link Dist (m)		253.8		965.6		1917.0			179.1	
Turn Bay Length (m)	30.0		15.0		60.0		60.0	60.0		60.0
Base Capacity (vph)	212	598	202	570	232	1552	616	252	1779	668
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.65	1.11	1.48	1.84	1.65	1.51	0.35	1.87	1.07	0.34

Intersection Summary

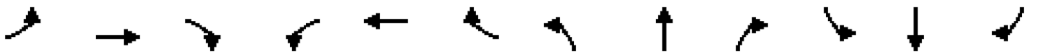
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



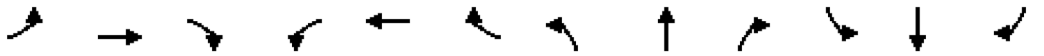
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	293	445	24	236	426	364	299	1986	146	302	1674	193
Future Volume (vph)	293	445	24	236	426	364	299	1986	146	302	1674	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.99		1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1887		1805	1776		1805	5036	1615	1480	5085	1599
Flt Permitted	0.11	1.00		0.11	1.00		0.11	1.00	1.00	0.10	1.00	1.00
Satd. Flow (perm)	196	1887		205	1776		205	5036	1615	152	5085	1599
Peak-hour factor, PHF	0.84	0.70	0.81	0.79	0.72	0.80	0.78	0.85	0.68	0.64	0.88	0.86
Adj. Flow (vph)	349	636	30	299	592	455	383	2336	215	472	1902	224
RTOR Reduction (vph)	0	1	0	0	23	0	0	0	92	0	0	82
Lane Group Flow (vph)	349	665	0	299	1024	0	383	2336	123	472	1902	142
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	22%	2%	1%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	48.0	38.0		46.0	37.0		48.0	37.0	37.0	57.0	42.0	42.0
Effective Green, g (s)	48.0	38.0		46.0	37.0		48.0	37.0	39.0	57.0	42.0	44.0
Actuated g/C Ratio	0.40	0.32		0.38	0.31		0.40	0.31	0.33	0.48	0.35	0.37
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	209	597		198	547		228	1552	524	249	1779	586
v/s Ratio Prot	c0.14	0.35		0.11	c0.58		0.15	0.46		c0.25	0.37	
v/s Ratio Perm	0.53			0.46			0.52		0.08	c0.65		0.09
v/c Ratio	1.67	1.11		1.51	1.87		1.68	1.51	0.24	1.90	1.07	0.24
Uniform Delay, d1	31.5	41.0		31.0	41.5		32.4	41.5	29.6	36.8	39.0	26.4
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	321.6	72.0		253.9	399.5		324.3	230.7	1.1	417.8	42.6	1.0
Delay (s)	353.1	113.0		284.9	441.0		356.7	272.2	30.7	454.5	81.6	27.4
Level of Service	F	F		F	F		F	F	C	F	F	C
Approach Delay (s/veh)		195.5			406.3			265.6			144.6	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	240.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	132.7%	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	1654	99	0	2119	13	0	0	37	0	0	371
Future Volume (vph)	0	1654	99	0	2119	13	0	0	37	0	0	371
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
Frt		0.992			0.999				0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3511	0	0	3536	0	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3511	0	0	3536	0	0	0	1611	0	0	1611
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		161.0			234.1			145.8			194.6	
Travel Time (s)		11.6			16.9			10.5			14.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1798	108	0	2303	14	0	0	40	0	0	403
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1906	0	0	2317	0	0	0	40	0	0	403
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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 88.6%		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	1654	99	0	2119	13	0	0	37	0	0	371
Future Volume (Veh/h)	0	1654	99	0	2119	13	0	0	37	0	0	371
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1798	108	0	2303	14	0	0	40	0	0	403
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		161			234							
pX, platoon unblocked	0.57			0.75			0.70	0.70	0.75	0.70	0.70	0.57
vC, conflicting volume	2317			1906			3407	4169	953	3249	4216	1159
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1801			1536			1949	3044	260	1723	3112	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	93	100	100	35
cM capacity (veh/h)	193			321			9	9	552	37	8	618

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	1199	707	1535	782	40	403
Volume Left	0	0	0	0	0	0
Volume Right	0	108	0	14	40	403
cSH	1700	1700	1700	1700	552	618
Volume to Capacity	0.71	0.42	0.90	0.46	0.07	0.65
Queue Length 95th (m)	0.0	0.0	0.0	0.0	1.9	38.2
Control Delay (s/veh)	0.0	0.0	0.0	0.0	12.0	21.1
Lane LOS					B	C
Approach Delay (s/veh)	0.0		0.0		12.0	21.1
Approach LOS					B	C

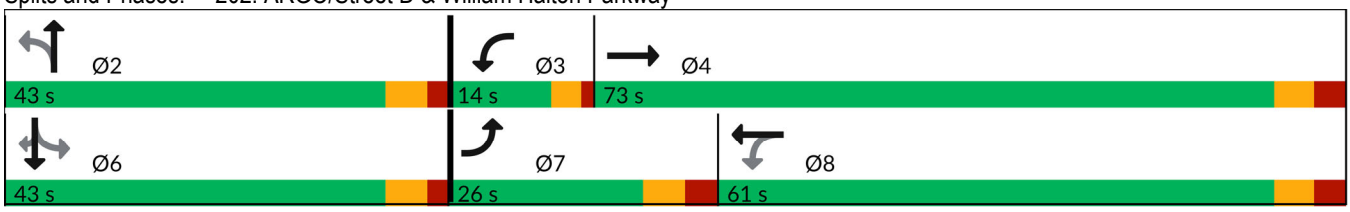
Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	88.6%	ICU Level of Service	E
Analysis Period (min)	15		

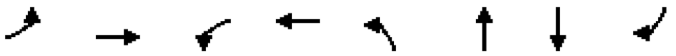
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	558	1034	99	111	1635	9	248	10	37	77	10	249
Future Volume (vph)	558	1034	99	111	1635	9	248	10	37	77	10	249
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0		0.0	55.0		0.0	115.0		0.0	0.0		0.0
Storage Lanes	2		0	1		0	1		0	0		1
Taper Length (m)	100.0			100.0			85.0			50.0		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.999			0.882				0.850
Flt Protected	0.950			0.950			0.950				0.958	
Satd. Flow (prot)	3433	3493	0	1770	3536	0	1770	1643	0	0	1785	1583
Flt Permitted	0.950			0.185			0.695				0.714	
Satd. Flow (perm)	3433	3493	0	345	3536	0	1295	1643	0	0	1330	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			1			40				239
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		234.1			330.7			147.6			128.4	
Travel Time (s)		16.9			23.8			10.6			9.2	
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
Adj. Flow (vph)	607	1124	108	121	1777	10	270	11	40	84	11	271
Shared Lane Traffic (%)												
Lane Group Flow (vph)	607	1232	0	121	1787	0	270	51	0	0	95	271
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		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
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	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
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	Prot	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases				8			2			6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	12.0	32.0		9.5	32.0		42.0	42.0		42.0	42.0	42.0
Total Split (s)	26.0	73.0		14.0	61.0		43.0	43.0		43.0	43.0	43.0
Total Split (%)	20.0%	56.2%		10.8%	46.9%		33.1%	33.1%		33.1%	33.1%	33.1%
Maximum Green (s)	19.0	66.0		10.0	54.0		37.0	37.0		37.0	37.0	37.0
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	3.0	3.0		1.0	3.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)	7.0	7.0		4.0	7.0		6.0	6.0			6.0	6.0
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	3.0
Recall Mode	Min	Min		None	Min		None	None		None	None	None
Walk Time (s)		10.0			10.0		12.0	12.0		12.0	12.0	12.0
Flash Don't Walk (s)		15.0			15.0		18.0	18.0		18.0	18.0	18.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	19.1	67.9		65.5	54.1		29.6	29.6			29.6	29.6
Actuated g/C Ratio	0.16	0.55		0.53	0.44		0.24	0.24			0.24	0.24
v/c Ratio	1.14	0.64		0.43	1.15		0.87	0.12			0.30	0.48
Control Delay (s/veh)	130.8	22.0		14.8	107.1		70.8	14.4			40.0	9.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay (s/veh)	130.8	22.0		14.8	107.1		70.8	14.4			40.0	9.8
LOS	F	C		B	F		E	B			D	A
Approach Delay (s/veh)		57.9			101.2			61.9			17.6	
Approach LOS		E			F			E			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 122.9			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.15			
Intersection Signal Delay (s/veh): 73.5		Intersection LOS: E	
Intersection Capacity Utilization 98.5%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 202: ARGO/Street D & William Halton Parkway



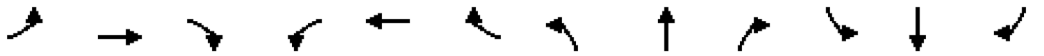


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	607	1232	121	1787	270	51	95	271
v/c Ratio	1.14	0.64	0.43	1.15	0.87	0.12	0.30	0.48
Control Delay (s/veh)	130.8	22.0	14.8	107.1	70.8	14.4	40.0	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	130.8	22.0	14.8	107.1	70.8	14.4	40.0	9.8
Queue Length 50th (m)	~94.6	111.4	10.1	~286.5	65.9	2.2	19.8	6.3
Queue Length 95th (m)	#140.6	153.7	19.9	#356.8	#101.5	12.5	35.5	29.7
Internal Link Dist (m)		210.1		306.7		123.6	104.4	
Turn Bay Length (m)	120.0		55.0		115.0			
Base Capacity (vph)	532	1934	305	1558	390	523	401	644
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	1.14	0.64	0.40	1.15	0.69	0.10	0.24	0.42

Intersection Summary

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

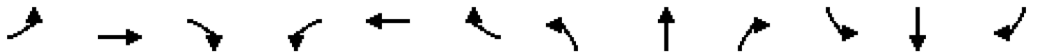
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	558	1034	99	111	1635	9	248	10	37	77	10	249
Future Volume (vph)	558	1034	99	111	1635	9	248	10	37	77	10	249
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		4.0	7.0		6.0	6.0			6.0	6.0
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frt	1.00	0.99		1.00	1.00		1.00	0.88			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.96	1.00
Satd. Flow (prot)	3433	3493		1770	3536		1770	1644			1784	1583
Flt Permitted	0.95	1.00		0.18	1.00		0.70	1.00			0.71	1.00
Satd. Flow (perm)	3433	3493		344	3536		1295	1644			1331	1583
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)	607	1124	108	121	1777	10	270	11	40	84	11	271
RTOR Reduction (vph)	0	5	0	0	1	0	0	30	0	0	0	181
Lane Group Flow (vph)	607	1227	0	121	1786	0	270	21	0	0	95	90
Turn Type	Prot	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases				8			2			6		6
Actuated Green, G (s)	19.1	68.0		62.5	54.2		29.7	29.7			29.7	29.7
Effective Green, g (s)	19.1	68.0		62.5	54.2		29.7	29.7			29.7	29.7
Actuated g/C Ratio	0.16	0.55		0.51	0.44		0.24	0.24			0.24	0.24
Clearance Time (s)	7.0	7.0		4.0	7.0		6.0	6.0			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	533	1931		271	1558		312	396			321	382
v/s Ratio Prot	c0.18	0.35		0.03	c0.51			0.01				
v/s Ratio Perm				0.20			c0.21				0.07	0.06
v/c Ratio	1.14	0.64		0.45	1.15		0.87	0.05			0.30	0.23
Uniform Delay, d1	52.0	19.0		16.6	34.4		44.7	35.8			38.1	37.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	83.3	0.7		1.2	74.0		21.3	0.1			0.5	0.3
Delay (s)	135.2	19.6		17.7	108.4		66.0	35.9			38.6	37.8
Level of Service	F	B		B	F		E	D			D	D
Approach Delay (s/veh)		57.8			102.7			61.2			38.0	
Approach LOS		E			F			E			D	

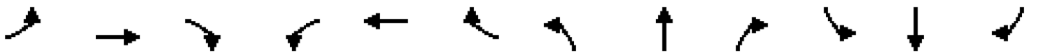
Intersection Summary			
HCM 2000 Control Delay (s/veh)	75.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	123.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	98.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1835	59	0	1552	398	0	0	78	0	0	357
Future Volume (vph)	0	1835	59	0	1552	398	0	0	78	0	0	357
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		50.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Frt		0.995				0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3522	0	0	3539	1583	0	0	1611	0	0	1611
Flt Permitted												
Satd. Flow (perm)	0	3522	0	0	3539	1583	0	0	1611	0	0	1611
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		214.0			177.3			209.1			251.2	
Travel Time (s)		15.4			12.8			15.1			18.1	
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
Adj. Flow (vph)	0	1995	64	0	1687	433	0	0	85	0	0	388
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2059	0	0	1687	433	0	0	85	0	0	388
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

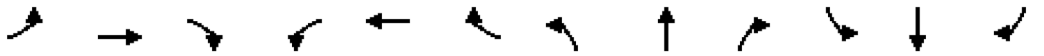
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 71.7%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1835	59	0	1552	398	0	0	78	0	0	357
Future Volume (Veh/h)	0	1835	59	0	1552	398	0	0	78	0	0	357
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1995	64	0	1687	433	0	0	85	0	0	388
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		214			177							
pX, platoon unblocked	0.77			0.55			0.67	0.67	0.55	0.67	0.67	0.77
vC, conflicting volume	2120			2059			3259	4147	1030	2770	3746	844
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1853			1292			1817	3148	0	1084	2547	189
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	38
cM capacity (veh/h)	248			293			12	7	597	98	18	630

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1330	729	844	844	433	85	388
Volume Left	0	0	0	0	0	0	0
Volume Right	0	64	0	0	433	85	388
cSH	1700	1700	1700	1700	1700	597	630
Volume to Capacity	0.78	0.43	0.50	0.50	0.25	0.14	0.62
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	4.0	33.8
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	12.0	19.4
Lane LOS						B	C
Approach Delay (s/veh)	0.0		0.0			12.0	19.4
Approach LOS						B	C

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	71.7%	ICU Level of Service	C	
Analysis Period (min)	15			

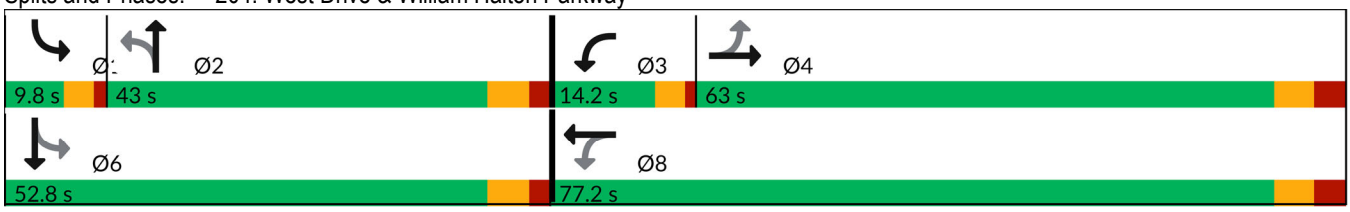


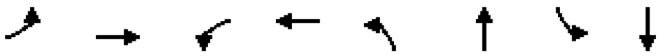
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	1432	56	164	1674	71	32	40	352	110	1	6
Future Volume (vph)	16	1432	56	164	1674	71	32	40	352	110	1	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	100.0		0.0	50.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	100.0			100.0			50.0			50.0		
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
Frt		0.994			0.994			0.865			0.869	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3518	0	1770	3518	0	1770	1611	0	1770	1619	0
Flt Permitted	0.071			0.066			0.752			0.138		
Satd. Flow (perm)	132	3518	0	123	3518	0	1401	1611	0	257	1619	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			5			176			7	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		824.7			214.0			176.0			195.5	
Travel Time (s)		59.4			15.4			12.7			14.1	
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
Adj. Flow (vph)	17	1557	61	178	1820	77	35	43	383	120	1	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	1618	0	178	1897	0	35	426	0	120	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)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
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		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		3	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	20.0	20.0		5.0	20.0		10.0	10.0		5.0	10.0	
Minimum Split (s)	27.0	27.0		9.5	27.0		42.0	42.0		9.5	42.0	
Total Split (s)	63.0	63.0		14.2	77.2		43.0	43.0		9.8	52.8	
Total Split (%)	48.5%	48.5%		10.9%	59.4%		33.1%	33.1%		7.5%	40.6%	
Maximum Green (s)	56.0	56.0		10.2	70.2		37.0	37.0		5.8	46.8	
Yellow Time (s)	4.0	4.0		3.0	4.0		4.0	4.0		3.0	4.0	
All-Red Time (s)	3.0	3.0		1.0	3.0		2.0	2.0		1.0	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)	7.0	7.0		4.0	7.0		6.0	6.0		4.0	6.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes		Yes		
Vehicle Extension (s)	0.2	0.2		3.0	0.2		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		None	Min		None	None		None	None	
Walk Time (s)	7.0	7.0			7.0		14.0	14.0			14.0	
Flash Don't Walk (s)	11.0	11.0			11.0		22.0	22.0			22.0	
Pedestrian Calls (#/hr)	0	0			0		0	0			0	
Act Effct Green (s)	56.3	56.3		73.4	70.4		24.8	24.8		36.7	34.7	
Actuated g/C Ratio	0.48	0.48		0.62	0.60		0.21	0.21		0.31	0.29	
v/c Ratio	0.27	0.96		0.82	0.90		0.12	0.89		0.78	0.02	
Control Delay (s/veh)	36.8	46.3		54.9	29.8		37.0	47.7		64.1	16.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	36.8	46.3		54.9	29.8		37.0	47.7		64.1	16.1	
LOS	D	D		D	C		D	D		E	B	
Approach Delay (s/veh)		46.2			31.9			46.9			61.1	
Approach LOS		D			C			D			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 118.2			
Natural Cycle: 130			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay (s/veh): 39.8		Intersection LOS: D	
Intersection Capacity Utilization 115.1%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 204: West Drive & William Halton Parkway





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	17	1618	178	1897	35	426	120	8
v/c Ratio	0.27	0.96	0.82	0.90	0.12	0.89	0.78	0.02
Control Delay (s/veh)	36.8	46.3	54.9	29.8	37.0	47.7	64.1	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	36.8	46.3	54.9	29.8	37.0	47.7	64.1	16.1
Queue Length 50th (m)	2.5	196.7	25.8	202.4	6.9	62.6	21.5	0.2
Queue Length 95th (m)	11.4	#298.6	#75.7	#323.4	15.8	104.3	#45.4	3.8
Internal Link Dist (m)		800.7		190.0		152.0		171.5
Turn Bay Length (m)	100.0		100.0		50.0		50.0	
Base Capacity (vph)	62	1677	219	2102	440	627	154	648
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	0.27	0.96	0.81	0.90	0.08	0.68	0.78	0.01

Intersection Summary

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

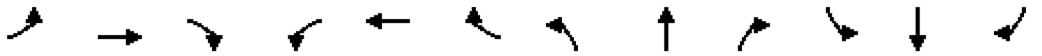
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	1432	56	164	1674	71	32	40	352	110	1	6
Future Volume (vph)	16	1432	56	164	1674	71	32	40	352	110	1	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		4.0	7.0		6.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.87		1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3519		1770	3518		1770	1612		1770	1618	
Flt Permitted	0.07	1.00		0.07	1.00		0.75	1.00		0.14	1.00	
Satd. Flow (perm)	132	3519		124	3518		1402	1612		258	1618	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	1557	61	178	1820	77	35	43	383	120	1	7
RTOR Reduction (vph)	0	2	0	0	2	0	0	139	0	0	5	0
Lane Group Flow (vph)	17	1616	0	178	1895	0	35	287	0	120	3	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	56.3	56.3		70.4	70.4		24.9	24.9		34.7	34.7	
Effective Green, g (s)	56.3	56.3		70.4	70.4		24.9	24.9		34.7	34.7	
Actuated g/C Ratio	0.48	0.48		0.60	0.60		0.21	0.21		0.29	0.29	
Clearance Time (s)	7.0	7.0		4.0	7.0		6.0	6.0		4.0	6.0	
Vehicle Extension (s)	0.2	0.2		3.0	0.2		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	62	1677		214	2097		295	339		150	475	
v/s Ratio Prot		c0.46		0.07	c0.54			0.18		c0.04	0.00	
v/s Ratio Perm	0.13			0.42			0.02			c0.20		
v/c Ratio	0.27	0.96		0.83	0.90		0.12	0.85		0.80	0.01	
Uniform Delay, d1	18.6	29.9		33.2	20.9		37.7	44.8		35.2	29.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.9	14.1		23.2	5.8		0.2	17.4		25.4	0.0	
Delay (s)	19.5	44.1		56.3	26.7		37.9	62.2		60.7	29.5	
Level of Service	B	D		E	C		D	E		E	C	
Approach Delay (s/veh)		43.8			29.2			60.4			58.7	
Approach LOS		D			C			E			E	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	39.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	118.1	Sum of lost time (s)	21.0
Intersection Capacity Utilization	115.1%	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)	95	30	10	3	36	250	23	62	167	52	150	12
Future Volume (vph)	95	30	10	3	36	250	23	62	167	52	150	12
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		0.990			0.883			0.910			0.992	
Flt Protected		0.966						0.995			0.988	
Satd. Flow (prot)	0	1781	0	0	1645	0	0	1687	0	0	1826	0
Flt Permitted		0.966						0.995			0.988	
Satd. Flow (perm)	0	1781	0	0	1645	0	0	1687	0	0	1826	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		276.8			164.9			130.3			140.1	
Travel Time (s)		19.9			11.9			9.4			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
Adj. Flow (vph)	103	33	11	3	39	272	25	67	182	57	163	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	147	0	0	314	0	0	274	0	0	233	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)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

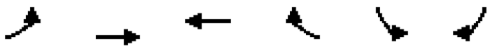
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.9%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	30	10	3	36	250	23	62	167	52	150	12
Future Volume (Veh/h)	95	30	10	3	36	250	23	62	167	52	150	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	103	33	11	3	39	272	25	67	182	57	163	13
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	311			44			520	562	39	641	431	175
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	311			44			520	562	39	641	431	175
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			100			92	83	82	78	66	99
cM capacity (veh/h)	1249			1564			317	399	1033	261	474	868

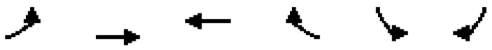
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	147	314	274	233
Volume Left	103	3	25	57
Volume Right	11	272	182	13
cSH	1249	1564	648	403
Volume to Capacity	0.08	0.00	0.42	0.58
Queue Length 95th (m)	2.2	0.0	16.8	28.2
Control Delay (s/veh)	5.9	0.1	14.6	25.4
Lane LOS	A	A	B	D
Approach Delay (s/veh)	5.9	0.1	14.6	25.4
Approach LOS			B	D

Intersection Summary				
Average Delay	11.2			
Intersection Capacity Utilization	57.9%	ICU Level of Service	B	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	114	149	119	238	87	147
Future Volume (vph)	114	149	119	238	87	147
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			0.910		0.915	
Flt Protected		0.979			0.982	
Satd. Flow (prot)	0	1824	1695	0	1674	0
Flt Permitted		0.979			0.982	
Satd. Flow (perm)	0	1824	1695	0	1674	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		164.9	188.6		209.1	
Travel Time (s)		11.9	13.6		15.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	124	162	129	259	95	160
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	286	388	0	255	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

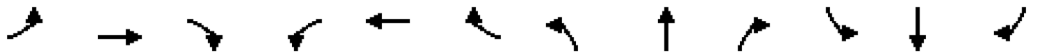
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.9%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	114	149	119	238	87	147
Future Volume (Veh/h)	114	149	119	238	87	147
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)	124	162	129	259	95	160
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	388				669	259
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	388				669	259
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	89				75	79
cM capacity (veh/h)	1170				378	780

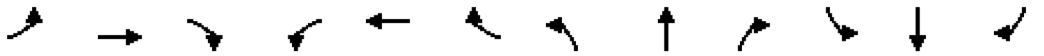
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	286	388	255
Volume Left	124	0	95
Volume Right	0	259	160
cSH	1170	1700	559
Volume to Capacity	0.11	0.23	0.46
Queue Length 95th (m)	2.8	0.0	19.0
Control Delay (s/veh)	4.2	0.0	16.7
Lane LOS	A		C
Approach Delay (s/veh)	4.2	0.0	16.7
Approach LOS			C

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	58.9%	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)	0	0	198	0	0	66	0	2450	193	0	1971	373
Future Volume (vph)	0	0	198	0	0	66	0	2450	193	0	1971	373
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		50.0	0.0		50.0
Storage Lanes	0		1	0		1	0		1	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.865			0.865			0.850			0.850
Flt Protected												
Satd. Flow (prot)	0	0	1611	0	0	1611	0	5085	1583	0	5085	1583
Flt Permitted												
Satd. Flow (perm)	0	0	1611	0	0	1611	0	5085	1583	0	5085	1583
Link Speed (k/h)		50			50			50			80	
Link Distance (m)		188.6			84.7			203.1			258.3	
Travel Time (s)		13.6			6.1			14.6			11.6	
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
Adj. Flow (vph)	0	0	215	0	0	72	0	2663	210	0	2142	405
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	215	0	0	72	0	2663	210	0	2142	405
Enter Blocked Intersection	No	No	No	No	No	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			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

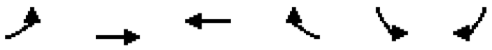
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.1%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	198	0	0	66	0	2450	193	0	1971	373
Future Volume (Veh/h)	0	0	198	0	0	66	0	2450	193	0	1971	373
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	215	0	0	72	0	2663	210	0	2142	405
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								203			258	
pX, platoon unblocked	0.82	0.82	0.67	0.82	0.82	0.71	0.67			0.71		
vC, conflicting volume	3102	5015	714	3592	5210	888	2547			2873		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	362	2700	0	961	2938	0	1590			2194		
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	70	100	100	91	100			100		
cM capacity (veh/h)	422	17	728	122	12	765	274			167		

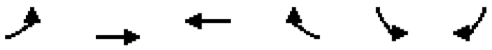
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	215	72	888	888	888	210	714	714	714	405
Volume Left	0	0	0	0	0	0	0	0	0	0
Volume Right	215	72	0	0	0	210	0	0	0	405
cSH	728	765	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.30	0.09	0.52	0.52	0.52	0.12	0.42	0.42	0.42	0.24
Queue Length 95th (m)	9.9	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s/veh)	12.0	10.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	B								
Approach Delay (s/veh)	12.0	10.2	0.0				0.0			
Approach LOS	B	B								

Intersection Summary					
Average Delay	0.6				
Intersection Capacity Utilization	58.1%	ICU Level of Service		B	
Analysis Period (min)	15				



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	7	615	678	240	151	12
Future Volume (vph)	7	615	678	240	151	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	50.0				7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.965		0.990	
Flt Protected	0.950				0.956	
Satd. Flow (prot)	1770	1863	1798	0	1763	0
Flt Permitted	0.950				0.956	
Satd. Flow (perm)	1770	1863	1798	0	1763	0
Link Speed (k/h)		60	50		50	
Link Distance (m)		550.9	277.8		134.0	
Travel Time (s)		33.1	20.0		9.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	668	737	261	164	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	668	998	0	177	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

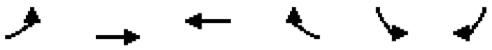
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 66.1%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	615	678	240	151	12
Future Volume (Veh/h)	7	615	678	240	151	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	668	737	261	164	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)			278			
pX, platoon unblocked	0.56				0.56	0.56
vC, conflicting volume	998				1552	868
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	607				1592	374
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				0	97
cM capacity (veh/h)	546				65	378

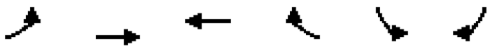
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	8	668	998	177
Volume Left	8	0	0	164
Volume Right	0	0	261	13
cSH	546	1700	1700	70
Volume to Capacity	0.01	0.39	0.59	2.54
Queue Length 95th (m)	0.4	0.0	0.0	138.1
Control Delay (s/veh)	11.7	0.0	0.0	827.8
Lane LOS	B			F
Approach Delay (s/veh)	0.1		0.0	827.8
Approach LOS				F

Intersection Summary			
Average Delay	79.2		
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	41	1107	1659	2	20	96
Future Volume (vph)	41	1107	1659	2	20	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	100.0				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt					0.889	
Flt Protected	0.950				0.991	
Satd. Flow (prot)	1770	3539	3539	0	1641	0
Flt Permitted	0.950				0.991	
Satd. Flow (perm)	1770	3539	3539	0	1641	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		330.7	856.4		123.9	
Travel Time (s)		23.8	61.7		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	1203	1803	2	22	104
Shared Lane Traffic (%)						
Lane Group Flow (vph)	45	1203	1805	0	126	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 59.6%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	41	1107	1659	2	20	96
Future Volume (Veh/h)	41	1107	1659	2	20	96
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)	45	1203	1803	2	22	104
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		331				
pX, platoon unblocked					0.77	
vC, conflicting volume	1805				2496	903
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1805				2347	903
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	87				0	63
cM capacity (veh/h)	337				20	280

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	45	602	602	1202	603	126
Volume Left	45	0	0	0	0	22
Volume Right	0	0	0	0	2	104
cSH	337	1700	1700	1700	1700	86
Volume to Capacity	0.13	0.35	0.35	0.71	0.35	1.46
Queue Length 95th (m)	3.6	0.0	0.0	0.0	0.0	78.3
Control Delay (s/veh)	17.3	0.0	0.0	0.0	0.0	345.0
Lane LOS	C					F
Approach Delay (s/veh)	0.6			0.0		345.0
Approach LOS						F

Intersection Summary			
Average Delay	13.9		
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	56	0	232	0	0	169
Future Volume (vph)	56	0	232	0	0	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1770	0	3539	0	0	3539
Flt Permitted	0.950					
Satd. Flow (perm)	1770	0	3539	0	0	3539
Link Speed (k/h)	50		50			50
Link Distance (m)	317.0		128.4			111.8
Travel Time (s)	22.8		9.2			8.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	61	0	252	0	0	184
Shared Lane Traffic (%)						
Lane Group Flow (vph)	61	0	252	0	0	184
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 16.4%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	56	0	232	0	0	169
Future Volume (Veh/h)	56	0	232	0	0	169
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	61	0	252	0	0	184
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			128			
pX, platoon unblocked						
vC, conflicting volume	344	126			252	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	344	126			252	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	90	100			100	
cM capacity (veh/h)	626	901			1310	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	61	168	84	61	123
Volume Left	61	0	0	0	0
Volume Right	0	0	0	0	0
cSH	626	1700	1700	1310	1700
Volume to Capacity	0.10	0.10	0.05	0.00	0.07
Queue Length 95th (m)	2.6	0.0	0.0	0.0	0.0
Control Delay (s/veh)	11.4	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s/veh)	11.4	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	16.4%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	169	0	116	116
Future Volume (vph)	0	0	169	0	116	116
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						0.850
Flt Protected				0.950	0.950	
Satd. Flow (prot)	1863	0	0	1770	1770	1583
Flt Permitted				0.950	0.950	
Satd. Flow (perm)	1863	0	0	1770	1770	1583
Link Speed (k/h)	50			50	50	
Link Distance (m)	241.4			309.3	111.8	
Travel Time (s)	17.4			22.3	8.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	184	0	126	126
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	184	126	126
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.5%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	169	0	116	116
Future Volume (Veh/h)	0	0	169	0	116	116
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	184	0	126	126
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			0		368	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		368	0
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			89		78	88
cM capacity (veh/h)			1623		560	1085

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	0	184	126	126
Volume Left	0	184	126	0
Volume Right	0	0	0	126
cSH	1700	1623	560	1085
Volume to Capacity	0.00	0.11	0.22	0.12
Queue Length 95th (m)	0.0	3.1	6.9	3.1
Control Delay (s/veh)	0.0	7.5	13.3	8.8
Lane LOS		A	B	A
Approach Delay (s/veh)	0.0	7.5	11.0	
Approach LOS			B	

Intersection Summary			
Average Delay	9.5		
Intersection Capacity Utilization	22.5%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	81	0	31	0
Future Volume (vph)	0	0	81	0	31	0
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						
Flt Protected				0.950	0.950	
Satd. Flow (prot)	1863	0	0	1770	1770	0
Flt Permitted				0.950	0.950	
Satd. Flow (perm)	1863	0	0	1770	1770	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	309.3			139.4	106.2	
Travel Time (s)	22.3			10.0	7.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	88	0	34	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	88	34	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	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

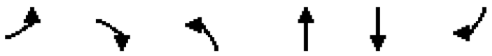
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	14.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	81	0	31	0
Future Volume (Veh/h)	0	0	81	0	31	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	88	0	34	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			0		176	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		176	0
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		96	100
cM capacity (veh/h)			1623		770	1085

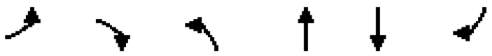
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	0	88	34
Volume Left	0	88	34
Volume Right	0	0	0
cSH	1700	1623	770
Volume to Capacity	0.00	0.05	0.04
Queue Length 95th (m)	0.0	1.4	1.1
Control Delay (s/veh)	0.0	7.3	9.9
Lane LOS		A	A
Approach Delay (s/veh)	0.0	7.3	9.9
Approach LOS			A

Intersection Summary			
Average Delay	8.1		
Intersection Capacity Utilization	14.5%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	35	1	41	81	0
Future Volume (vph)	0	35	1	41	81	0
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				0.999		
Satd. Flow (prot)	1611	0	0	1861	1863	0
Flt Permitted				0.999		
Satd. Flow (perm)	1611	0	0	1861	1863	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	317.0			123.9	106.2	
Travel Time (s)	22.8			8.9	7.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	38	1	45	88	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	0	0	46	88	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	14.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	35	1	41	81	0
Future Volume (Veh/h)	0	35	1	41	81	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	38	1	45	88	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	135	88	88			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	135	88	88			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	96	100			
cM capacity (veh/h)	858	970	1508			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	38	46	88
Volume Left	0	1	0
Volume Right	38	0	0
cSH	970	1508	1700
Volume to Capacity	0.04	0.00	0.05
Queue Length 95th (m)	1.0	0.0	0.0
Control Delay (s/veh)	8.9	0.2	0.0
Lane LOS	A	A	
Approach Delay (s/veh)	8.9	0.2	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	14.3%	ICU Level of Service	A
Analysis Period (min)	15		