

Neighbourhood 9/10/11 Landowner's Group



Transportation Impact Study

2018-23

April 2019



Neighbourhood 9/10/11 Transportation Impact Study

Prepared for:

Neighbourhood 9/10/11 Landowners' Group

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PN: 2018-23

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1 Introduction

This Transportation Impact Study (TIS) has been prepared to support the proposed developments in the Neighbourhood 9/10/11 areas of North Oakville. This area is being developed by a group of companies including:

- Argo (West Morrison Creek) Limited
- Crosstrail Estates Inc.
- Digram Developments Oakville Inc.
- Docasa Group Ltd.
- G.C. Family Investments
- Mattamy Homes (Hulme/SGGC)
- Mattamy Homes (Preserve North)
- Star Oak Developments Limited
- Timsin Holding Corp.
- TWKD Developments Inc.

The combined development includes a total of 788 single detached homes, 1003 townhouses, and 175 mid-rise units. The subject site is a vacant greenfield with existing farm residences, which will be removed as part of the subject development. The development is anticipated to build out over the next 5 to 10 years. As a conservative estimate of the build-out of the proposed developments, it has been assumed that the development could be complete by 2024. Therefore, the analysis horizons will include 2019 existing conditions, 2024 full build out and future background conditions, and 2030 full build out and future background conditions. The phasing and timing of each phase is not known at this time, but each landowner will build out their properties individually. Figure 1 illustrates the site context. Figure 2 illustrates the proposed site plan.

Figure 1: Site Context



The proposed development will have a total of ten accesses to serve the combined developments. This will include four accesses on Sixth Line, five accesses on Burnhamthorpe Road, and a single access onto the future William Halton Parkway. All accesses are proposed as full movement intersections, with no turn restrictions. The scope of this TIS has been confirmed with transportation staff from the Town of Oakville and Halton Region. E-mail correspondence discussing the scope is included in Appendix A.



Notes:

A	description	by	xx/xx/xx
REV:	DESCRIPTION:	BY:	DATE:
STATUS:	status		

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TITLE: Development Concept Plan			
SCALE AT A3: NTS	DATE: 2019-03-01	DRAWN:	CHECKED:
PROJECT NO: 2018-23	DRAWING NO: 002	REVISION:	

2 Existing Conditions

2.1 Area Road Network

Sixth Line

Sixth Line is a Town of Oakville minor arterial road with a two-lane rural cross-section. The Town of Oakville Official Plan protects a 26-metre right-of-way for minor arterial roads. Left turn lanes are included at major intersections. A 60 km/h posted speed limit applies. Sixth Line is anticipated to be widened from two to four-lanes as part of this widening, the right-of-way will be widened to 31 metres. It has been indicated through discussions with the Town of Oakville that this upgrade is anticipated to be completed by 2024 and has been considered in the analysis herein.

Burnhamthorpe Road

Burnhamthorpe Road is a regional road with a two-lane rural cross-section. The Halton Region Official Plan protects for a 24-metre right of way for Burnhamthorpe Road. A 60 km/h posted speed limit applies. It has been indicated that, within five years of the study date and upon completion of the future William Halton Parkway, responsibility for this roadway will transfer from the Region to the Town of Oakville. Within approximately 150m each way of Neyagawa Boulevard, Burnhamthorpe Road widens to four lanes and has an urban cross section with curbs and gutters.

Neyagawa Boulevard

Neyagawa Boulevard is a regional road with a four-lane urban cross-section. The Halton Region Official Plan protects for a 40-metre right-of-way north of Burnhamthorpe Road and a 35-metre right-of-way to the south. Auxiliary lanes are provided at major intersections. A 60 km/h posted speed limit applies.

Trafalgar Road

Trafalgar Road is a regional road with a four-lane cross-section with curbs and gutters at the intersection of Trafalgar Road and Burnhamthorpe Road but does not include sidewalks or other urban cross-section elements. The Halton Region Official Plan protects for a 50-metre right-of-way. Auxiliary lanes are provided at major intersections. An 80 km/h posted speed limit applies.

Dundas Street

Dundas Street is a regional road with a four-lane urban cross-section. The Halton Region Official Plan protects for a 50-metre right-of-way. Auxiliary lanes are provided at major intersections. A 60 km/h posted speed limit applies.

William Halton Parkway (Future Arterial Road Corridor)

North of, and parallel to, Burnhamthorpe Road is the corridor protection for the future William Halton Parkway, a regional arterial road. This is shown in the Halton Region Official Plan as a Proposed Major Arterial Road. It has been indicated that this facility will be constructed between Neyagawa Boulevard and the eastern connection of William Halton Parkway to Burnhamthorpe Road. A contract has been awarded by the Region of Halton for the construction of William Halton Parkway from Sixth Line to Trafalgar Road, with construction starting in early 2019.

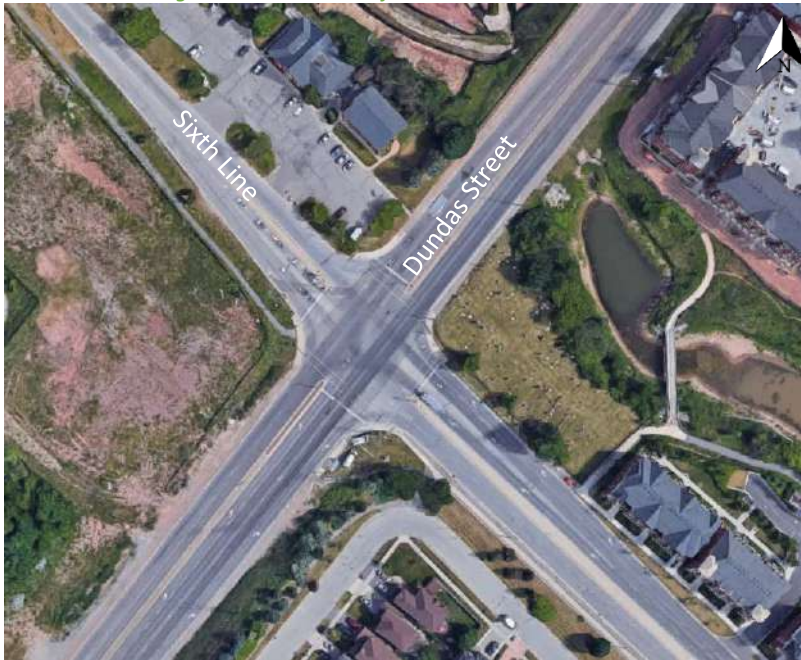
2.2 Existing Intersections

Sixth Line at Dundas Street

The intersection of Sixth Line at Dundas Street is a signalized intersection with auxiliary left turn lanes on all approaches. Right turn lanes are provided on the eastbound and northbound legs. Crosswalks are present on all legs with pedestrian signal heads and call buttons. The sidewalks are not continuous beyond the intersection, with

the exception of the west side of Sixth Line, where, north of the intersection an asphalt sidewalk is provided, and south of the intersection a monolithic concrete curb and sidewalk is provided. Figure 3 illustrates the intersection of Sixth Line at Dundas Street.

Figure 3: Intersection of Sixth Line at Dundas Street



Sixth Line at Burnhamthorpe Road

The intersection of Sixth Line at Burnhamthorpe Road is an all-way stop controlled intersection. No auxiliary lanes or sidewalks are provided on any of the legs. An overhead flashing red beacon has been installed over the centre of the intersection. Figure 4 illustrates the intersection of Sixth Line at Burnhamthorpe Road.

Figure 4: Intersection of Sixth Line at Burnhamthorpe Road



Neyagawa Boulevard at Burnhamthorpe Road

The intersection of Neyagawa Boulevard at Burnhamthorpe Road is a signalized intersection with auxiliary left and right turn lanes on all approaches. Crosswalks are present on all legs with pedestrian signal heads and call buttons. The sidewalks are not continuous beyond the intersection, with the exception of the west side of Neyagawa, south of the intersection, where an asphalt sidewalk is provided. Curbside cycling lanes are provided through the intersection; however, these cycling lanes end just past the intersection to the north, east, and west, transitioning to gravel shoulders. South of the intersection the cycling lanes continue south, along both sides of the road, to Dundas Street. The most recent aerial photography shows this intersection under construction and does not accurately depict the existing lane configurations; therefore, no aerial photo has been included in this report.

Trafalgar Road at Burnhamthorpe Road

The intersection of Trafalgar Road at Burnhamthorpe Road is a signalized intersection with auxiliary left turn lanes on all approaches and no auxiliary right turn lanes. On the eastbound and westbound no crosswalks or pedestrian signal heads are provided at this intersection. The eastbound and westbound left turn lane stop bars are set back approximately five metres from the through stop bar. Figure 5 illustrates the configuration of the intersection of Trafalgar Road at Burnhamthorpe Road.

Figure 5: Intersection of Trafalgar Road at Burnhamthorpe Road



2.3 Cycling and Pedestrian Facilities

The proposed developments are in an area of North Oakville that is currently not developed and therefore there is minimal cycling and pedestrian infrastructure in the Study Area. As noted in Section 2.2, the signalized intersections of Sixth Line at Dundas Street and Neyagawa Boulevard at Burnhamthorpe Road have some pedestrian infrastructure (crosswalks and pedestrian signal heads) but there are limited sidewalk connections beyond the intersection. Cycling lanes are provided through the intersection of Neyagawa Boulevard at Burnhamthorpe Road, but these lanes are only continued to the south of the intersection.

The Town of Oakville Active Transportation Master Plan (ATMP) outlines the proposed cycling and pedestrian network. Map 8 and Map 9 from the ATMP have been included in Appendix B for reference. Generally, sidewalks will be provided along the local and collector roads throughout the proposed development as is appropriate based on the proposed cross-sections, additionally, paths will be included in the green spaces that will be reserved as

part of the proposed development. Cycling facilities will be provided along the collector roads as outlined in Map 9 of the ATMP.

2.4 Existing Transit

Transit service in the Study Area is provided along Dundas Street West and Trafalgar Road via Route 5 (Dundas) and Route 1 (Trafalgar). As the proposed developments are currently farmers' fields, there are limited transit stops at the Study Area intersections. The intersections of Dundas Street at Sixth Line and Burnhamthorpe Road at Trafalgar Road each have two transit stops for the routes that travel through each of those intersections.

2.5 Existing Peak Hour Travel Demand

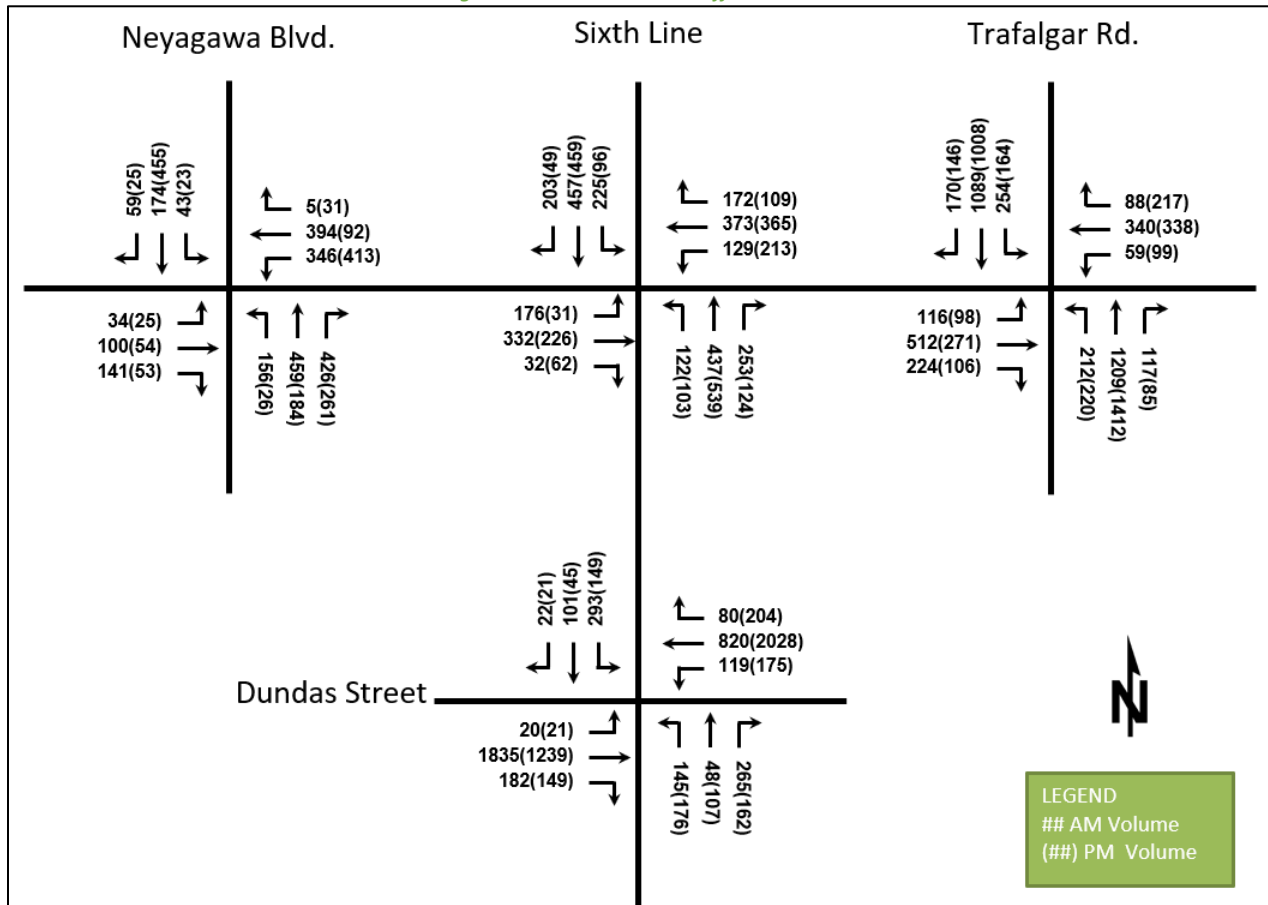
To understand the existing AM and PM peak hour traffic volumes turning movement counts (TMC) for the Study Area intersections have been acquired from the Town of Oakville and the Region of Halton. Additionally, historical ATR counts along Sixth Line between Dundas Street and Burnhamthorpe Road were received from the Town of Oakville. Table 1 summarizes the date of the most recent turning movement count at each Study Area intersection.

Table 1: Turning Movement Count Data Dates

Intersection	Count Date
Burnhamthorpe Road at Neyagawa Boulevard	November 15, 2017
Burnhamthorpe Road at Sixth Line	May 4, 2015
Burnhamthorpe Road at Trafalgar Road	June 26, 2017
Dundas Street at Sixth Line	May 24, 2017

Through the pre-consultation for this TIS it was determined that ideally only data that is no older than two years old would be used in the analysis. An exception to this was requested, and granted, for the intersection of Burnhamthorpe Road at Sixth Line, where a TMC that was obtained in 2015 would be used but would be adjusted to reflect the current traffic conditions. This adjustment will be made by using an annual percent growth rate. This rate will be calculated using historical traffic counts. To determine an appropriate growth rate several methods and data sets have been reviewed. Using both TMC's and ATR counts it was found that there was a wide variance in the growth rates, ranging between negative growth (a decrease in traffic over time) and positive growth rate. Based on the calculated growth rates and using engineering judgement a 2%/annum compound annual growth rate was applied to all the turning movement counts to reflect a 2019 analysis horizon. In addition to the growth rate, it was also found that there was an imbalance in volumes between adjacent intersections (i.e. more vehicles leaving one intersection than arriving at an adjacent intersection). The roadways between the intersections were reviewed to determine if there were any significant origins or destinations. Along Sixth Line, just north of Dundas Street, there are existing residential developments that would account for the difference in approach / departure volumes. Along Burnhamthorpe Road between the Study Area intersections there are no significant origins or destinations that would explain an imbalance in approach / departure volumes. To balance the volumes along the links between the intersection the following methodology was applied: where a difference was identified at the adjacent intersection, volumes were increased. The volumes were added to the turning movement proportionate to the volume of the affected movements. The turning movement count volumes, grown to reflect a 2019 horizon, and balanced with the adjacent intersections, are illustrated in Figure 6. Turning movement count and ATR data is included in Appendix C.

Figure 6: 2019 Balanced Traffic Volumes



3 Future Background Conditions

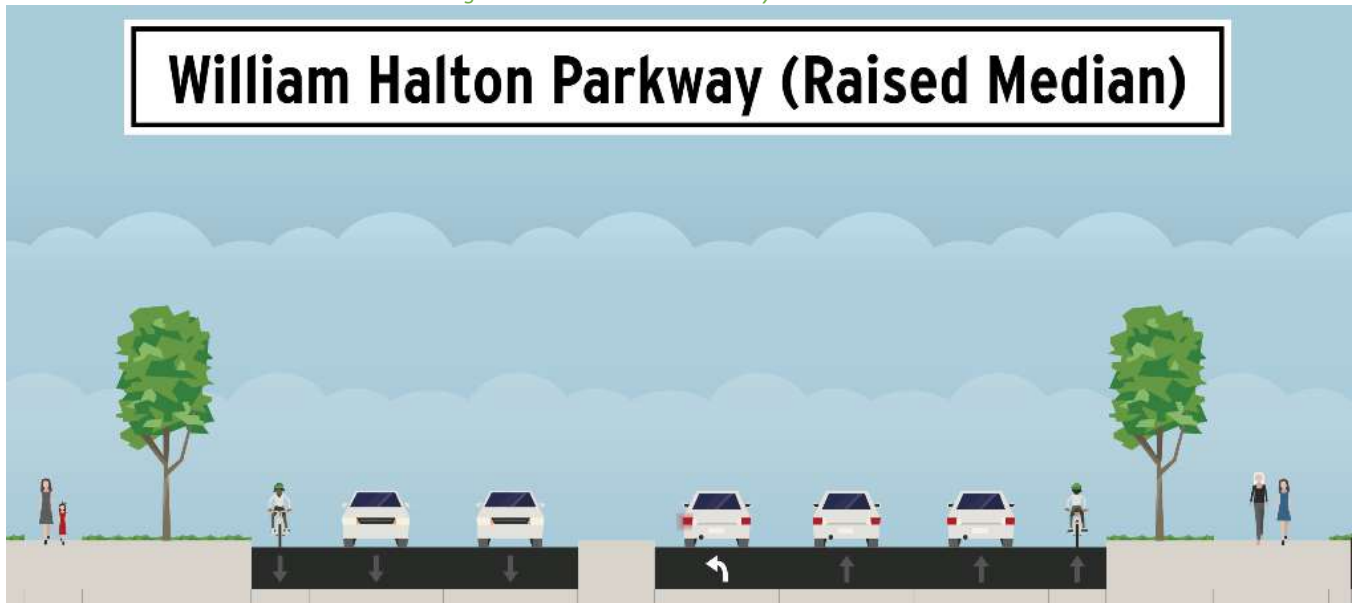
3.1 Planned Conditions

3.1.1 William Halton Parkway

North of, and parallel to, the existing Burnhamthorpe Road corridor is a planned arterial roadway corridor. This corridor, referred to as William Halton Parkway, is to be constructed in multiple phases and will ultimately connect from Bronte Road in the west to Ninth Line in the east. The section relevant to this TIS, Neyagawa Boulevard to Ninth Line, is anticipated to be completed by Winter 2022. The proposed cross-section has been recreated using Streetmix.net, illustrated in Figure 7, and includes the following elements (from left to right):

- 0.5 metre buffer
- 1.5 metre sidewalk
- 4.45 metre planting strip
- 1.5 metre bike lane
- Two 3.5 metre drive lanes
- 2.0 metre median
- 3.25 metre turn lanes (only at intersections)
- Two 3.5 metre drive lanes
- 1.5 metre bike lane
- 2.8 metre planting strip
- 3.0 metre multi-use pathway
- 0.5 metre buffer

Figure 7: William Halton Parkway Cross-Section



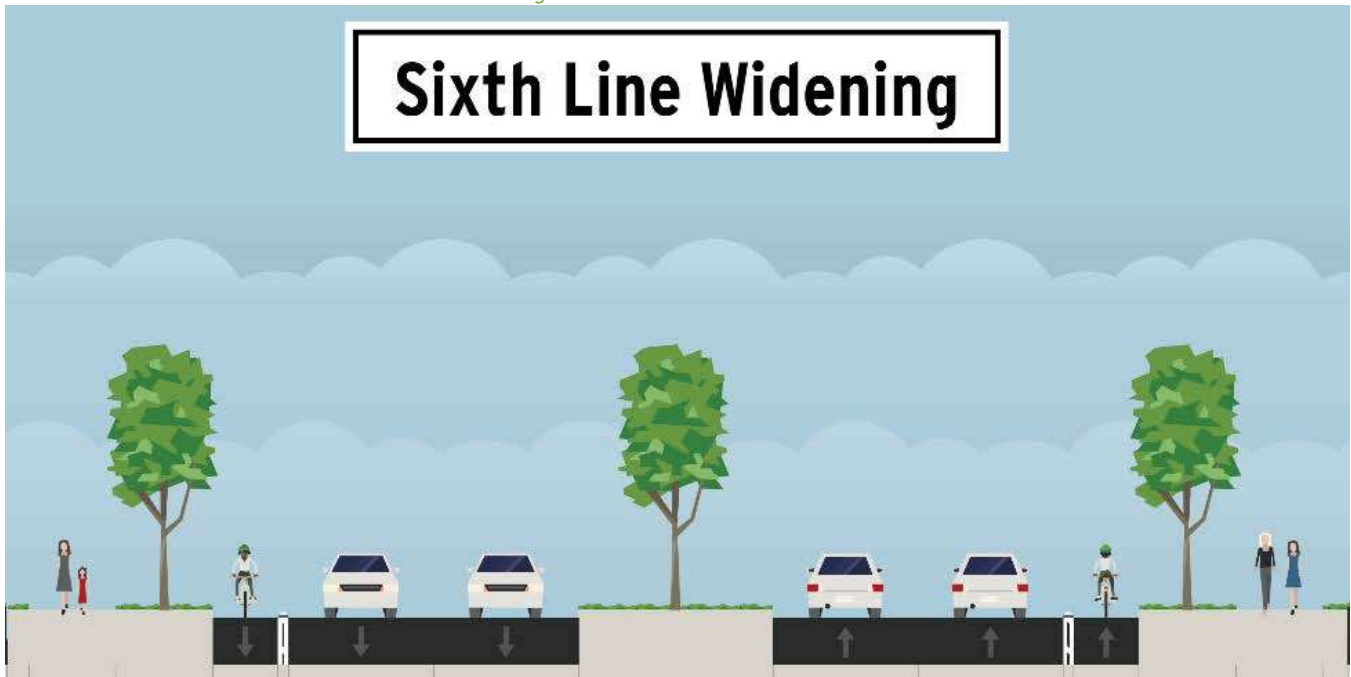
The Region of Halton has indicated that for this TIS a peak hour volume of 2100 vehicles per hour in each direction should be assumed.

3.1.2 Sixth Line Widening

Sixth Line is the main north-south corridor in the Study Area. This corridor has been the subject of an Environmental Assessment to examine widening Sixth Line from two-lanes to four-lanes between Dundas Street and just south of Highway 407. The proposed cross-section has been recreated using Streetmix.net, illustrated in Figure 8 and includes the following elements (from left to right):

- 0.5 metre buffer
- 2.0 metre sidewalk
- 2.25 metre planting strip
- 1.55 metre bike lane
- 0.25 metre buffer strip
- Two 3.35 metre drive lanes
- 4.5 metre median (would accommodate left turn lanes where needed)
- Two 3.35 metre drive lanes
- 0.25 metre buffer strip
- 1.55 metre bike lane
- 2.25 metre planting strip
- 2.0 metre sidewalk
- 0.5 metre buffer

Figure 8: Sixth Line Cross-Section



3.1.3 Other Study Area Developments

Along Sixth Line are several ongoing developments. The TISs for those developments have been reviewed to determine the amount of background traffic that would be added to the Study Area road network as a result of those developments. The following nearby developments will be considered as part of the background traffic growth:

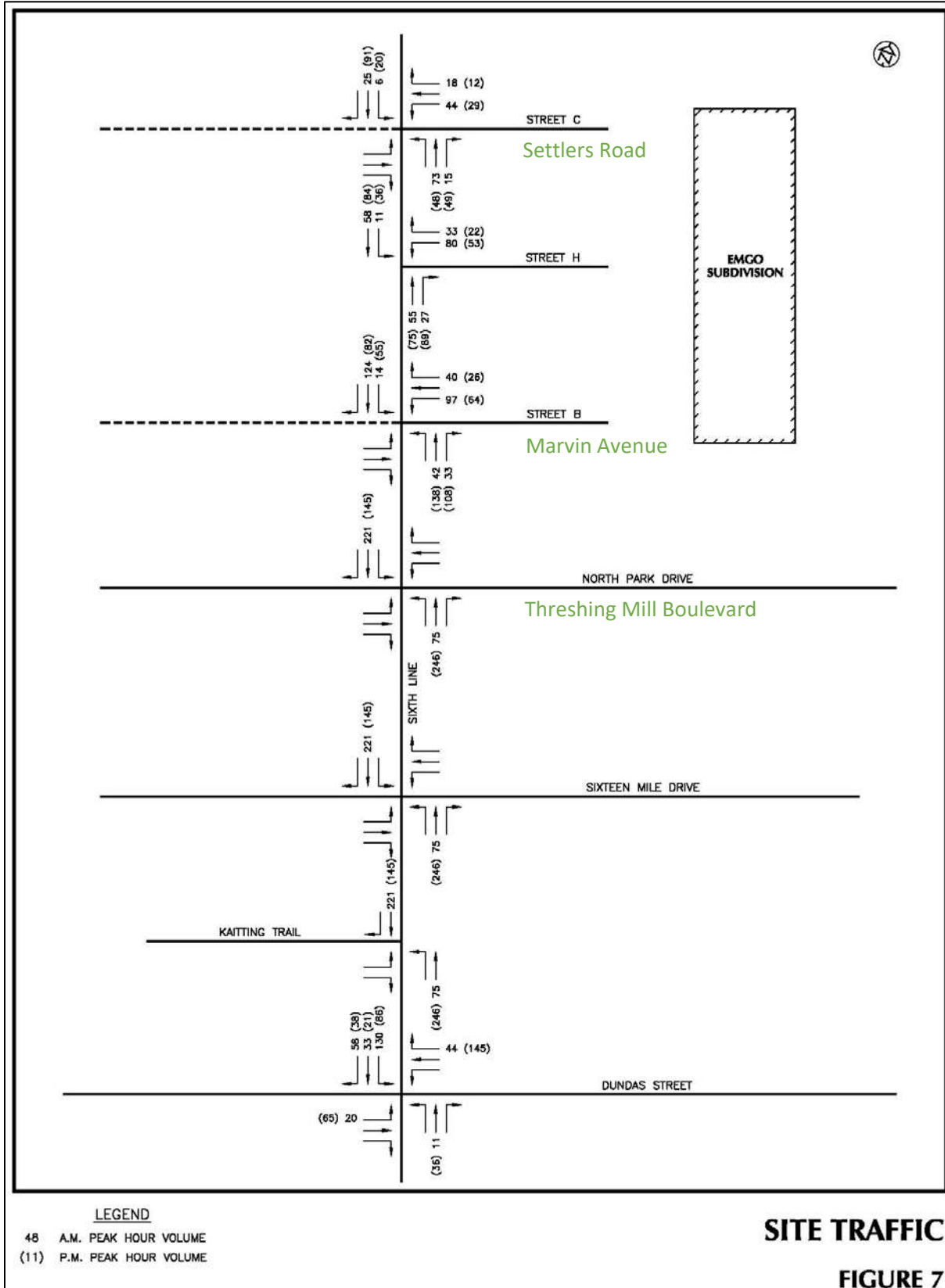
- EMGO North Oakville
- Petgor
- Sixth Line Corporation (NE Corner of Sixth Line at Dundas Street)
- Star Oak (NE Corner of Burnhamthorpe Road at Sixth Line)

Each background development, and the traffic associated with it, has been summarized in the subsections below.

3.1.3.1 EMGO North Oakville

The EMGO North Oakville development is located along Sixth Line between Dundas Street and Burnhamthorpe Road. This development includes 618 residential units with a mix of detached single-family units, and townhouse type units. Access to this development will be via three accesses on Sixth Line, two of which align with proposed accesses to the Neighbourhood 9/10/11 developments (Settlers Road and Marvin Avenue). The traffic generated by the EMGO development is summarized in Figure 9, commentary in green has been added to denote the updated name of the streets for ease of reference.

Figure 9: EMGO Site Generated Traffic

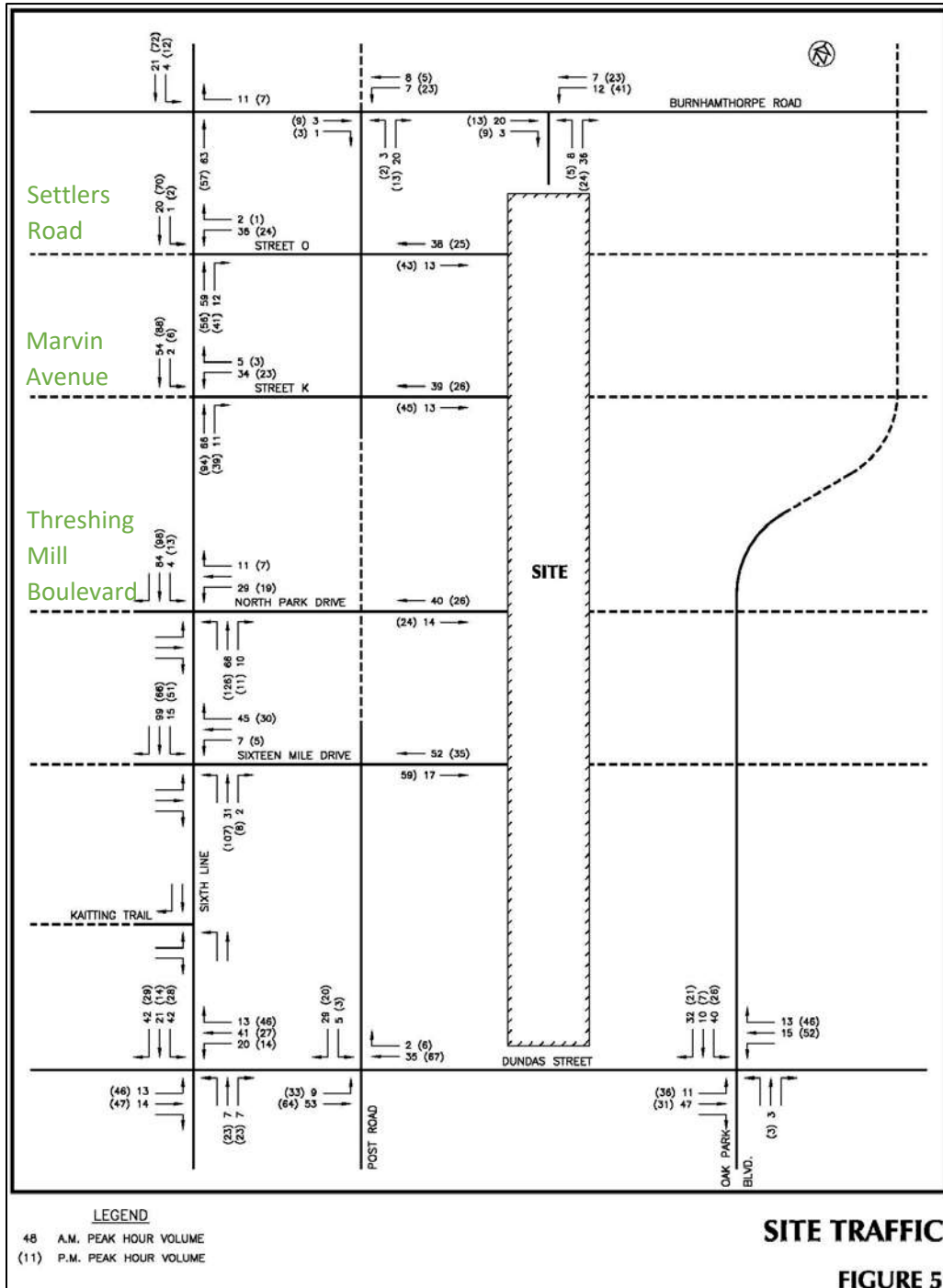


Reference: Traffic Impact Study EMGO Draft Plan North Oakville; Reed, Voorhees & Associates; September 2012

3.1.3.2 Petgor Draft Plan North Oakville

The Petgor Draft Plan North Oakville development is located between Sixth Line and Trafalgar Road, approximately halfway between the two roads. This development includes 780 residential units with a mix of detached single-family units, and townhouse units. Access to this development will be via roads through the adjacent developments to both Sixth Line and Trafalgar Road and direct access onto Burnhamthorpe Road. Three of the accesses onto Sixth Line align with proposed accesses to the Neighbourhood 9/10/11 developments (Settlers Road, Marvin Avenue, and Threshing Mill Boulevard). The traffic generated by the Petgor development is summarized in Figure 10, commentary in green has been added to denote the updated name of the streets for ease of reference.

Figure 10: Petgor Site Generated Traffic

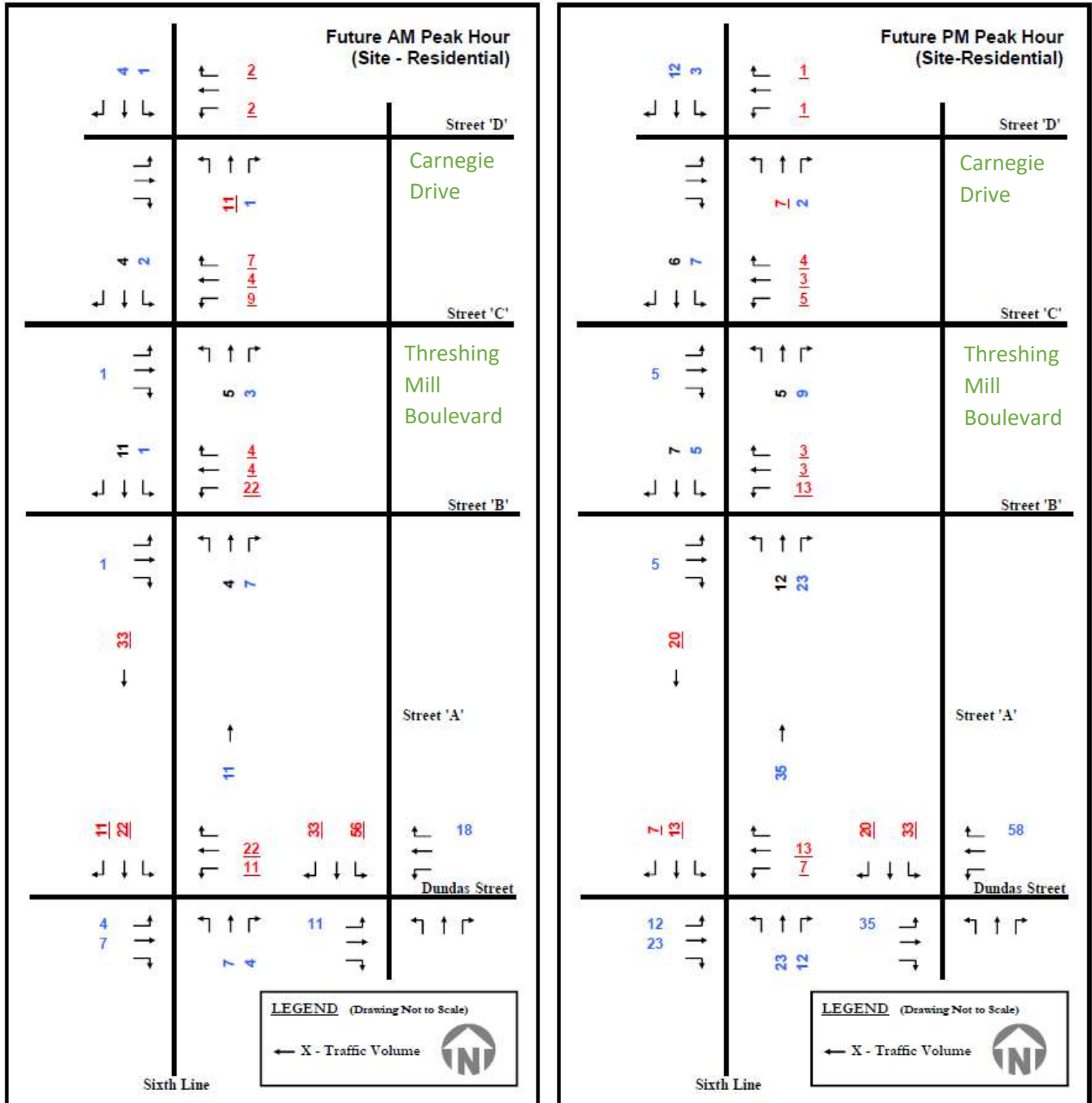


Reference: Traffic Impact Study Petgor Draft Plan North Oakville; Reed, Voorhees & Associates; December 2012

3.1.3.3 Sixth Line Corporation

The Sixth Line Corporation development is located at the northeast quadrant of Sixth Line at Dundas Street. This development includes 530 residential units with a mix of detached single-family units, and townhouse type units. Access to this development will be via three accesses on Sixth Line, two of which align with proposed accesses to the Neighbourhood 9/10/11 developments (Carnegie Drive and Threshing Mill Boulevard). The traffic generated by the Sixth Line Corporation is summarized in Figure 11, commentary in green has been added to denote the updated name of the streets for ease of reference.

Figure 11: Sixth Line Corporation Site Generated Traffic

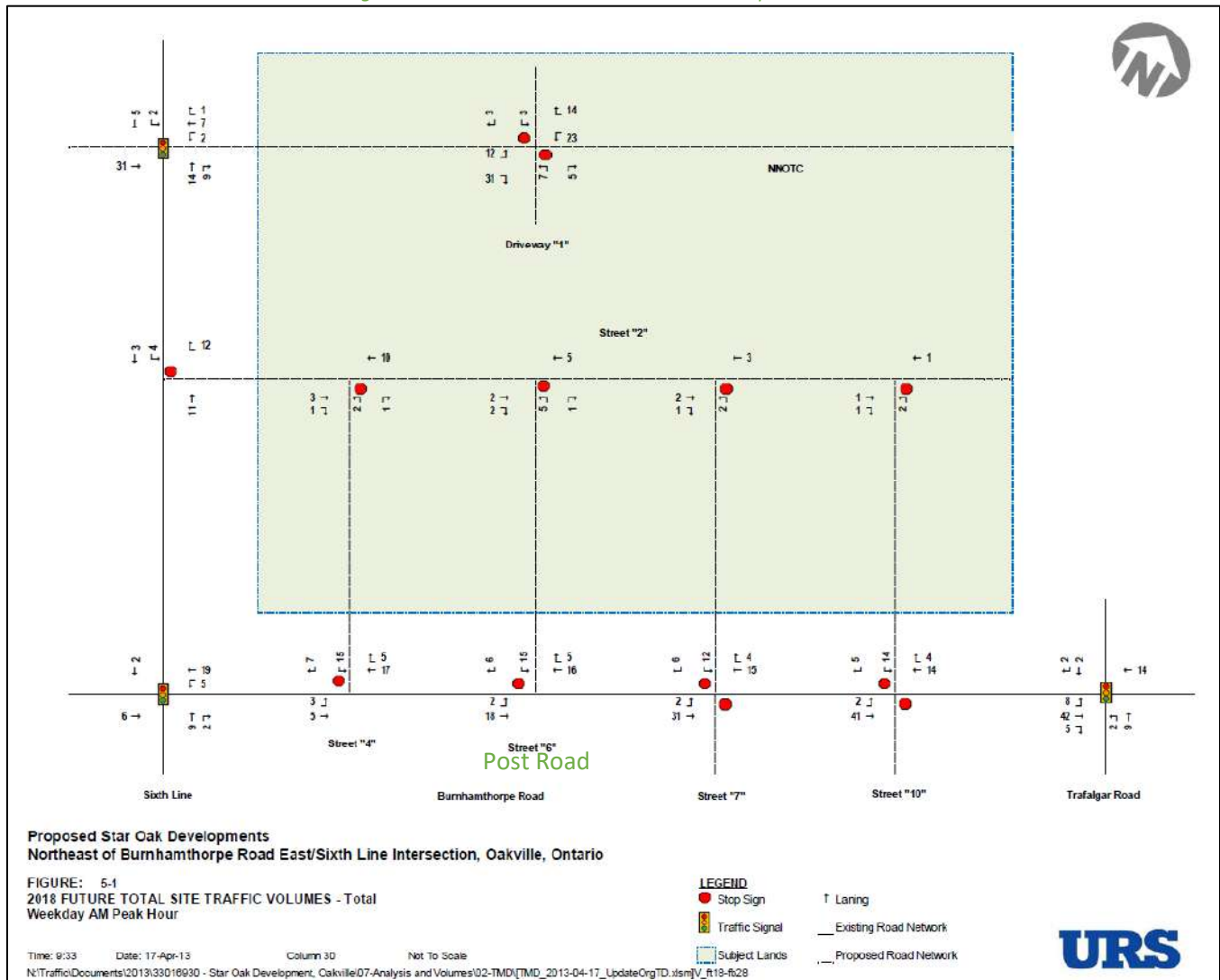


Reference: Traffic Impact Study Sixth Line Development Town of Oakville; URS Canada; November 2012

3.1.3.4 Star Oak (Northeast Corner of Burnhamthorpe Road at Sixth Line)

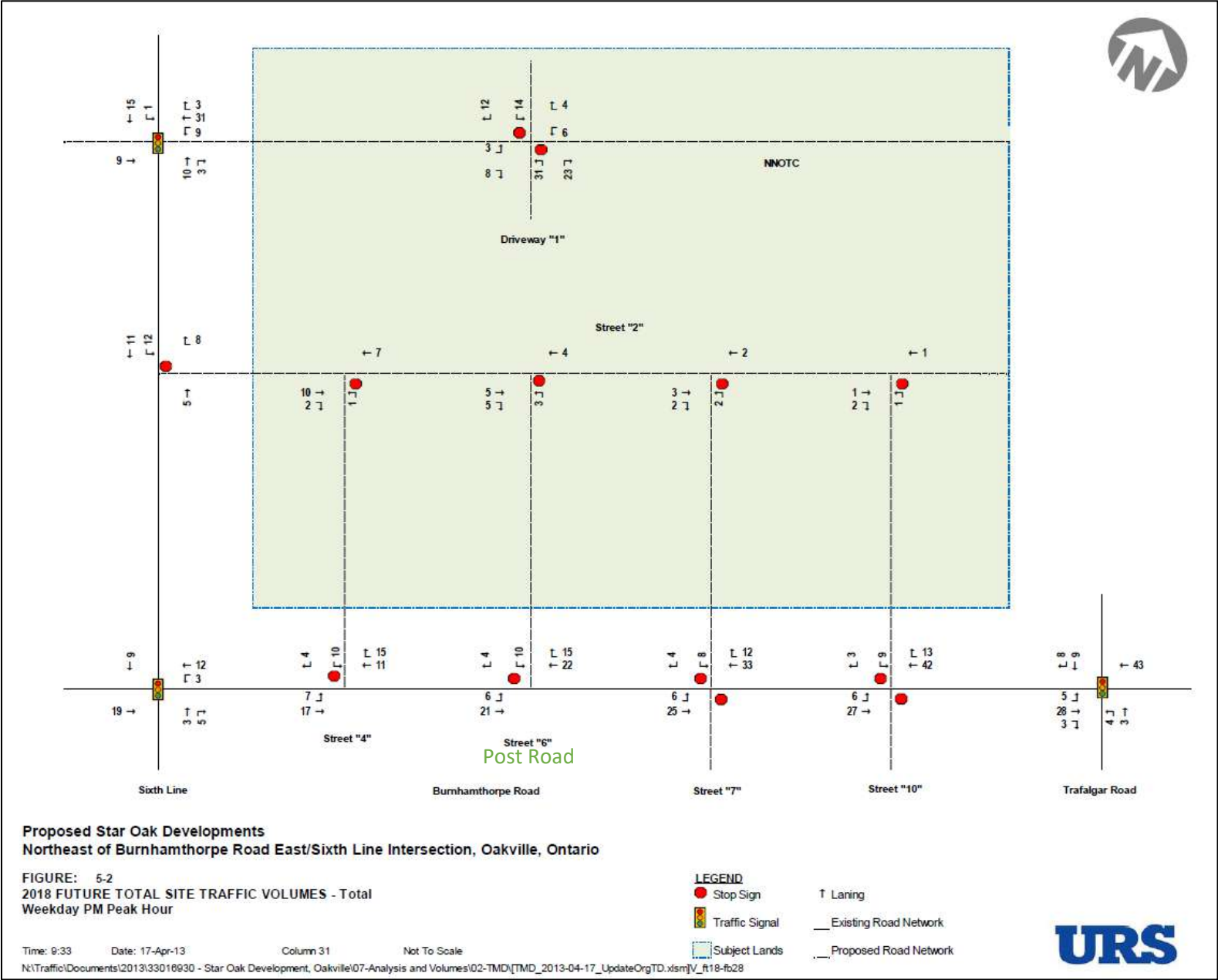
The Star Oak development is located at the northeast quadrant of Burnhamthorpe Road at Sixth Line. This development includes 217 residential units with a mix of detached single-family units, and townhouse type units and 154,000 square metres of employment uses. The residential portion of the development is anticipated to be completed prior to the 2024 horizon of this study. The employment uses are not anticipated to be completed until 2028, prior to the 2030 horizon of this study. This development will connect to the road network via accesses on Sixth Line, Burnhamthorpe Road, and William Halton Parkway, one of the accesses on Burnhamthorpe Road aligns with one of the proposed accesses to the Neighbourhood 9/10/11 developments (Post Road). The traffic generated by the Star Oak Development is summarized in Figure 12 and Figure 13 for the residential portion of the development. Figure 14 and Figure 15 illustrate the trips generated by the Star Oak Development. Commentary in green has been added to denote the updated name of the streets for ease of reference.

Figure 12: Star Oak 2018 AM Peak Hour Site Trip Generation



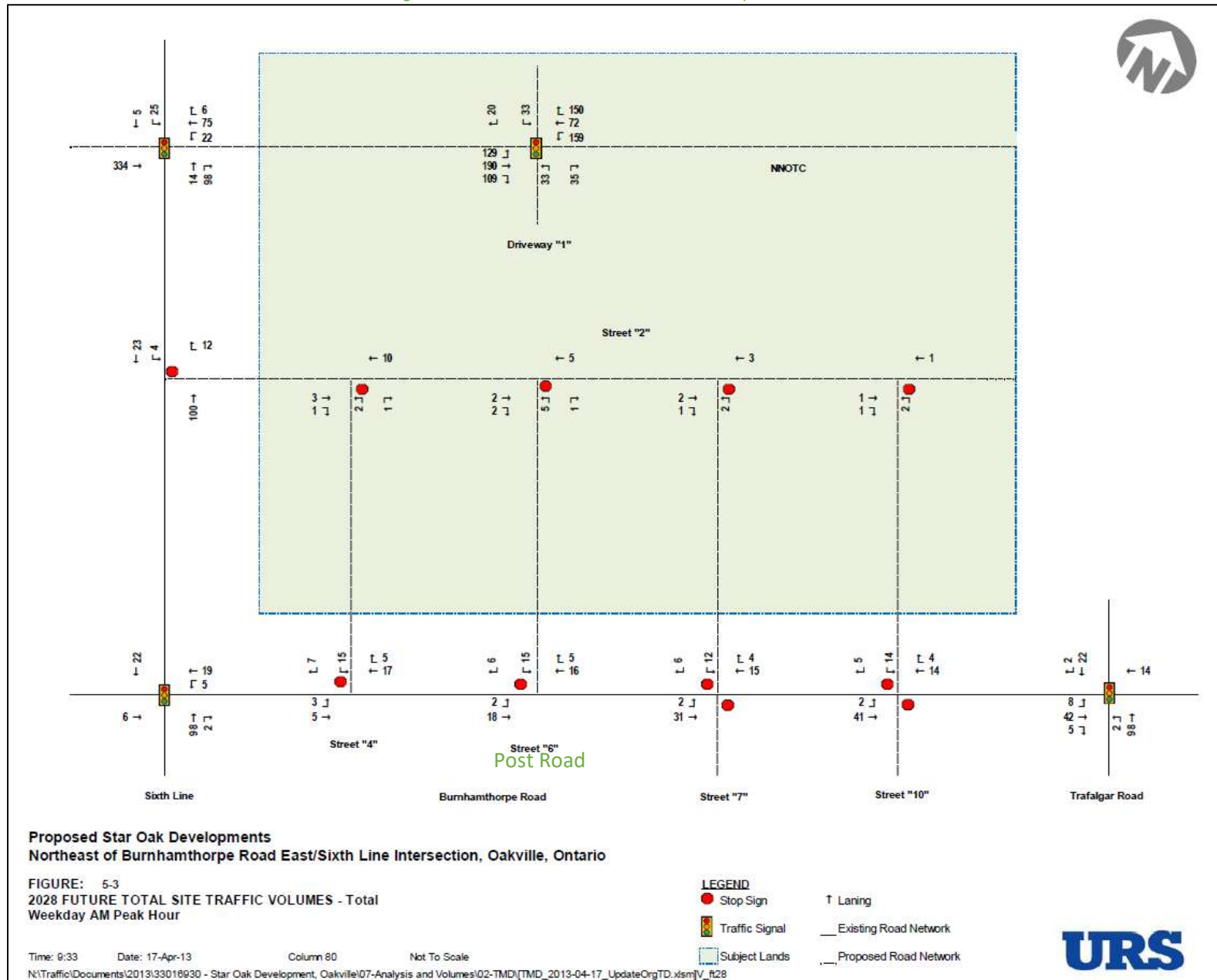
Reference: Traffic Impact Study Star Oak Developments Town of Oakville; URS Canada; April 2013

Figure 13: Star Oak 2018 PM Peak Hour Site Trip Generation



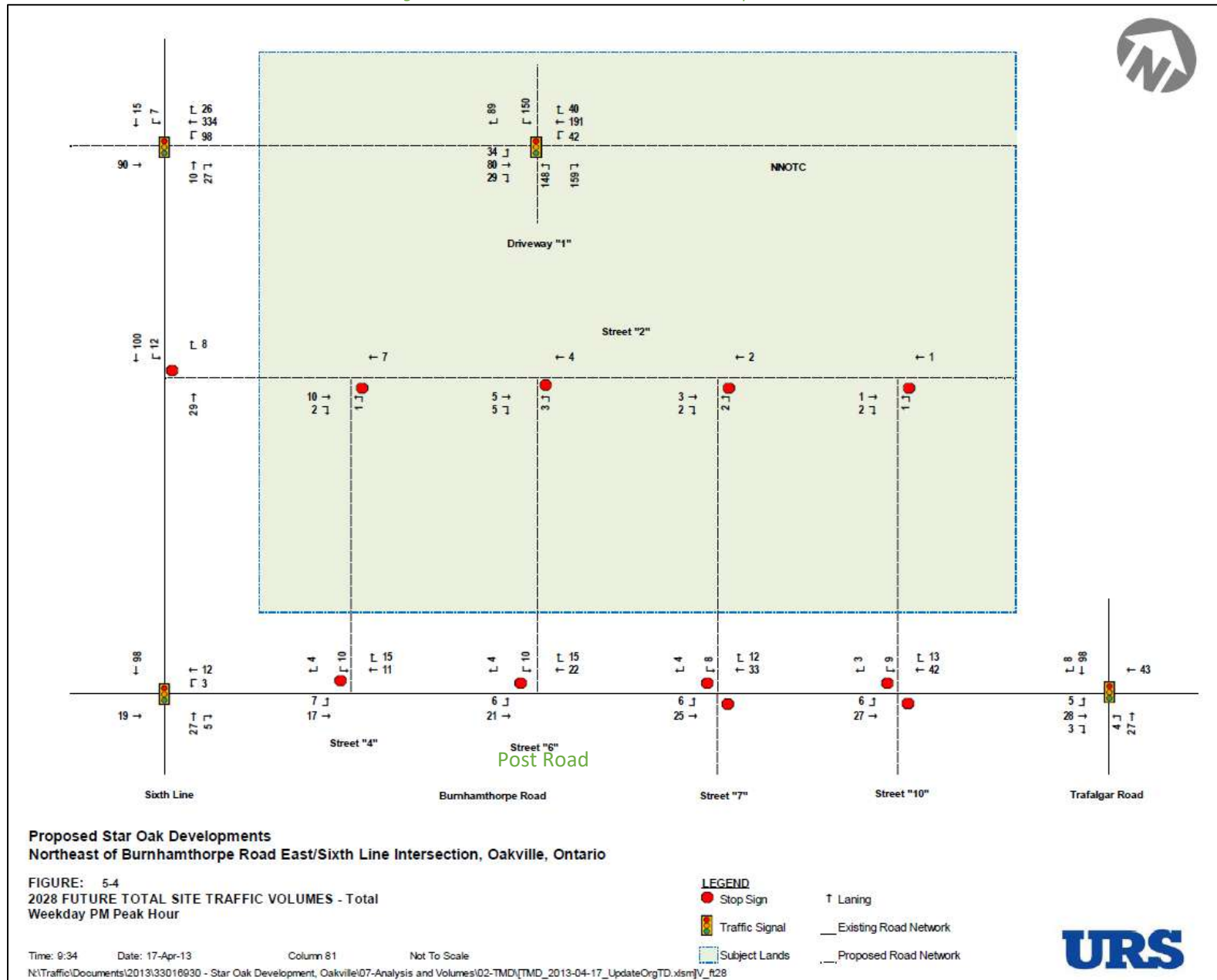
Reference: Traffic Impact Study Star Oak Developments Town of Oakville; URS Canada; April 2013

Figure 14: Star Oak 2028 AM Peak Hour Site Trip Generation



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

Figure 15: Star Oak 2028 PM Peak Hour Site Trip Generation



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

3.1.4 Background Growth

As discussed in Section 2.5 historical traffic counts have been reviewed to determine the historical growth rate. A 2% compound annual growth rate was selected.

3.1.5 Future Background Traffic Volumes

Using the background growth rate, the balanced 2019 turning movement volumes were grown to reflect the 2024 and 2030 future background traffic volumes. Additionally, at Neyagawa Boulevard and Burnhamthorpe Road the volumes have been increased to reflect the future eastbound and westbound volumes on William Halton Parkway. To reflect that William Halton Parkway will replace the functionality of Burnhamthorpe Road, the eastbound and westbound traffic volumes on Burnhamthorpe Road have been reduced as the new facility will carry that traffic. This was done by assuming that traffic that is eastbound and westbound through Neyagawa Boulevard would utilize the new William Halton Parkway whereas most traffic that is turning at any of the intersections along Burnhamthorpe Road, including Neyagawa Boulevard, would remain on Burnhamthorpe Road. Using these assumptions, traffic from Burnhamthorpe Road was reassigned and layered onto the background growth. Figure 16, Figure 17, and Figure 18 illustrate the 2024 future background traffic volumes. Figure 19, Figure 20, and Figure 21 illustrate the 2030 future background traffic volumes.

Figure 16: 2024 Future Background Traffic Volumes (Sheet A)

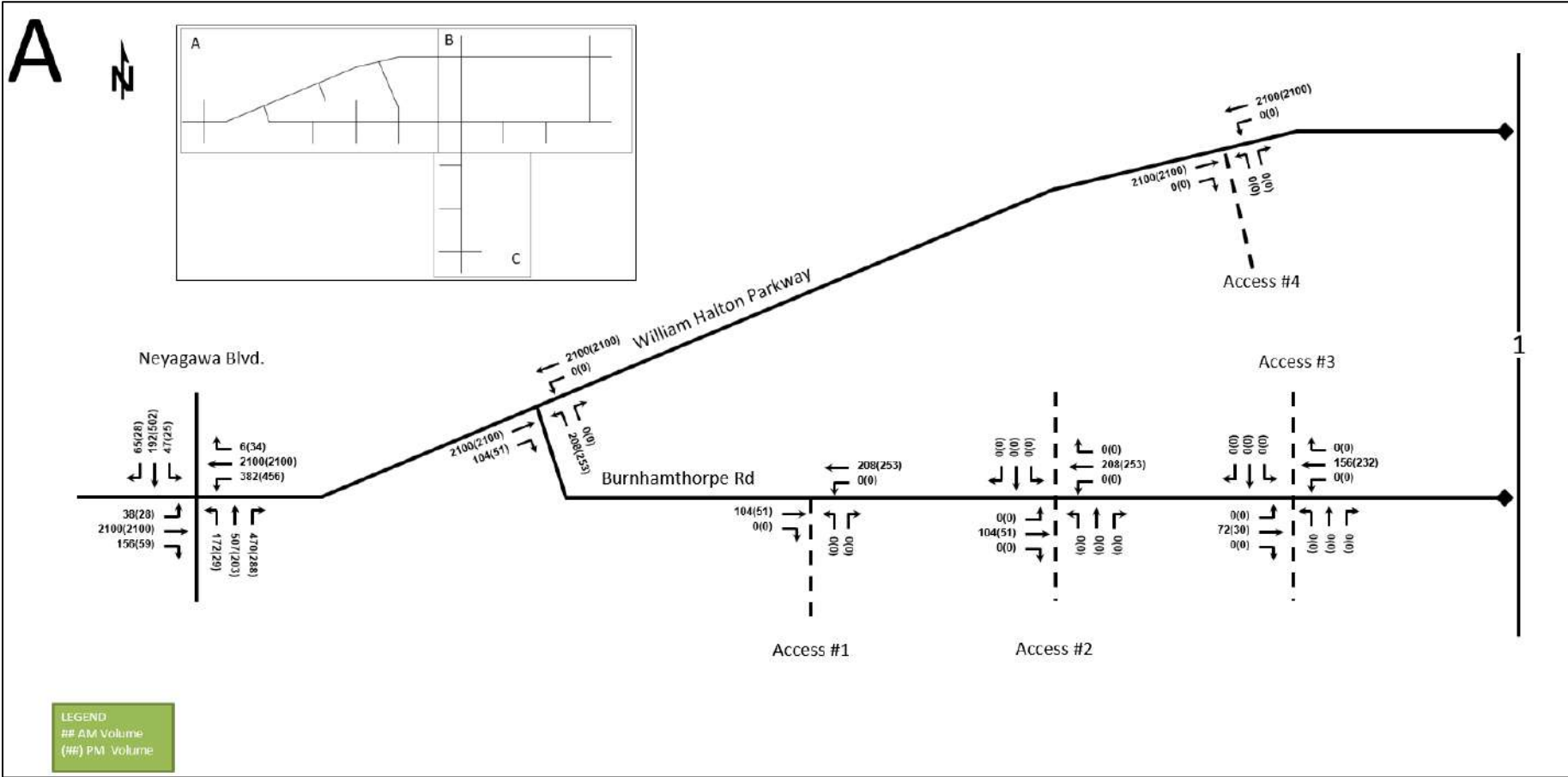


Figure 17: 2024 Future Background Traffic Volumes (Sheet B)

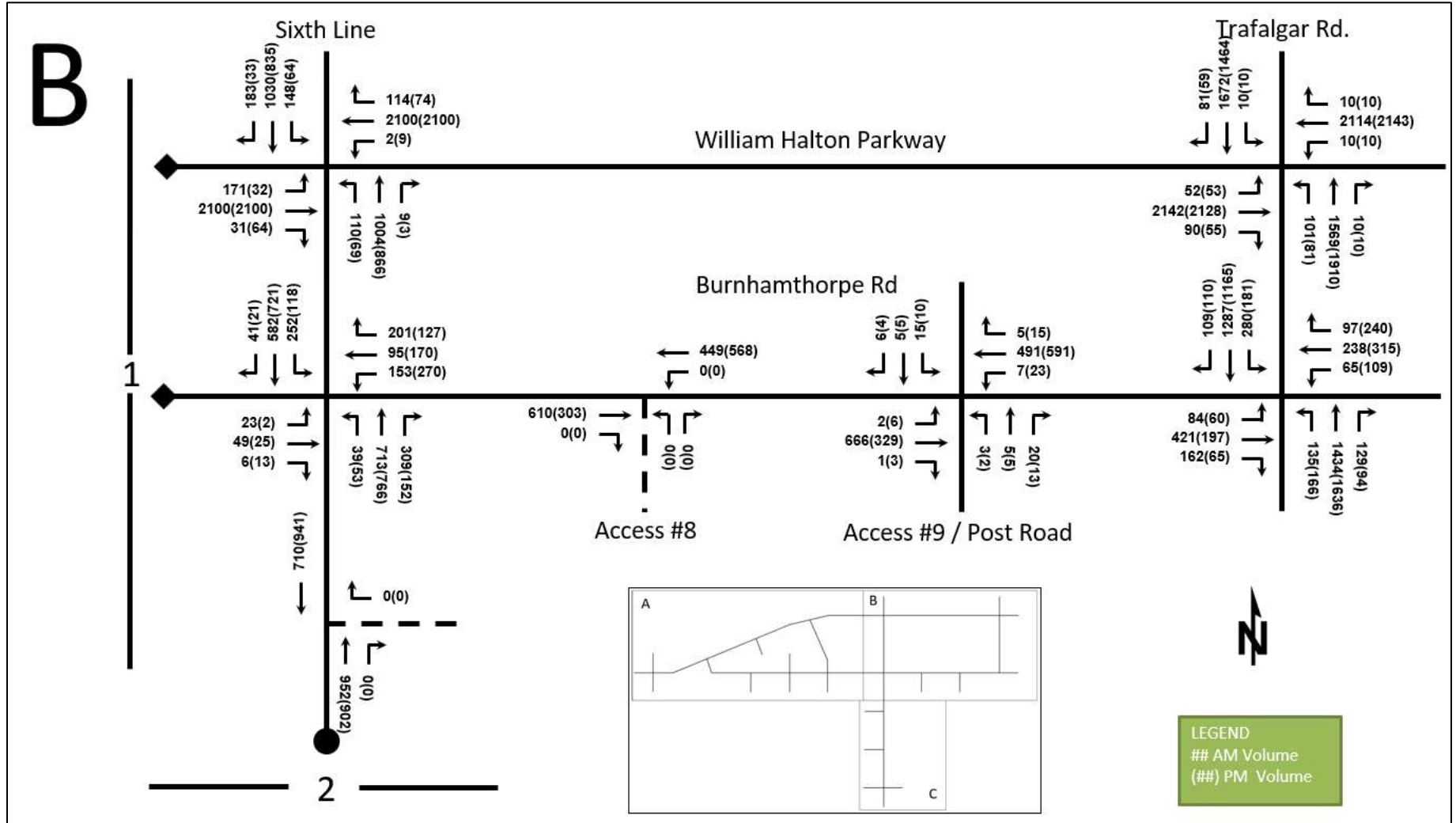


Figure 18: 2024 Future Background Traffic Volumes (Sheet C)

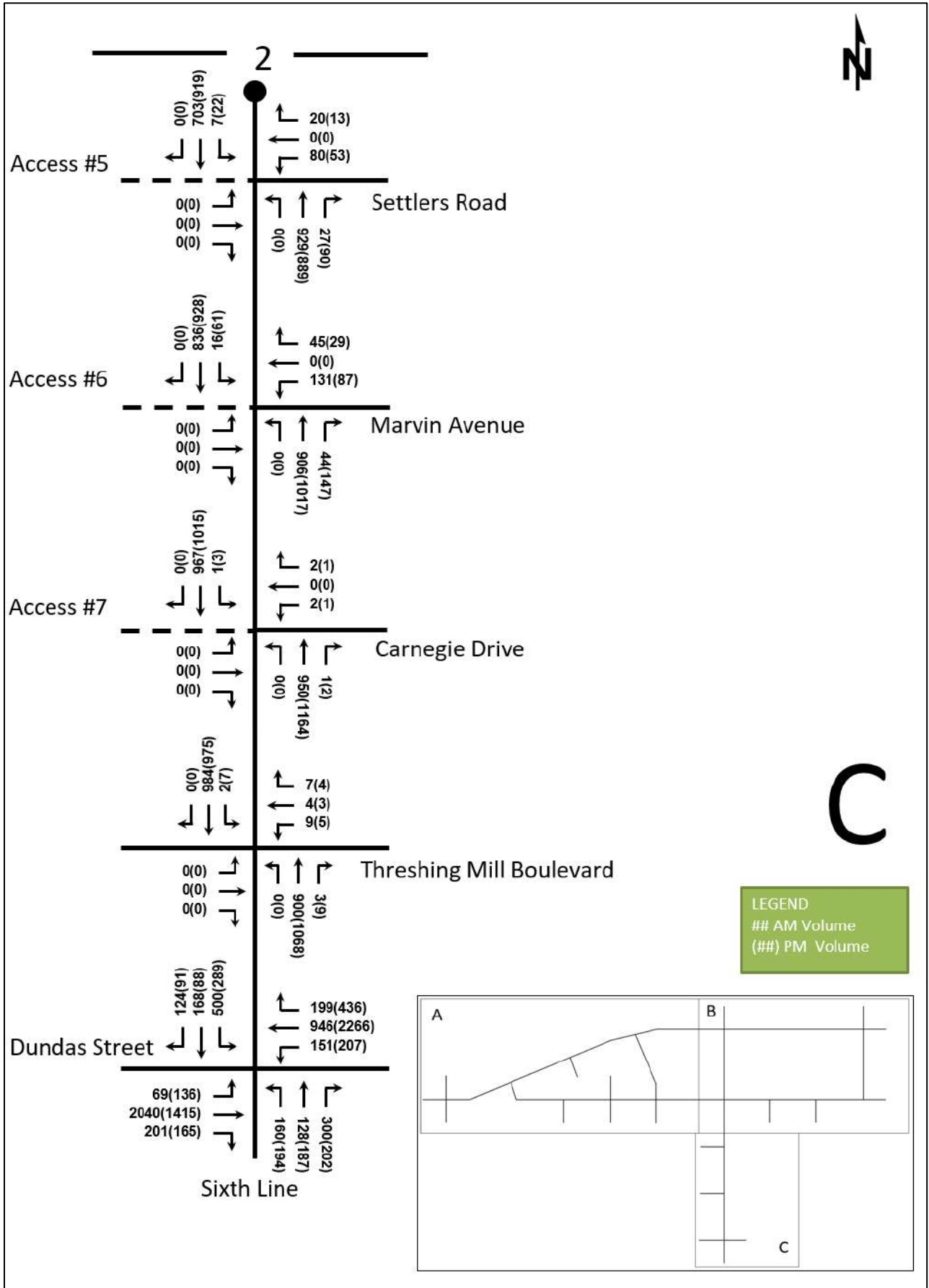


Figure 19: 2030 Future Background Traffic Volumes (Sheet A)

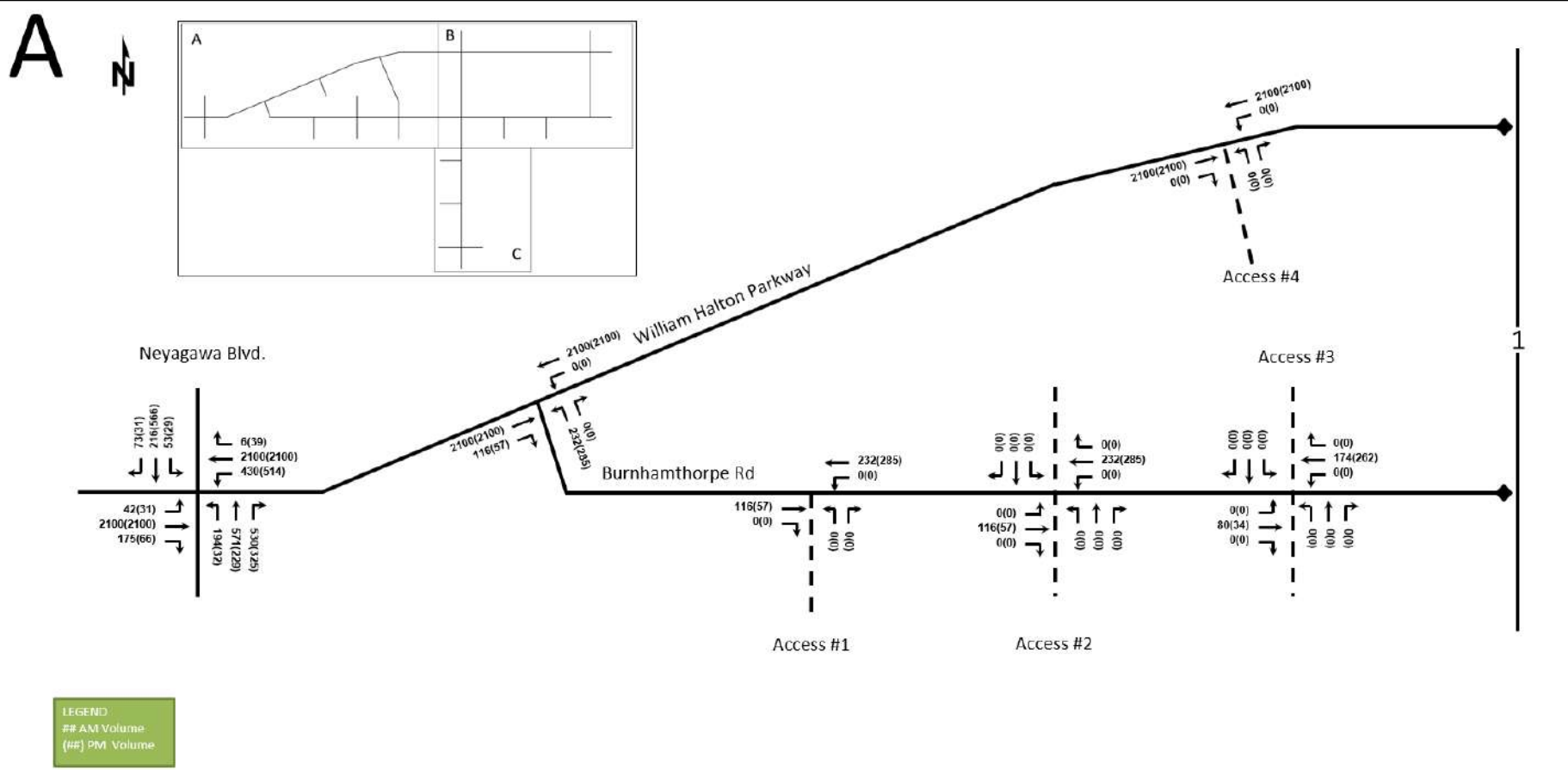


Figure 20: 2030 Future Background Traffic Volumes (Sheet B)

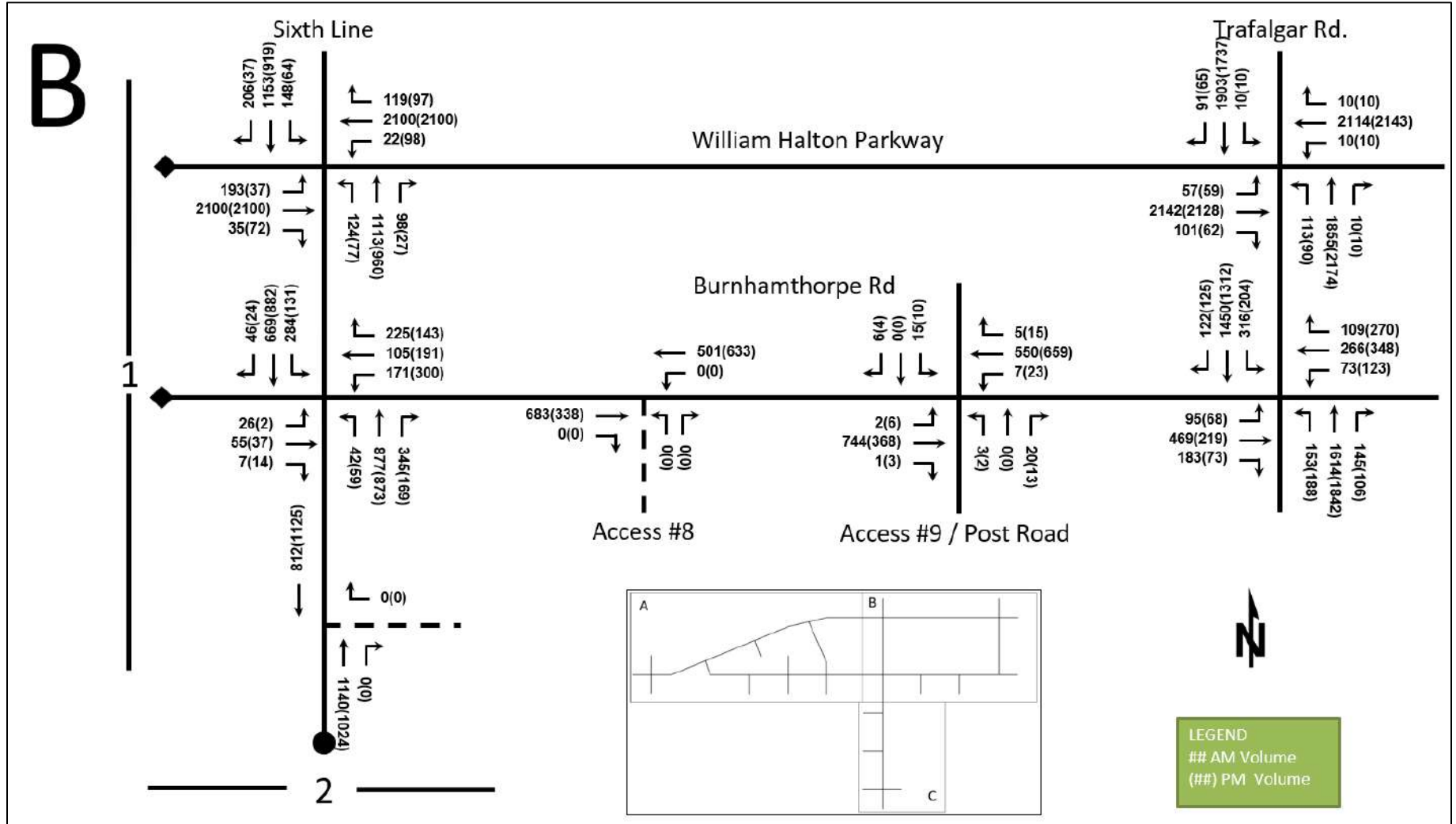
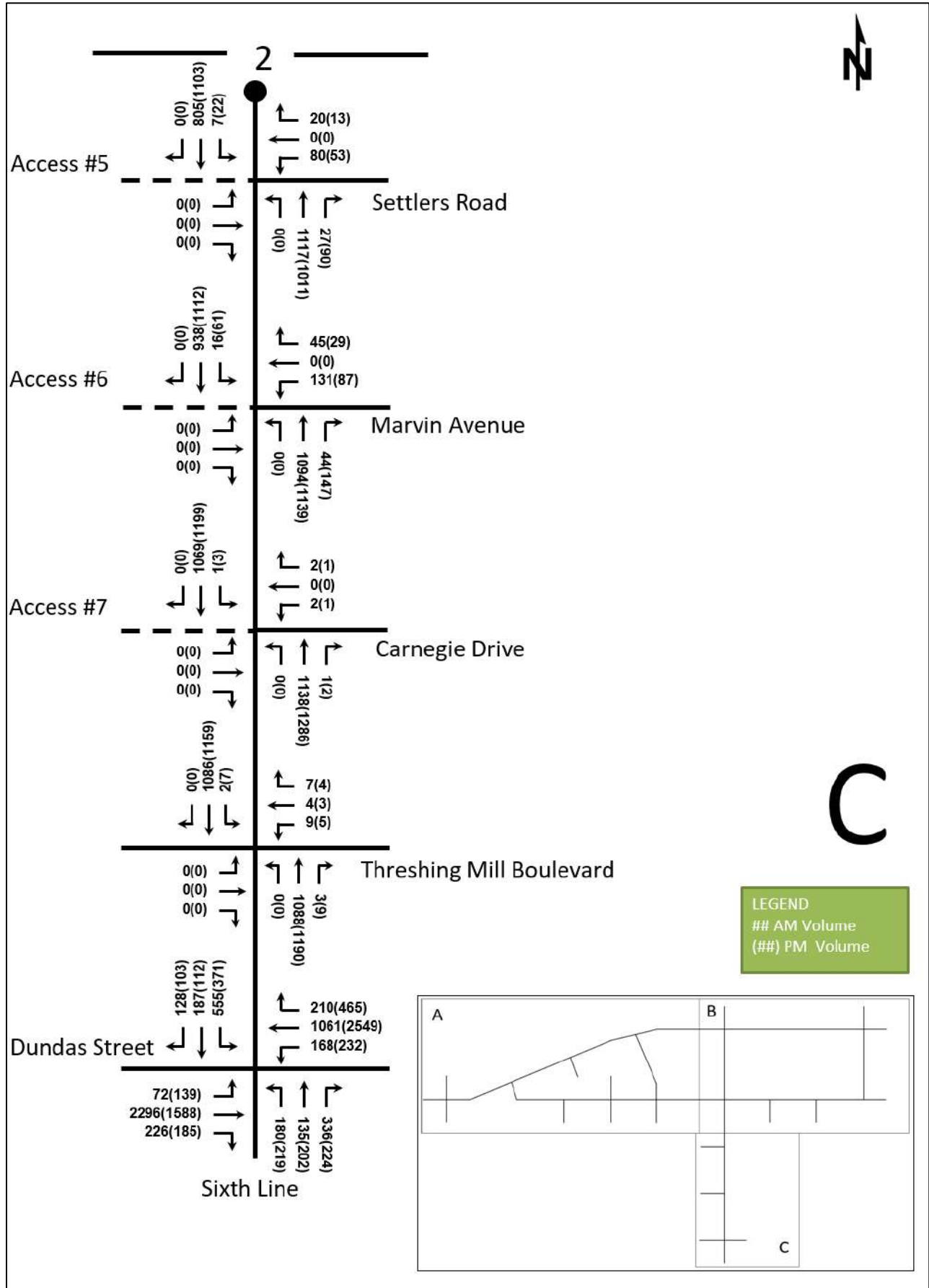


Figure 21: 2030 Future Background Traffic Volumes (Sheet C)



4 Forecasting

4.1 Development-Generated Travel Demand

4.1.1 Trip Generation and Mode Shares

The ITE Trip Generation Manual 10th Edition has been reviewed to determine the appropriate trip generation rate equations for the proposed land uses. The rate equations were used to determine appropriate vehicle trip generation rates. The Multifamily Housing (Low-Rise) is used to estimate trips for townhouses and semi-detached housing. To estimate person trip generation the calculated vehicle trip generation rates were multiplied by a factor of 1.28. Table 2 summarizes the person trip rates for the proposed land uses.

Table 2: TRANS Trip Generation Person Trip Rates

Property	Dwelling Type	ITE LUC	Peak Hour	Vehicle Trip Rate	Person Trip Rates
Argo (West Morrison Creek) Limited	Single Family Detached	210	AM	0.77	0.99
			PM	1.02	1.31
	Multifamily Housing (Low-Rise)	220	AM	0.47	0.60
			PM	0.56	0.72
Crosstrail Estates Inc. and TWKD Developments Inc.	Multifamily Housing (Low-Rise)	220	AM	0.46	0.59
			PM	0.54	0.69
Digram Developments Oakville Inc.	Multifamily Housing (Low-Rise)	220	AM	0.46	0.59
			PM	0.56	0.72
	Multifamily Housing (Mid-Rise)	221	AM	0.34	0.44
			PM	0.59	0.76
Docasa Group Ltd.	Single Family Detached	210	AM	0.73	0.93
			PM	0.99	1.27
	Multifamily Housing (Low-Rise)	220	AM	0.47	0.60
			PM	0.58	0.74
Mattamy Preserve North	Single Family Detached	210	AM	0.72	0.92
			PM	0.96	1.23
	Multifamily Housing (Low-Rise)	220	AM	0.51	0.65
			PM	0.70	0.90
Mattamy Hulme / SGGC	Multifamily Housing (Low-Rise)	220	AM	0.46	0.59
			PM	0.55	0.70
	Multifamily Housing (Mid-Rise)	221	AM	0.34	0.44
			PM	0.61	0.78
G.C. Family Investments	Multifamily Housing (Low-Rise)	220	AM	0.54	0.69
			PM	0.76	0.97
Star Oak Development Limited	Single Family Detached	210	AM	0.76	0.97
			PM	1.01	1.29
	Multifamily Housing (Low-Rise)	220	AM	0.49	0.63
			PM	0.62	0.79
Timsin Holding Corp.	Single Family Detached	210	AM	0.88	1.13
			PM	1.07	1.37
	Multifamily Housing (Low-Rise)	220	AM	0.52	0.67
			PM	0.71	0.91

LUC – Land Use Code

Using the above person trip rates, the total person trip generation for the combined development area has been estimated and is summarized in Table 3. No synergy or pass-by trip reduction factors have been applied to the trip generation.

Table 3: Total Person Trip Generation

Land Use	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Total Person Trips	342	1079	1421	1166	690	1856

Mode share information has been provided by Halton Region Staff for 2026 and 2031, these have been assumed to apply to the 2024 and 2030 horizon. The mode shares are summarized in Table 4.

Table 4: Mode Share Assumptions

Travel Mode	2024 Mode Share	2030 Mode Share
Auto Driver	65%	60%
Auto Passenger	15%	15%
Transit	15%	20%
Non-Auto	5%	5%
Total	100%	100%

Using the above mode shares and person trip rates, the person trips by mode have been projected. Table 5 summarizes the 2024 trip generation by mode.

Table 5: 2024 Trip Generation by Mode

Travel Mode	Mode Share	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Auto Driver	65%	222	701	924	758	451	1207
Auto Passenger	15%	51	162	213	175	102	277
Transit	15%	51	162	213	175	102	277
Non-Auto Modes	5%	18	54	71	58	35	95
Total	100%	342	1079	1421	1166	690	1856

Table 6 summarizes the 2030 trip generation by mode.

Table 6: 2030 Trip Generation by Mode

Travel Mode	Mode Share	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Auto Driver	60%	206	648	851	702	414	1114
Auto Passenger	15%	51	162	215	175	104	278
Transit	20%	70	214	284	230	137	370
Non-Auto Modes	5%	15	55	71	59	35	94
Total	100%	342	1079	1421	1166	690	1856

As shown above, 1421 AM and 1856 PM peak hour two-way person trips are projected as a result of the proposed development. With the shift in mode share anticipated between the 2024 horizon and the 2030 horizon, the total number of auto drivers would be reduced.

4.1.2 Trip Distribution

To understand the travel patterns of the subject development the Travel Tomorrow Survey (TTS) has been reviewed to determine the existing travel patterns for Oakville. Table 7 below summarizes the distribution.

Table 7: OD Survey Existing Mode Share – Oakville

To/From	Percent of Trips
North	15%
South	35%
East	20%
West	30%
Total	100%

4.1.3 Trip Assignment

Using the distribution outlined above, turning movement splits, and access to major transportation infrastructure, the trips generated by the site have been assigned to the Study Area road network. The percent assignment has been completed for each property individually based on the access points. The total 2024 site generated traffic volumes for the combined developments are summarized in Figure 22, Figure 23, and Figure 24. Due to the size of the Study Area the following figures are not to scale, and the road network has been split across three figures. A key plan is inset into each figure to help understand the traffic figures. The total 2030 site generated traffic volumes for the combined developments are summarized in Figure 25, Figure 26, and Figure 27.

4.1.4 Future Total Travel Demands

The site generated traffic has been combined with the 2024 and 2030 future background traffic volumes to estimate the future total traffic volumes. The 2024 total future traffic volumes are illustrated in Figure 28, Figure 29, and Figure 30. The 2030 total future traffic volumes are illustrated in Figure 31, Figure 32, and Figure 33.

Figure 22: 2024 Traffic Assignment (Sheet A)

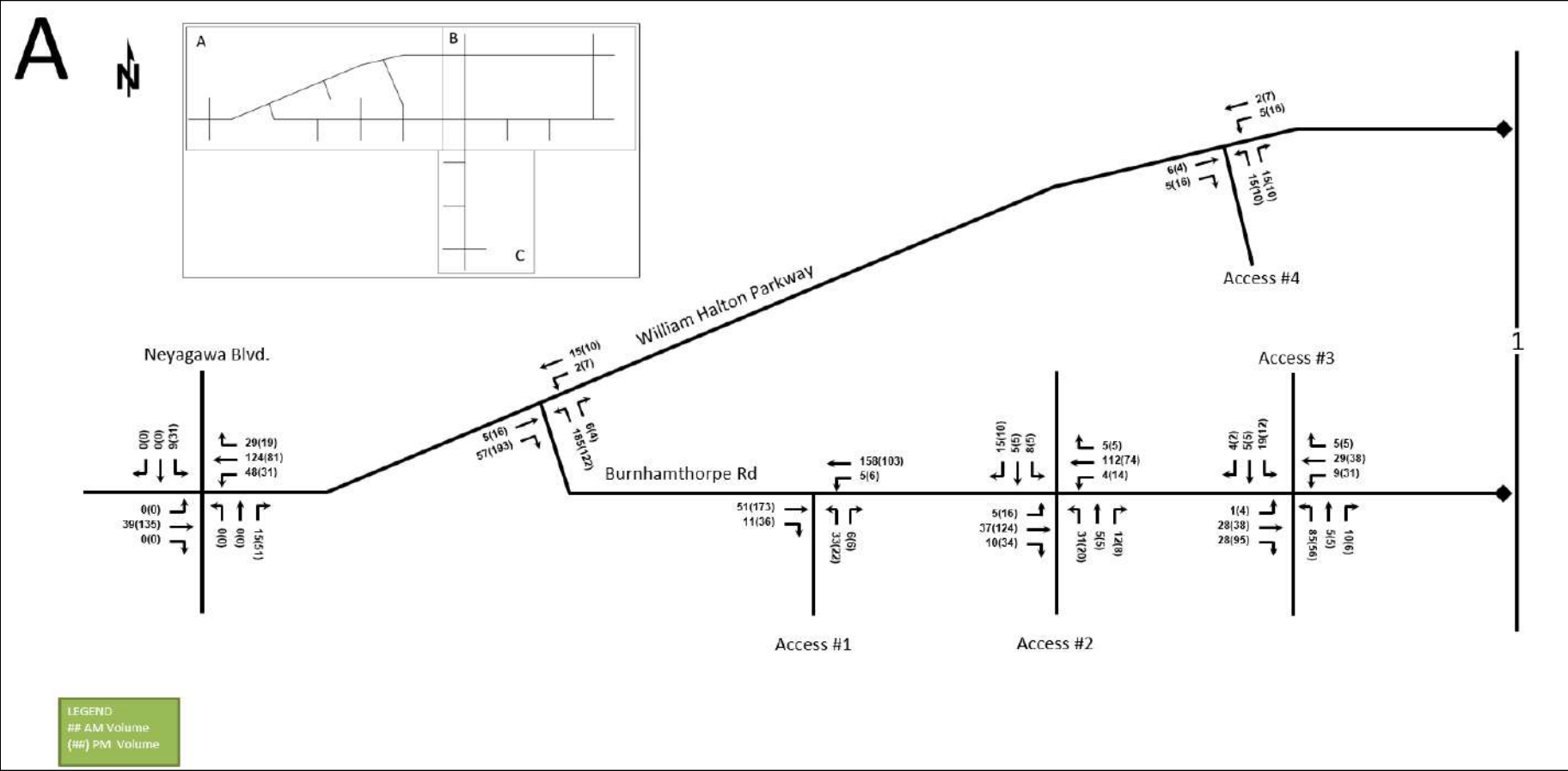


Figure 23: 2024 Traffic Assignment (Sheet B)

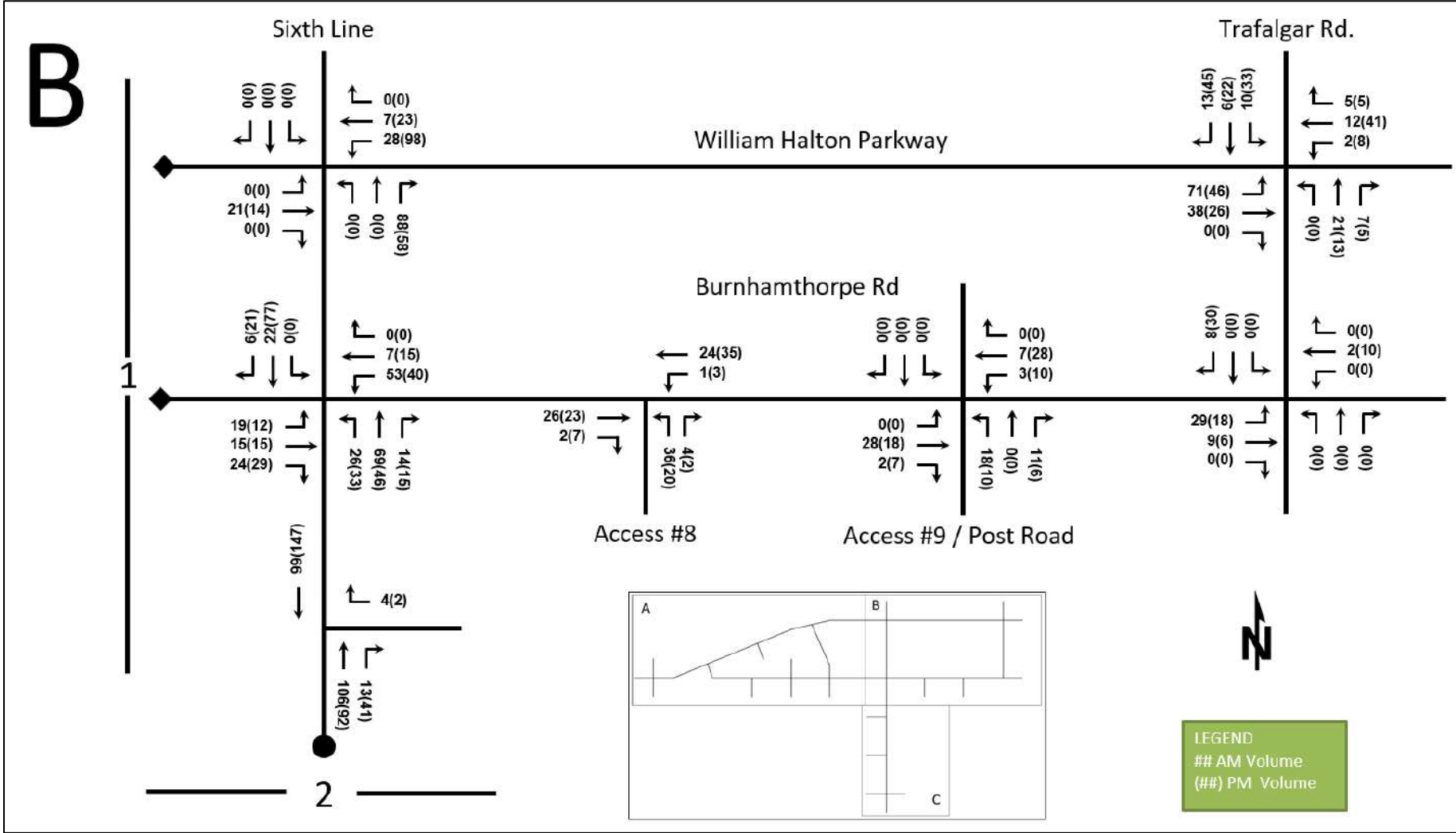


Figure 24: 2024 Traffic Assignment (Sheet C)

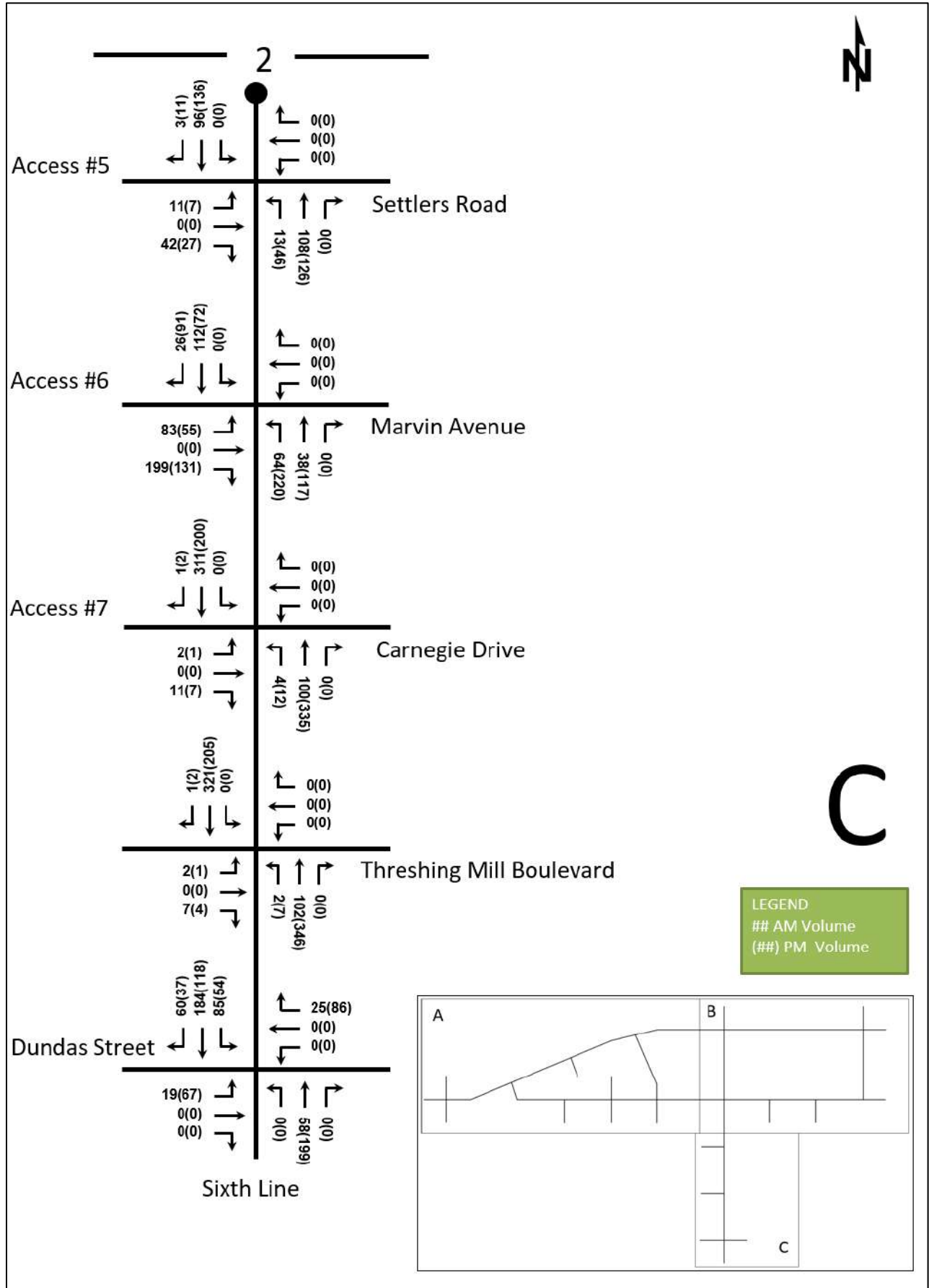


Figure 25: 2030 Traffic Assignment (Sheet A)

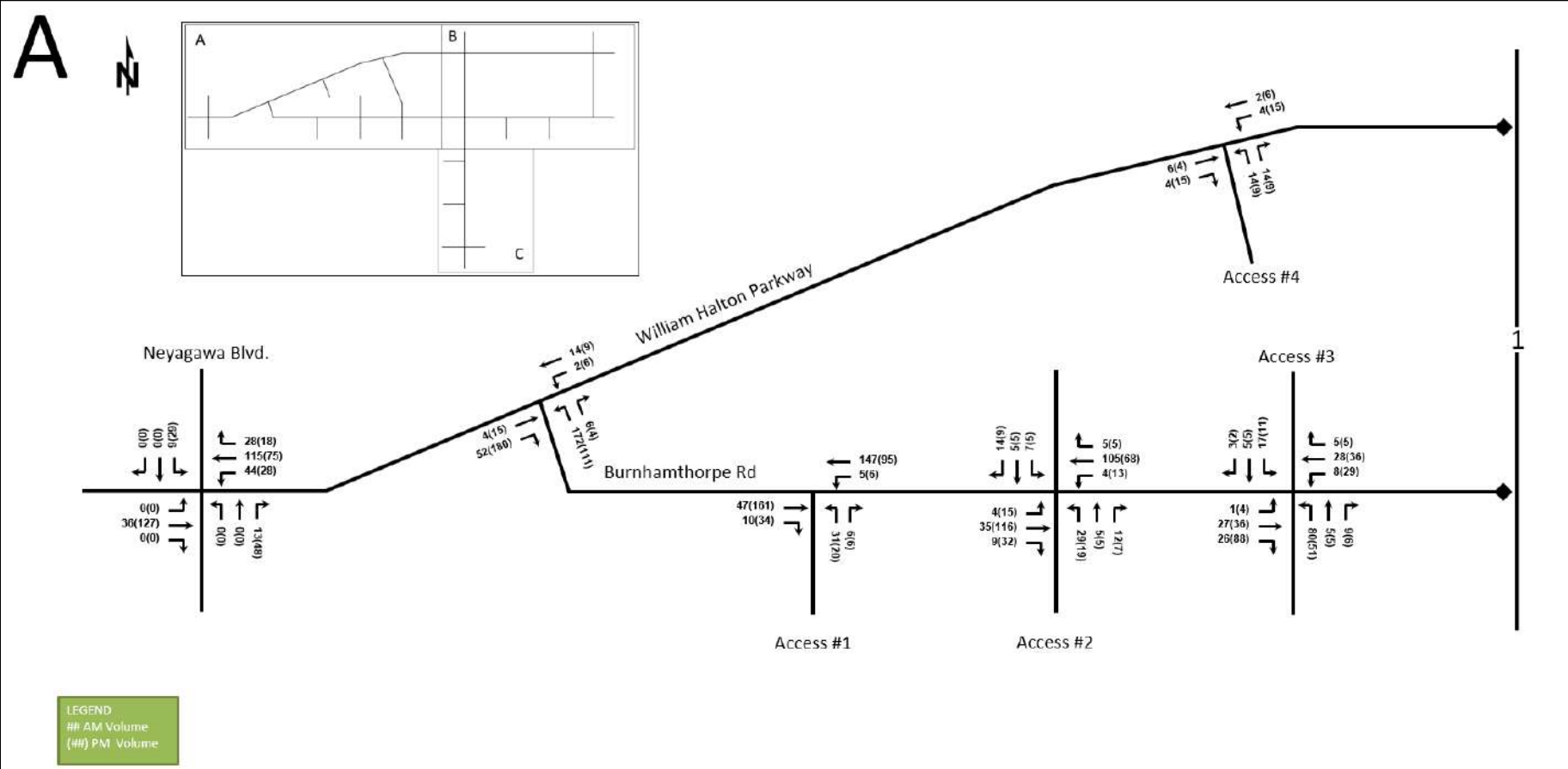


Figure 26: 2030 Traffic Assignment (Sheet B)

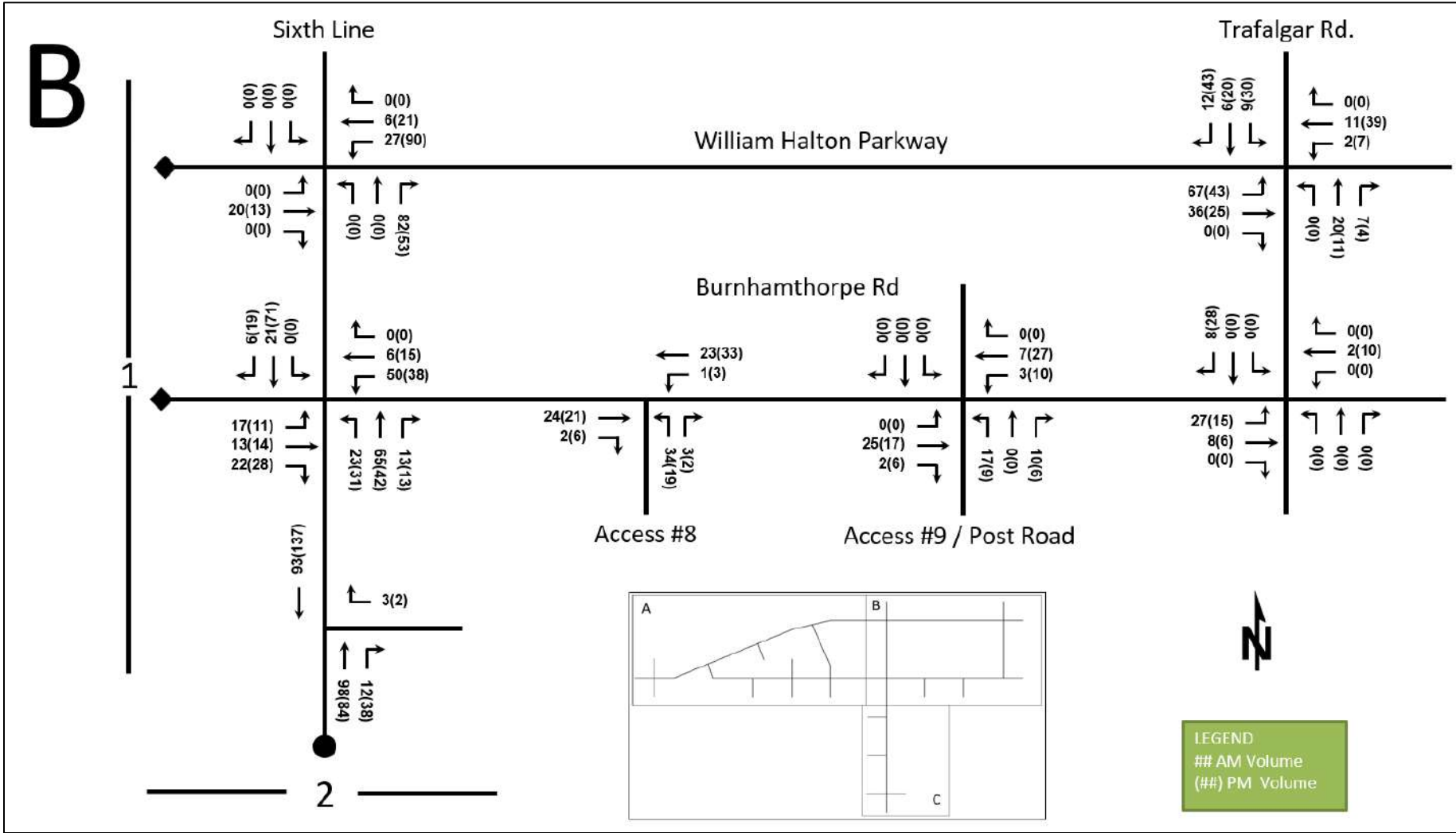


Figure 27: 2030 Traffic Assignment (Sheet C)

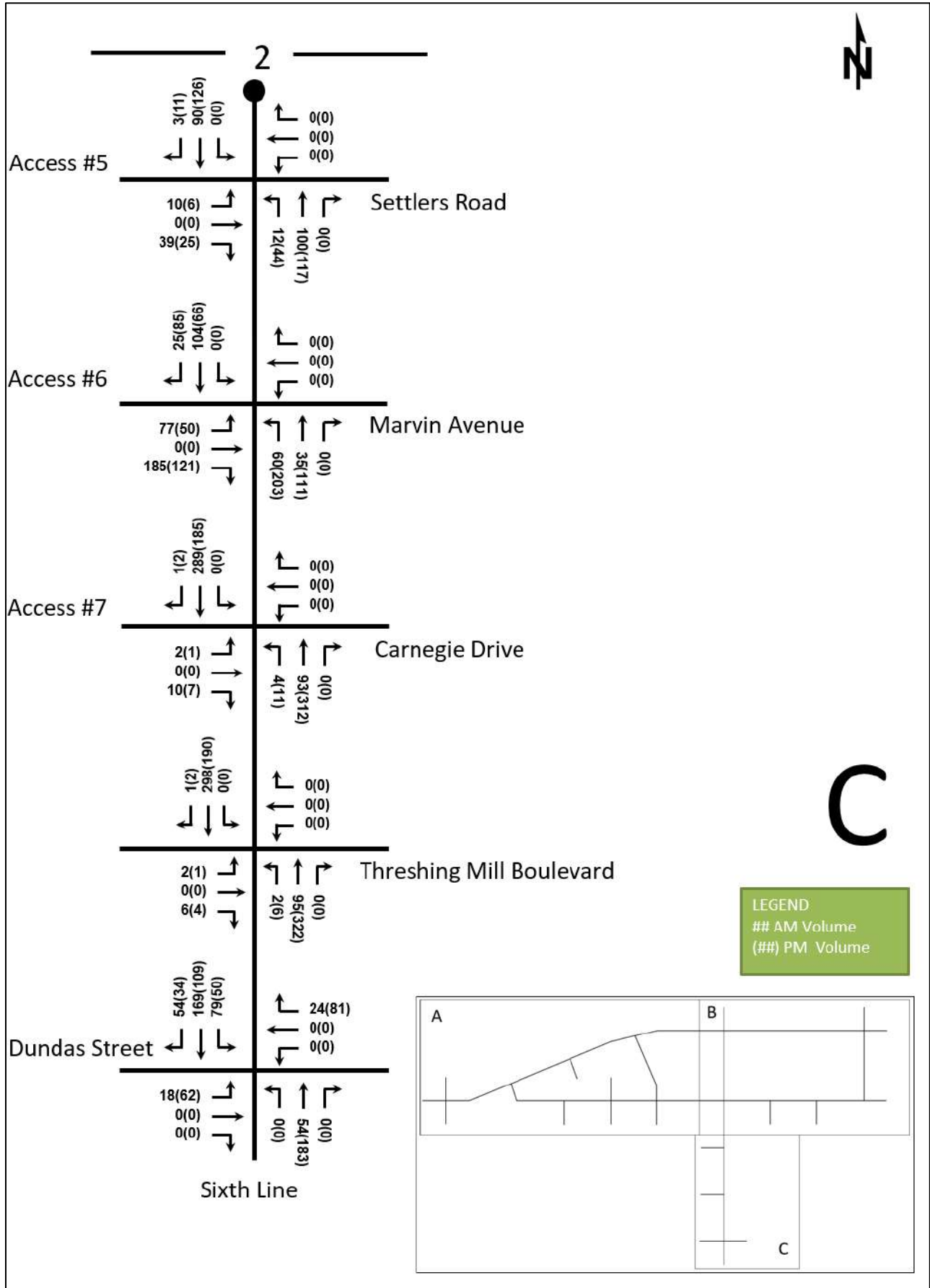


Figure 28: 2024 Future Total Traffic (Sheet A)

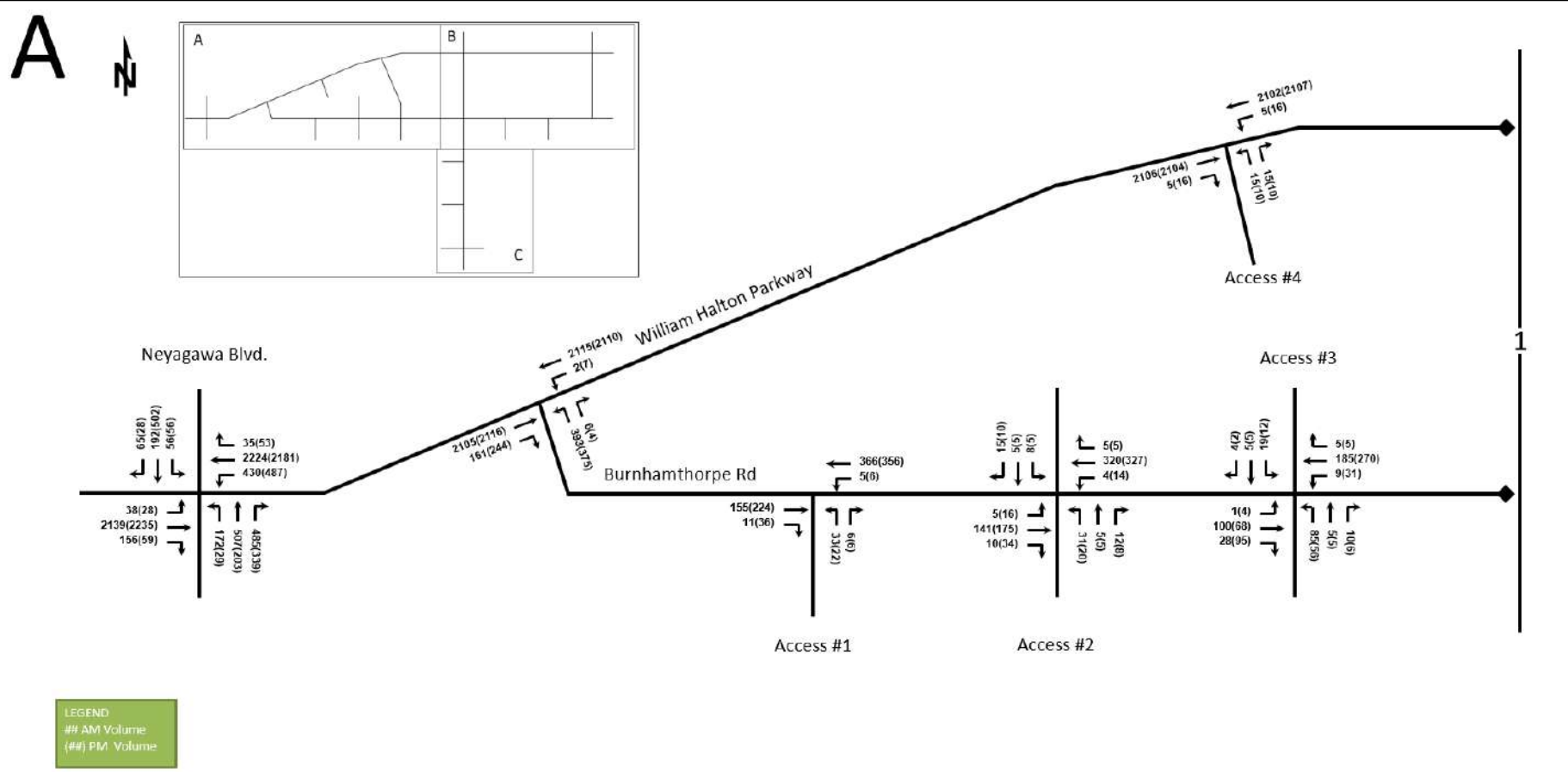


Figure 29: 2024 Future Total Traffic (Sheet B)

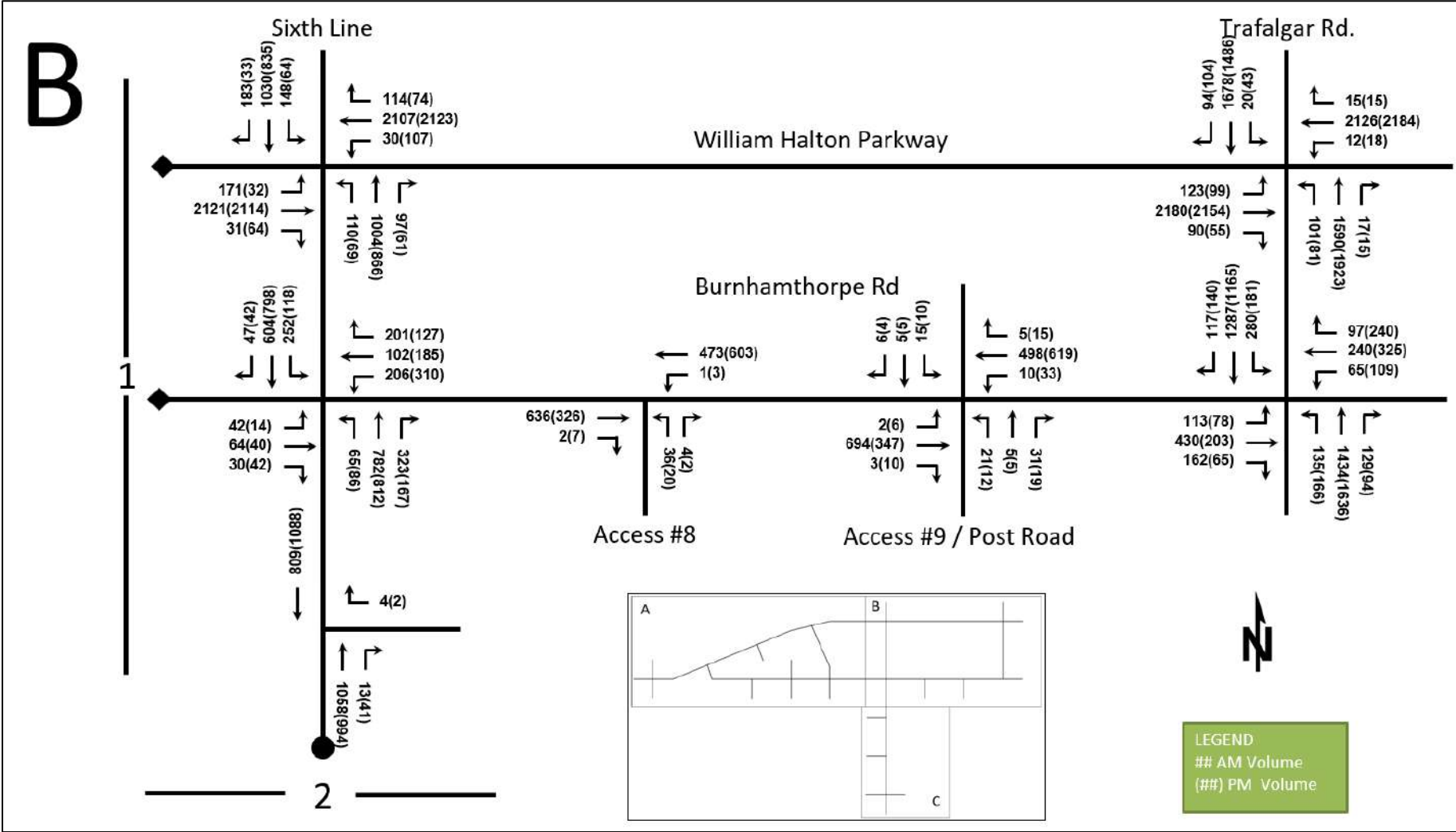


Figure 30: 2024 Future Total Traffic (Sheet C)

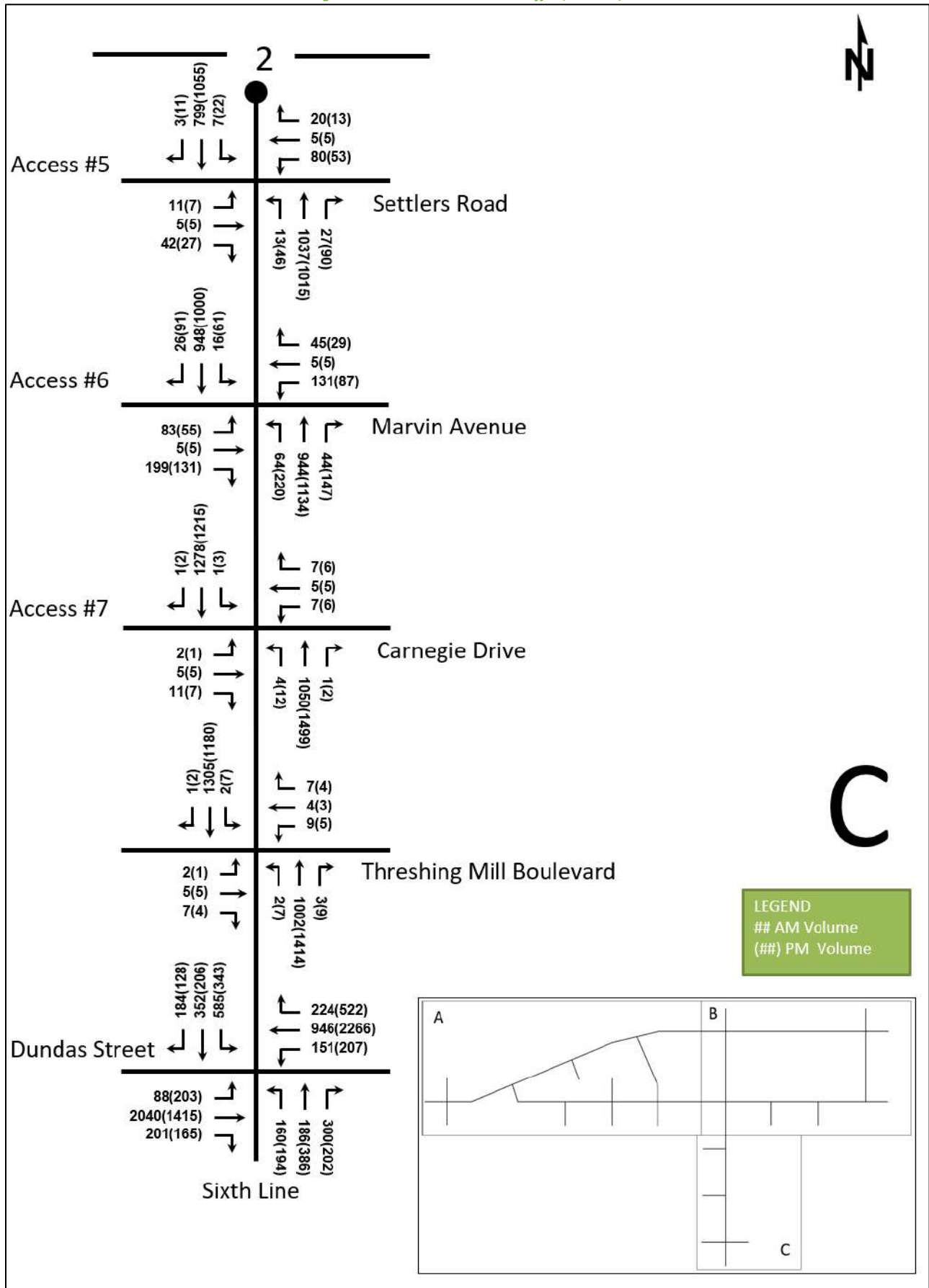


Figure 31: 2030 Future Total Traffic (Sheet A)

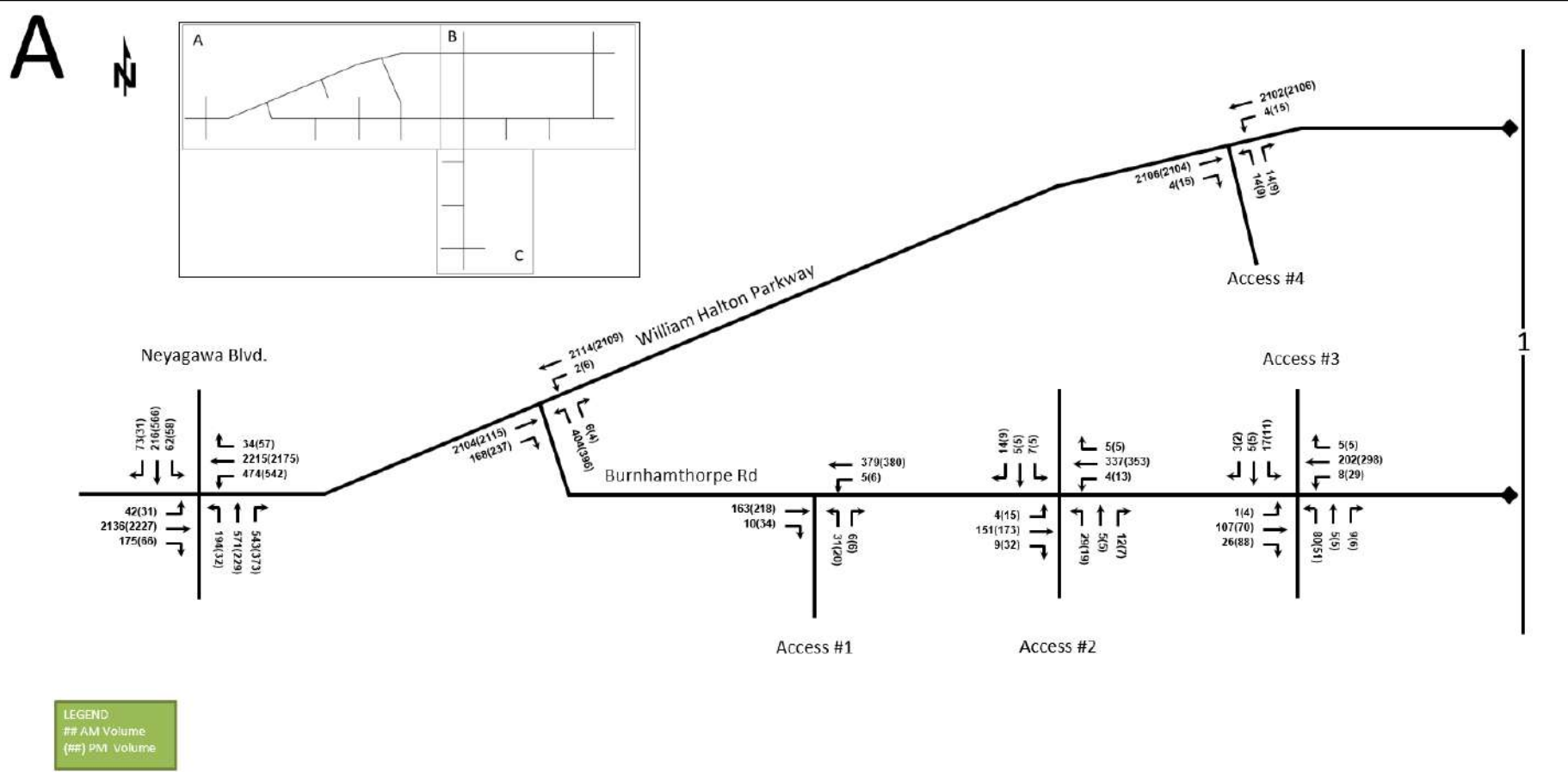


Figure 32: 2030 Future Total Traffic (Sheet B)

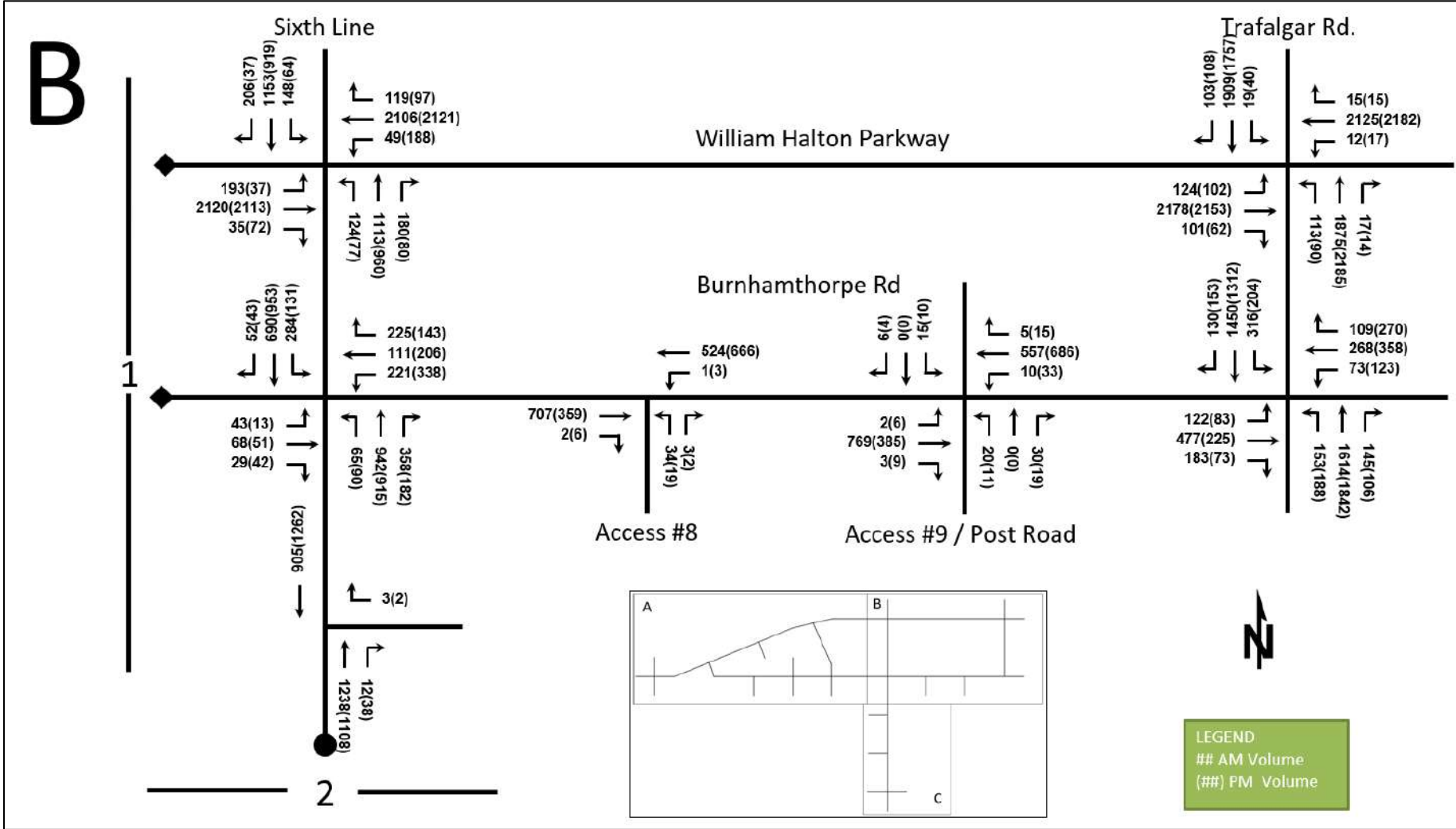
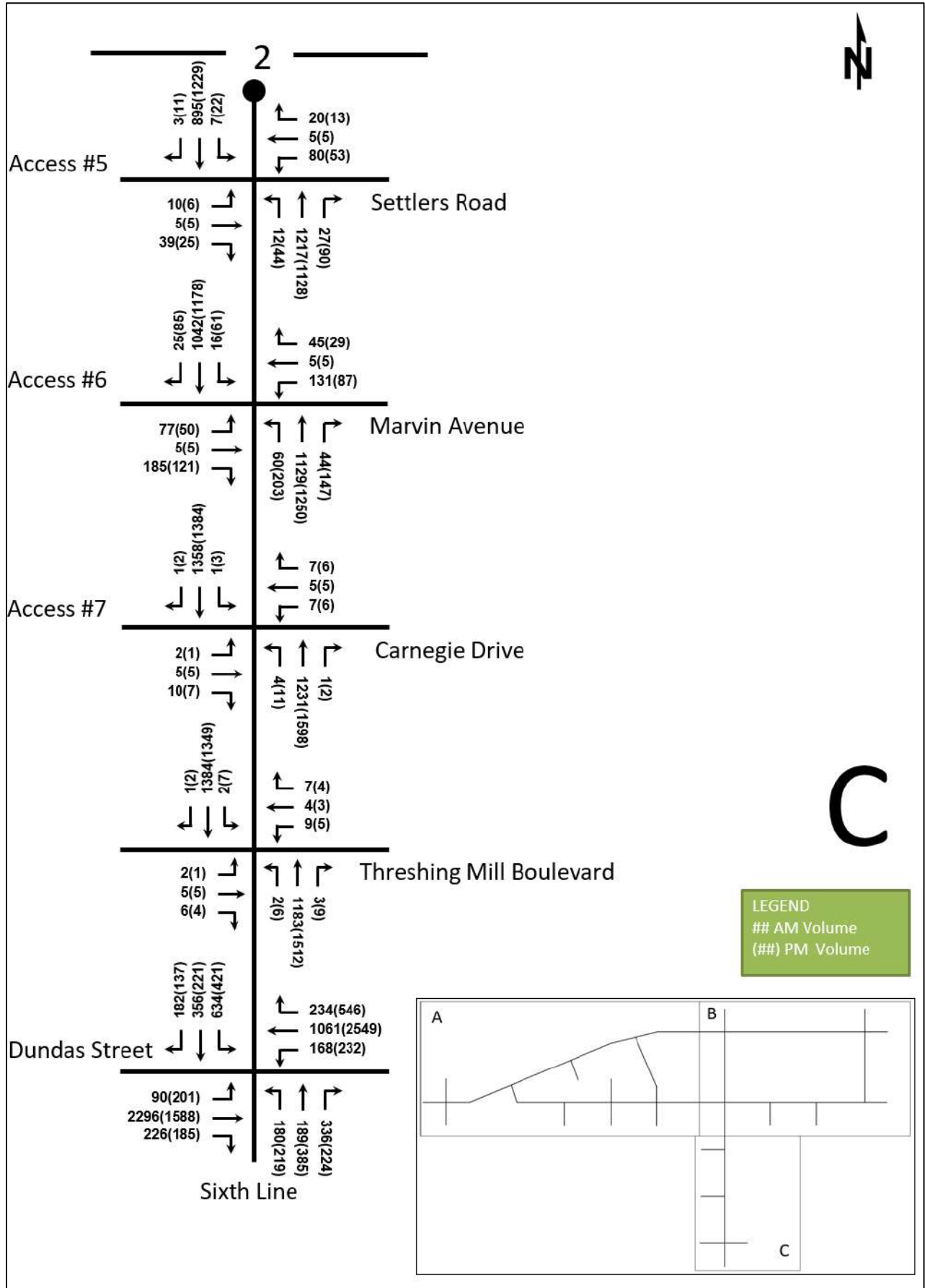


Figure 33: 2030 Future Total Traffic (Sheet C)



5 Operational Analysis

To understand the operational characteristics of the Study Area intersections, a Synchro model has been created using Trafficware's Synchro (Version 10). The Synchro model has been coded using the existing traffic signal timing, provided by Halton Region. Peak Hour factors have been calculated based on the existing turning movement counts. All other parameters have been coded using accepted best practices and default parameters where applicable.

LOS has been defined using HCM 2010 definition for LOS at signalized intersections (Table 8) and unsignalized intersections (Table 9).

Table 8: Level of Service Criteria for Signalized Intersections

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

Table 9: Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (Second/Vehicle)
A	0 – 10
B	>10 – 25
C	>15 – 25
D	>25 – 35
E	>35 – 50
F	>50

5.1 2019 Existing Conditions

Table 10 summarizes the operational analysis of the 2019 existing conditions. The tables summarize the critical movements, which for the purposes of this TIS are defined as movements with a volume to capacity (v/c) ratio greater than 0.90 or a level of service (LOS) F. Where no critical movements are projected the worst movement will be included for all intersection. At signalized intersections the overall LOS and delay will be included. All other movements have been excluded from the summaries. Synchro worksheets are included as Appendix D.

Table 10: 2019 Existing Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del (s)	LOS	V/C	Del. (s)
Neyagawa Boulevard & Burnhamthorpe Road (Signalized)	Overall	C	-	35	C	-	26
	NB	F	4.77	633	F	3.23	567
Sixth Line & Burnhamthorpe Road (Unsignalized)	EB	F	3.85	330	F	1.93	100
	WB	F	4.17	470	F	2.86	472
	SB	F	5.01	729	F	2.86	377

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del (s)	LOS	V/C	Del. (s)
Trafalgar Road & Burnhamthorpe Road (Signalized)	EBL	F	1.66	381	F	1.41	282
	EBT/R	F	1.79	391	E	0.91	66
	WBL	F	0.86	116	F	1.35	257
	WBT/R	F	1.03	91	F	1.34	201
	NBL	F	1.06	108	F	0.98	82
	SBL	E	0.90	58	C	0.64	30
	Overall	F	-	111	E	-	69
Sixth Line & Dundas Street (Signalized)	EBT	E	1.09	80	C	0.70	25
	WBT	B	0.46	17	F	1.13	91
	Overall	D	-	45	E	-	60
	Mitigation: Increase Cycle Length to 130s and increase E/W through time						
	EBT	D	0.97	42	B	0.56	14
	WBT	B	0.45	16	C	0.95	28
	NBL	D	0.46	46	F	0.97	113
	Overall	D	-	39	D	-	38

The above table summarizes the intersection operational analysis of the 2019 projected volumes, with the volumes balanced as discussed in Section 2.5.

The signalized intersection of Neyagawa Boulevard at Burnhamthorpe Road operates with an overall LOS C and no critical movements. It should be noted that the timing for the eastbound through movement during the PM peak hour, as provided by Halton Region, is less than the clearance interval. The clearance interval in this case is dictated by the pedestrian walk plus flash don't walk time plus the amber and all red times. This indicates that the pedestrian phase would only be active when called and would require the signal to adapt the timing to provide the minimum time to the eastbound through. For the purposes of this analysis it was assumed that the pedestrian volumes at this location would be low and infrequent. To avoid the minimum error the pedestrian phase was turned off. This was for the intersection analysis only and the pedestrian phase should remain in the programming of the traffic control signal.

The unsignalized intersection of Sixth Line and Burnhamthorpe Road, currently operating with an all-way stop control, was shown to operate poorly with very high delays, poor v/c ratios, and poor LOS. This intersection will be signalized as part of the widening of Sixth Line. This upgrade will be analysed as part of the 2024 future background conditions along with the impacts of the widening on the road network.

The signalized intersection of Trafalgar Road at Burnhamthorpe Road operates with an overall LOS F and several movements over capacity in the AM peak hour, similarly the PM peak hour has several movements over capacity. The existing northbound and southbound traffic volumes are very high (between 1000 and 1500 vph), causing the intersection to operate poorly. Some redirection of traffic is anticipated away from this intersection and onto William Halton Parkway. This will be analysed as part of the future background operational analysis. Signal timing optimizations were tested, but no improvements were found, therefore the existing signal timing has been maintained.

The signalized intersection of Dundas Street at Sixth Line operates with an overall LOS of D in the AM peak hour and E in the PM peak hour. The eastbound and westbound through movements operate with LOS F, and v/c ratios greater than 1.0. These movements are carrying significant traffic volumes (1900 vph in the AM peak hour and 2100 vph in the PM peak hour). To mitigate this, the cycle length was increased to 130s and extra time was given to the eastbound and westbound through volumes. This was shown to improve the overall intersection

operations, and the eastbound and westbound through movements. However, as a consequence of this change the northbound left, in the PM peak hour, was found to operate worse than previously assessed. This is acceptable as generally on arterial corridors, such as Dundas Street, the major through movements (in this case the eastbound and westbound through movements) are prioritized over side street turning movements. It is acknowledged that this intersection is part of a coordinated corridor and adjusting the cycle length may have consequences with respect to signal coordination. If a larger coordination study is undertaken for this corridor these adjustments should be considered, however, that is an exercise beyond the scope of a TIS and has not been included in this work. Similar to Neyagawa Boulevard the timing for the northbound and southbound through movements during the PM peak hour, as provided by Halton Region, are less than the clearance interval. As this is dictated by the pedestrian walk plus flash don't walk time plus the amber and all red times the pedestrian phase has been disabled to avoid a minimum error. This was for the intersection analysis only and the pedestrian phase should remain in the programming of the traffic control signal.

Overall the Study Area road network is operating reasonably well, with a few exceptions. The intersection of Trafalgar Road at Burnhamthorpe Road has very high volumes passing through it and as a result this intersection is constrained. Signal timing and phasing improvements were explored but no improvements were found. It should also be noted that, as part of balancing the approach and departure volumes, this intersection had several turning movements increased. This may be causing the intersection analysis to be worse than the actual operations. Upon completion of William Halton Parkway and the widening of Sixth Line there will be some traffic diversion that may relieve some of the issues that have been noted at this intersection.

5.2 2024 Future Background Conditions

The 2024 future background conditions have been examined to determine the future traffic conditions without the addition of the proposed development. This will isolate the impact of the subject development on the traffic network. Table 11 summarizes the operational analysis of 2024 future background conditions. All mitigation measures previously discussed have been carried forward for the analysis of future background conditions. Due to the large change in volumes at the intersection of Neyagawa Boulevard at William Halton Parkway (formerly the intersection of Neyagawa Boulevard at Burnhamthorpe Road) the signal timing splits, cycle length, and phasing have been adjusted. The intersection of Sixth Line at Burnhamthorpe includes the widening of Sixth Line, and the lane geometry has been coded into Synchro to be generally consistent with the Sixth Line Widening EA Preliminary Design, with one exception, which is the inclusion of eastbound and westbound left turn lanes, which were not included in the Preliminary Design. An excerpt of the Preliminary Design has been included in Appendix E. Synchro worksheets are included as Appendix F.

Table 11: 2024 Future Background Operational Analysis

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Neyagawa Boulevard & William Halton Parkway (Signalized)	EBL	F	0.74	90	E	0.49	58
	EBT	F	1.56	283	F	1.56	283
	WBL	F	1.72	364	F	1.30	181
	WBT	F	1.18	106	D	1.03	41
	Overall	F	-	180	F	-	145
	Mitigation Measures: Three through lanes eastbound and westbound, westbound dual left turn lanes, 130s cycle length						
	EBL	F	0.81	107	E	0.52	59
	EBT	D	1.00	51	D	0.92	39
	WBL	F	1.04	108	E	0.92	79
	NBL	E	0.80	70	D	0.25	47
	SBL	E	0.61	74	D	0.10	40
	Overall	D	-	45	C	-	33
	Burnhamthorpe Road & William Halton Parkway (Signalized)	Overall	B	-	15	B	-
Sixth Line & William Halton Parkway (Roundabout)	South Leg	F	1.33	313	F	1.02	60
	East Leg	F	1.60	553	F	1.61	554
	North Leg	F	1.43	401	F	0.99	46
	West Leg	F	1.56	508	F	1.59	537
	Overall	F	1.60	470	F	1.61	398
Trafalgar Road & William Halton Parkway (Signalized)	EBL	F	0.92	132	F	0.94	134
	EBT	F	1.67	333	F	1.43	226
	WBT	F	1.59	295	F	1.41	216
	NBL	F	1.80	443	F	1.42	291
	NBT	D	0.98	48	F	1.35	193
	SBT	F	1.10	83	F	1.08	80
	Overall	F	-	206	F	-	181
	Mitigation Measures: Three through lanes eastbound and westbound, protected NBL						
	EBL	F	1.00	162	F	0.95	142
	EBT	F	1.18	121	F	1.18	122
	WBT	F	1.12	96	F	1.17	115
	NBL	E	0.87	74	C	0.58	32
	NBT	D	0.96	44	F	1.15	105
SBT	F	1.25	150	F	1.11	92	
Overall	F	-	102	F	-	102	
Sixth Line & Burnhamthorpe Road (Signalized)	Overall	C	-	20	B	-	18
Post Road & Burnhamthorpe Road (Stop Control – Minor)	SBT	E	-	35	D	-	26

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour			
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)	
Trafalgar Road & Burnhamthorpe Road (Signalized)	EBL	D	0.47	43	F	0.86	116	
	EBT/R	F	1.16	129	D	0.67	44	
	WBL	F	1.03	165	E	0.71	63	
	WBT/R	D	0.64	39	F	1.42	232	
	NBL	F	1.09	138	E	0.85	60	
	NBT/R	D	0.97	46	D	0.98	42	
	SBL	F	1.21	157	D	0.71	36	
	SBT/R	B	0.68	17	B	0.57	11	
	Overall	E	-	61	E	-	69	
	Mitigation Measures: right turn lanes on northbound, eastbound, and westbound legs, signal phasing, 120s cycle length							
	EBL				F	0.69	87	
	EBT	E	0.97	79	E	0.82	74	
	NBT	E	0.99	56	C	0.87	31	
	SBL	F	1.00	88	D	0.80	51	
	Overall	D	-	50	C	-	30	
Sixth Line & Settlers Road (Stop Control – Minor)	WBL	F	0.70	82	F	0.59	84	
Sixth Line & Marvin Avenue (Stop Control – Minor)	WBL	F	1.29	257	F	1.55	426	
	Mitigation Measures: Traffic Control Signals							
	Overall	A	-	6	A	-	7	
Sixth Line & Carnegie Drive (Stop Control – Minor)	WBL	E	0.02	41	F	0.02	58	
Sixth Line & Dundas Street (Signalized)	EBL	B	0.26	10	E	0.89	78	
	EBT	E	1.08	73	B	0.66	17	
	WBL	F	0.97	96	C	0.74	29	
	WBT	B	0.60	20	F	1.23	129	
	NBL	E	0.65	56	F	1.20	180	
	NBT	D	0.26	40	E	0.73	70	
	SBL	F	1.62	328	F	2.90	899	
	Overall	F	-	103	F	-	133	
Sixth Line & Threshing Mill Drive (Stop Control – Minor)	WBL	E	0.09	41	F	0.07	53	

The signalized intersection of Neyagawa Boulevard at William Halton Parkway, with the projected volumes provided by Halton Region Staff will be over capacity on several movements and experience high delays on multiple movements. To address these capacity constraints signal timing changes were explored, however, these measures were not able to process the significant volume of traffic passing through this intersection. By adding a third through lane in both the eastbound and westbound directions and a westbound double left turn the delays were reduced and the v/c ratios for most of the movements were reduced to close to or below 1.0. The proposed westbound dual left turn lanes were shown to operate with a v/c ratio of 1.19. Different timings for this movement were tested but due to the high eastbound volumes any increase in time to the westbound dual left decreased time available for the eastbound through. As this is a large arterial corridor the east-west major flow was prioritized over turning movements and the minor streets. William Halton Parkway is currently under construction and therefore the projections provided by the Region seem overly conservative and while mitigation measures

have been examined, these should be carefully evaluated prior to implementing any changes to the existing design of William Halton Parkway.

Similar to the signalized intersection of Neyagawa Boulevard at William Halton Parkway, the roundabout at Sixth Line and William Halton Parkway, using the volumes provided by the Region, is projected to operate over capacity. As discussed previously, the traffic projections provided by the Region are likely overly conservative and are not likely to be realized in the fullness of time. No mitigation measures have been proposed.

With the widening of Sixth Line through the Study Area the intersection of Sixth Line at Burnhamthorpe Road is anticipated to be signalized. With this upgrade in place, as well as the reduction in traffic as a result of the opening of William Halton Parkway, the intersection was shown to operate with good LOS and low delays.

The signalized intersection of Trafalgar Road was shown to operate poorly. As discussed previously some traffic was diverted away from this intersection to account for the opening of William Halton Parkway. However, this impact was not enough to counter the impact of the anticipated background growth, and therefore this intersection is projected to operate poorly by the 2024 future background horizon. To improve operations at this intersection signal timing optimizations were tested, however, these did not adequately address the noted capacity issues. To improve the operations of this intersection a third lane eastbound and westbound was added. Additionally, the signal phasing was updated to improve operations and a 120 second cycle length was implemented. With these changes all movements of the intersection improved. The only movements still operating with v/c ratios higher than 1.0 are the northbound through / right and the southbound left turn in the AM peak hour and the northbound through in the PM peak hour. This is due to the high northbound volumes in both peak hours.

Trafalgar Road at Burnhamthorpe Road is projected to experience operational constraints by the 2024 horizon. To mitigate these constraints right turn lanes were added to the Synchro model on the northbound, eastbound, and westbound legs. The addition of these auxiliary turning lanes improved all operational characteristics of the intersection.

The signalized intersection of Sixth Line at Dundas Street was shown to continue to operate with some movements over capacity (i.e. v/c >1.0). This intersection is constrained by the adjacent properties and therefore no geometric improvements have been considered. It should be noted that there is likely to be some diversion of traffic from Dundas Street to the future William Halton Parkway. The extent of this diversion is difficult to predict at this level of assessment, and therefore has not been modeled herein.

With the proposed modifications the Study Area Road network would operate with generally reasonable operating parameters (e.g. v/c, delay, LOS) during the projected 2024 future background horizon.

5.3 2030 Future Background Traffic Conditions

The 2030 future background conditions have been examined to determine the future traffic conditions without the addition of the proposed development. This will isolate the impact of the subject development on the traffic network. Table 12 summarizes the operational analysis of 2030 future background conditions. All mitigation measures previously discussed have been carried forward for the analysis of future background conditions. Synchro worksheets are included as Appendix G.

Table 12: 2030 Future Background Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Neyagawa Boulevard & William Halton Parkway (Signalized)	EBL	F	0.89	128	E	0.57	66
	EBT	D	1.00	51	D	0.92	39
	WBL	F	1.17	147	F	1.04	102
	NBL	F	0.96	98	D	0.35	53
	NBT	E	0.83	56	D	0.29	42
	NBR	E	0.95	60	C	0.48	26
	SBL	F	0.97	153	D	0.12	41
	SBT	D	0.31	42	D	0.74	51
	Overall	D	-	53	D	-	36
Burnhamthorpe Road & William Halton Parkway (Signalized)	EBT	B	0.89	20	C	0.98	33
	WBT	B	0.89	20	C	0.98	5
	NBL	E	0.76	61	D	0.75	33
	Overall	B	-	17	C	-	23
Sixth Line & William Halton Parkway (Roundabout)	South Leg	F	1.58	534	F	1.10	115
	East Leg	F	1.57	519	F	1.72	654
	North Leg	F	1.63	583	F	1.05	81
	West Leg	F	1.56	534	F	1.67	610
	Overall	F	1.63	534	F	1.72	463
Trafalgar Road & William Halton Parkway (Signalized)	EBL	F	1.00	155	F	1.03	161
	EBT	F	1.17	116	E	1.03	58
	WBT	F	1.10	89	D	1.01	53
	NBL	F	2.02	532	F	1.61	364
	NBT	F	1.16	108	F	1.49	254
	SBT	F	1.25	145	F	1.24	144
	Overall	F	-	114	F	-	126
Sixth Line & Burnhamthorpe Road (Signalized)	Overall	C	-	26	B	-	18
Post Road & Burnhamthorpe Road (Two-Way Stop Control)	SBL	E	0.19	42	D	0.11	26
Trafalgar Road & Burnhamthorpe Road (Signalized)	EBL	D	0.36	43	F	0.81	108
	EBT	F	1.10	116	D	0.53	46
	WBT	C	0.47	36	E	0.88	67
	NBL	E	0.83	58	B	0.58	16
	NBT	F	1.18	121	C	0.86	29
	SBL	F	1.18	158	D	0.79	50
	SBT/R	D	0.95	44	C	0.67	21
	Overall	F	-	87	C	-	29
Sixth Line & Settlers Road (Stop Control on Minor)	WBL	F	1.04	197	F	0.59	84
	Mitigation Measures: Traffic Control Signals						
	Overall	A	-	7	A	-	5
Sixth Line & Marvin Avenue (Signalized)	Overall	A	-	8	A	-	7
Sixth Line & Carnegie Drive (Stop Control on Minor)	SBL	F	0.03	59	F	0.02	58

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Sixth Line & Dundas Street (Signalized)	EBL	B	0.31	12	E	0.89	78
	EBT	F	1.21	129	C	1.78	78
	WBL	F	1.08	126	D	0.82	28
	WBT/R	C	0.66	21	F	1.39	207
	NBL	E	0.77	66	E	1.76	67
	SBL	F	1.85	422	F	1.42	252
	Overall	F	-	143	F	-	131
Sixth Line & Threshing Mills Boulevard (Two-way Stop Control)	WBL	F	0.13	62	F	0.07	53

With the addition of background growth to project the 2030 future background traffic volumes the capacity and delay issues noted at the 2024 horizon are further exacerbated. No mitigation measures have been proposed or applied to the major Study Area intersections. As noted by Halton Region staff, it is anticipated that the transit mode share would increase over time, decreasing reliance on single occupant vehicles. While it is difficult to predict the impact of this effect, it would reduce not just the trips generated by any one site but should lower the rate of growth of traffic over time. The analysis has been presented without any reduction in the background traffic volumes to account for an increased transit mode share. One intersection has had mitigation measures examined, Sixth Line at Settlers Road. This intersection has been examined with traffic control signals, which is consistent with the Sixth Line Road Environmental Assessment.

5.4 2024 Future Total Conditions

The 2024 trip generation for the proposed developments has been added to the 2024 future background traffic volumes to project the impact of the new traffic on the future road network. As part of this the intersection configuration for each new access has been reviewed to determine where traffic control signals are warranted, and where left turn lanes are warranted. All accesses have been assumed to be full movement accesses, with the exception of the right in / right out only access proposed just south of Sixth Line at Burnhamthorpe Road.

5.4.1 Left Turn Lane Warrants

The Ministry of Transportation Ontario (MTO) Geometric Design Standards for Ontario Highways (GDSOH) has been reviewed to determine the need for left turn lanes at the unsignalized accesses to the proposed developments.

Along Sixth Line the EA Preliminary Design includes left turn lanes into each access that was included in that design. As there are two lanes of traffic to cross, and a high volume of southbound vehicles, it is recommended that all accesses to the developments from Sixth Line include left turn lanes.

Along Burnhamthorpe Road, using the GDSOH methodology and a 60 km/h design speed it was found that left turns would be warranted at Accesses #8 and #9, east of Sixth Line. At Access #8 the number of left turns is very low (approximately 0% of the approaching volumes) and therefore the left turn warrant should be superseded by engineering judgement, and no left turn lane should be provided at this location. Accesses #1, #2, and #3, west of Burnhamthorpe Road did not warrant left turn lanes into the proposed developments.

Access #4 onto William Halton Parkway will be analysed as a signalized intersection, as per Halton Region staff instructions, and therefore a westbound left turn lane into the proposed development will be included in the analysis. Notwithstanding the signals, a left turn lane would be appropriate regardless of their presence as left turning vehicles would have to cross two lanes of traffic that is travelling eastbound on William Halton Parkway. Left turn lane warrant analysis sheets have been included in Appendix H.

5.4.2 Traffic Control Signal Warrants

Using the Ontario Traffic Manual (OTM) Book 12 Justification 7 methodology for examining traffic control signal warrants, the proposed accesses were reviewed. It was determined that only the new access at Marvin Avenue would meet signal warrants. It has been examined as both an unsignalized and signalized intersection herein. It should be noted that at Access #4 where Halton Region staff have requested that this intersection be assumed to be a signalized access. As a result, regardless of the warrant the Access #4 will be analysed as a signalized intersection. The new intersection of Burnhamthorpe Road at William Halton Parkway was found to warrant traffic control signals. Traffic control warrant sheets have been included in Appendix I.

5.4.3 2024 Total Future Intersection Operational Analysis

The analysis parameters and mitigation measures proposed through the 2024 future background operational analysis have been carried forward as part of the analysis of 2024 total future conditions. Table 13 summarizes the results of the Synchro Analysis. Synchro worksheets have been included in Appendix J.

Table 13: 2024 Total Future Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Neyagawa Boulevard & William Halton Parkway (Signalized)	EBL	F	0.92	148	E	0.54	65
	EBT	F	1.10	92	D	0.96	45
	WBL	F	1.00	101	E	0.89	75
	Overall	E	-	64	D	-	40
Burnhamthorpe Road & William Halton Parkway (Signalized)	EBT	C	0.98	32	C	0.98	32
	WBT	B	0.99	20	C	0.98	27
	NBL	F	1.03	91	E	0.98	80
	Overall	D	-	36	C	-	34
Access #4 & William Halton Parkway (Signalized)	EBT	C	0.91	32	A	0.69	2
	WBT	B	0.91	19	A	0.69	3
	Overall	C	-	25	A	-	9
Sixth Line & William Halton Parkway (Roundabout)	South Leg	F	1.46	425	F	1.07	92
	East Leg	F	1.54	494	F	1.63	580
	North Leg	F	1.52	478	F	1.02	64
	West Leg	F	1.54	496	F	1.61	560
	Overall	F	1.54	480	F	1.63	423
Trafalgar Road & William Halton Parkway (Signalized)	EBL	F	0.98	98	E	0.85	74
	EBT/R	F	1.11	87	F	1.08	81
	WBL	D	0.21	37	D	0.34	50
	WBT/R	F	1.27	158	F	1.29	170
	NBL	E	0.80	60	D	0.70	50
	NBT/R	E	1.06	72	F	1.43	227
	SBL	D	0.36	46	C	0.38	27
	SBT/R	F	1.42	222	F	1.22	141
Overall	F	-	128	F	-	149	
Access #1 & Burnhamthorpe Road (Stop Control - Minor)	NBL	B	0.08	13	B	0.07	13
Access #2 & Burnhamthorpe Road (Two-Way Stop Control)	NBL	B	0.10	13	B	0.08	14
Access #3 & Burnhamthorpe Road (Two-Way Stop Control)	NBL	B	0.18	12	B	0.15	14

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Sixth Line & Burnhamthorpe Road (Signalized)	Overall	C	-	28	B	-	19
Access #8 & Burnhamthorpe Road (Stop Control - Minor)	NBL	C	0.28	25	C	0.13	18
Post Road & Burnhamthorpe Road (Stop Control - Minor)	SBL	E	0.21	39	D	0.12	29
Trafalgar Road & Burnhamthorpe Road (Signalized)	EBT	E	0.97	78	D	0.63	53
	NBL	F	0.89	102	C	0.65	26
	NBT	D	0.93	44	C	0.89	33
	SBL	F	0.89	82	E	0.90	70
	SBT/R	D	0.93	45	C	0.71	24
	Overall	D	-	53	D	-	36
Settlers Road / Access #5 & Sixth Line (Stop Control - Minor)	EBL	F	0.16	63	F	0.22	139
	EBT/R	C	0.19	21	E	0.28	45
	WBL	F	1.55	439	F	1.86	681
	WBT/R	D	0.15	29	F	0.24	12
	Overall	Mitigation Measures: Traffic Control Signals					
Marvin Avenue / Access #6 & Sixth Line (Stop Control - Minor)	EBL	F	2.26	791	F	29.89	16458
	EBT/R	D	0.60	28	F	1.22	222
	WBL	F	5.93	2542	F	47.28	24332
	WBT/R	D	0.26	28	F	1.00	311
	Overall	Mitigation Measures: Traffic Control Signals (Warranted)					
Carnegie Drive / Access #7 & Sixth Line (Stop Control - Minor)	EBL	F	0.07	130	F	0.06	231
	EBT/R	F	0.23	67	F	0.41	180
	WBL	F	0.21	126	F	0.50	444
	WBT/R	F	0.22	81	F	0.41	198
Sixth Line & Dundas Street (Signalized)	EBL	B	0.37	17	F	1.29	199
	WBL	F	0.93	81	C	0.70	30
	WBT	C	0.49	22	E	1.05	62
	SBL	F	1.45	248	F	1.67	353
	Overall	E	-	71	E	-	74
Sixth Line & Right In / Right Out (Stop Control – Minor)	WBL	B	0.01	13	B	0.01	13
Threshing Mill Boulevard & Sixth Line (Stop Control – Minor)	EBL	F	0.07	126	F	0.05	162
	EBT/R	F	0.21	79	F	0.38	211
	WBL	F	0.24	118	F	0.32	296
	WBT/R	F	0.17	67	F	0.22	134

The intersections previously analysed in the 2024 future background horizon operate similarly with the addition of the site generated traffic, with some movements operating slightly worse.

With the addition of site traffic, the intersection of Marvin Avenue at Sixth Line will meet the OTM Book 12 Warrant for traffic control signals. Additionally, this intersection, without signals, is projected to operate with very high delays, and multiple movements over capacity. With the addition of traffic control signals this intersection operates with good LOS, low delays, and no movements with v/c ratios greater than 0.90.

The intersection of Settlers Road at Sixth Line is projected to operate with high delays and some movements over capacity. In the Sixth Line EA this intersection is considered as a signalized intersection. To address the projected constraints, a traffic control signal has been analysed at this location. With a traffic control signal this intersection would operate with good LOS, low delays, and no movements with v/c ratios greater than 0.90.

As discussed previously, several intersections along William Halton Parkway are projected to operate with poor LOS and movements that are over capacity (i.e. v/c ratio >1.0). This is as a result of the very high eastbound and westbound volumes projected on William Halton Parkway that were provided by the Region. The proposed development has a minimal impact on these intersections and therefore the existing design of William Halton Parkway does not need to be altered to accommodate the proposed development.

Both the intersections of Carnegie Drive and Threshing Mill Boulevard at Sixth Line have been shown to operate with high delays on the minor legs. While these intersections have been considered as signalized intersections in the Sixth Line EA, they have not been found to be warranted, and while there are high delays, no movements are projected to be over capacity and therefore these have not been analyzed herein as signalized intersections. At the time that traffic control signals are implemented the operations of these intersections would improve.

The proposed site accesses will operate with good LOS and within the theoretical capacity of each intersection. Therefore, no further mitigation measures are recommended at the site accesses.

5.4.4 2030 Total Future Intersection Operational Analysis

The analysis parameters and mitigation measures proposed through the 2024 total future operational analysis have been carried forward as part of the analysis of 2030 total future conditions. Table 14 summarizes the results of the Synchro Analysis. Synchro worksheets have been included in Appendix K.

Table 14: 2030 Total Future Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Neyagawa Boulevard & William Halton Parkway (Signalized)	EBL	F	1.04	183	E	0.59	72
	EBT	F	1.01	91	D	0.96	47
	WBL	F	1.10	126	F	0.96	84
	NBL	F	0.87	81	E	0.43	66
	NBT	F	0.95	82	D	0.31	47
	NBR	E	0.99	72	C	0.69	20
	Overall	E	-	72	D	-	45
Burnhamthorpe Road & William Halton Parkway (Signalized)	EBT	C	0.98	32	C	0.98	32
	WBT	B	0.99	20	C	0.98	27
	NBL	F	1.06	99	F	1.04	93
	Overall	D	-	36	C	-	35
Access #4 & William Halton Parkway (Signalized)	EBT	C	0.91	32	A	0.69	2
	WBT	B	0.91	19	A	0.69	3
	Overall	C	-	25	A	-	9
Sixth Line & William Halton Parkway (Roundabout)	South Leg	F	1.67	617	F	1.15	159
	East Leg	F	1.55	502	F	1.73	667
	North Leg	F	1.67	615	F	1.09	112
	West Leg	F	1.58	528	F	1.67	616
	Overall	F	1.67	554	F	1.73	483

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Trafalgar Road & William Halton Parkway (Signalized)	EBL	F	0.99	100	E	0.87	78
	EBT/R	F	1.11	89	F	1.08	82
	WBT/R	F	1.27	158	F	1.29	170
	NBL	E	0.90	77	E	0.78	60
	NBT/R	F	1.25	147	F	1.62	310
	SBT/R	F	1.61	305	F	1.43	229
	Overall	F	-	164	F	-	190
Access #1 & Burnhamthorpe Road (Stop Control - Minor)	NBL	B	0.08	13	B	0.06	13
Access #2 & Burnhamthorpe Road (Two-Way Stop Control)	NBL	B	0.10	13	B	0.08	15
Access #3 & Burnhamthorpe Road (Two-Way Stop Control)	NBL	B	0.17	12	B	0.14	14
Sixth Line & Burnhamthorpe Road (Signalized)	WBL	E	0.85	65	E	0.91	61
	NBT	D	0.91	38	B	0.55	12
	SBL	E	0.91	58	D	0.69	36
	Overall	D	-	47	C	-	21
Access #8 & Burnhamthorpe Road (Stop Control - Minor)	NBL	D	0.23	31	C	0.10	22
Post Road & Burnhamthorpe Road (Stop Control - Minor)	SBL	E	0.19	42	D	0.08	34
Trafalgar Road & Burnhamthorpe Road (Signalized)	EBL	D	0.42	43	F	0.88	112
	EBT	F	0.98	82	E	0.72	60
	NBL	E	0.91	75	D	0.72	38
	NBT	F	1.12	97	D	0.98	44
	SBL	F	1.15	132	E	0.86	62
	SBT/R	D	0.97	47	C	0.77	25
	Overall	E	-	74	D	-	40
Settlers Road / Access #5 & Sixth Line (Stop Control - Minor)	Overall	A	-	8	A	-	8
Marvin Avenue / Access #6 & Sixth Line (Stop Control - Minor)	Overall	B	-	13	B	-	13
Carnegie Drive / Access #7 & Sixth Line (Stop Control - Minor)	EBL	F	0.11	206	F	0.14	516
	EBT/R	F	0.35	118	F	0.62	326
	WBL	F	0.35	239	F	0.93	967
	WBT/R	F	0.33	138	F	0.63	357
Sixth Line & Dundas Street (Signalized)	EBL	B	0.43	19	F	1.28	192
	EBT	D	0.96	44	C	0.68	29
	WBL	F	1.03	108	D	0.79	48
	WBT	C	0.55	23	F	1.17	109
	NBL	E	0.84	70	F	1.00	108
	SBL	F	1.58	303	F	2.05	514
	Overall	F	-	87	F	-	108

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Sixth Line & Right In / Right Out (Stop Control – Minor)	WBL	B	0.01	14	B	0.01	13
Threshing Mill Boulevard & Sixth Line (Stop Control – Minor)	EBL	F	0.10	195	F	0.07	263
	EBT/R	F	0.32	143	F	0.52	322
	WBL	F	0.41	235	F	0.54	576
	WBT/R	F	0.26	109	F	0.30	203

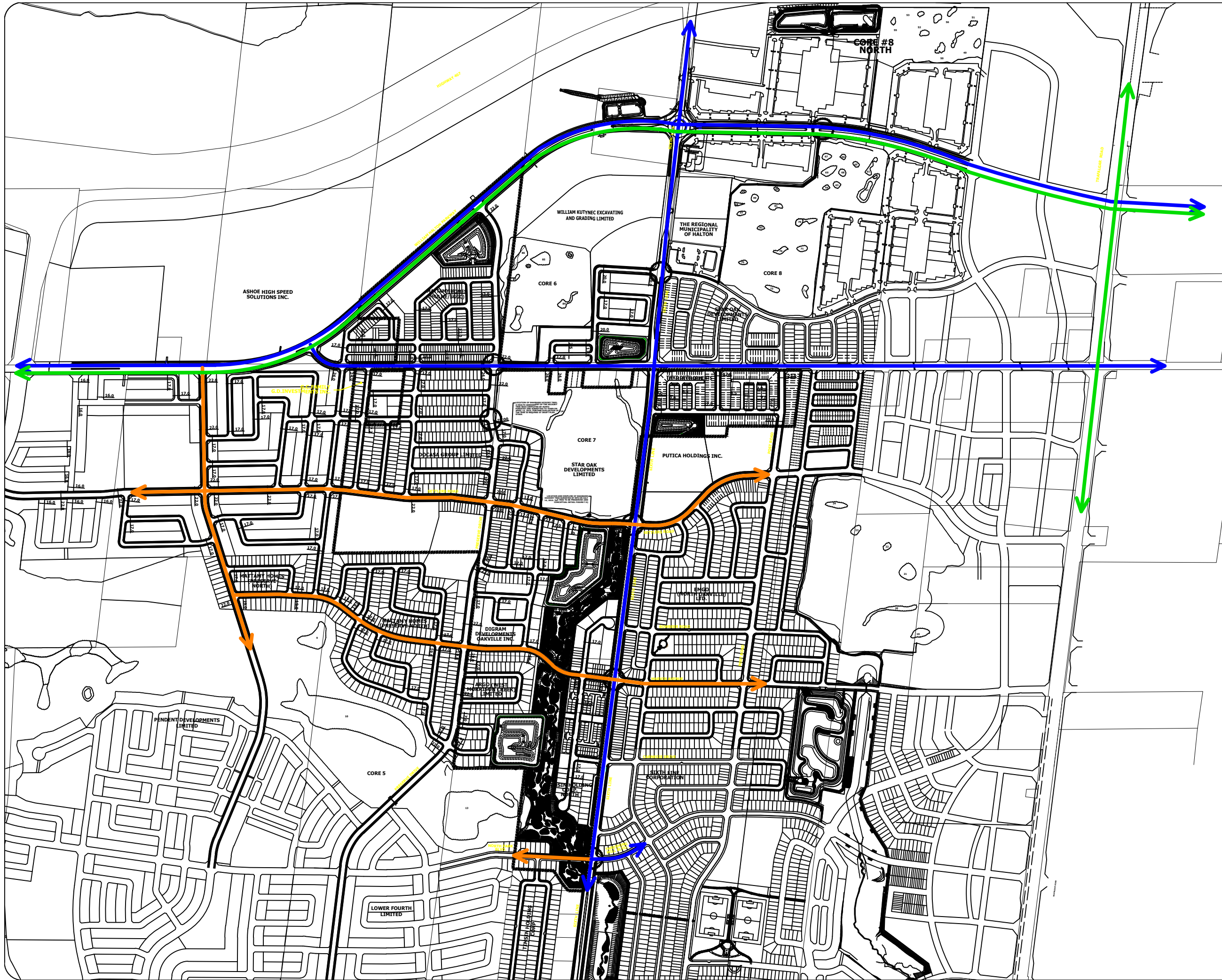
Overall the addition of the site generated traffic to the 2030 future background does not significantly impact the Study Area intersections. However, as documented in the analysis of 2030 future background conditions, the Study Area intersections are projected to operate beyond capacity in the 2030 horizon, due to background growth.

The site accesses generally operate with reasonable LOS. The unsignalized accesses along Sixth Line continue to experience delays to the side street movements, however, as discussed previously, the Sixth Line EA considers signals at these locations that would improve these locations. These have not been considered herein as these locations did not meet OTM Book 12 warrants for signalization. At the time that those signals are installed it would greatly improve the operations of these locations.

As discussed in the operational analysis of 2030 future background conditions, it is anticipated that the Region will experience a shift from single occupant vehicle to other modes of travel, in particular transit. While this impact has been explicitly accounted for in the trip generation for the subject development, this impact of this effect on background traffic is hard to predict and quantify. This shift will reduce the number of single occupant vehicles, reducing the impact of the growth that has been projected in this analysis.

6 Transportation Demand Management Recommendations

The proposed developments are residential units with a mix of unit types including primarily detached single family homes and townhouse or semi-detached units. In these types of development one of the most effective Transportation Demand Management (TDM) measures are access and usability of transit, cycling, and pedestrian facilities. To this end the following plans have been created to illustrate the appropriate cycling, pedestrian, and transit facilities. Figure 34 illustrates the cycling facilities concept plan, these facilities are consistent with the North Oakville Secondary Plan. Figure 35 is an excerpt from the EIR and FSS addendum Upper West Morrison Creek by Urbantech, labelled in that report as Drawing 7.2 Trail and Sidewalk Plan. Figure 36 illustrates the transit facilities concept plan.



Notes:

- LEGEND:**
- Signed Route
 - Bicycle Lane
 - Multi-Use Pathway

A	description	by	xx/xx/xx
REV:	DESCRIPTION:	BY:	DATE:
STATUS:	status		

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

CLIENT: Neighbourhood 9/10
 Landowners' Group

ARCHITECT:

SITE: Neighbourhood 9/10

TITLE: Cycling Facilities
 Concept Plan

SCALE AT A3: NTS	DATE: 2019-03-01	DRAWN: MC	CHECKED:
PROJECT NO: 2018-23	DRAWING NO: 034	REVISION:	



LEGEND:

- CORE AREA
- PROVINCIALLY SIGNIFICANT WETLAND (PSW) AND NUMBER
- LINKAGE PRESERVE AREA
- NON PARTICIPATING LANDOWNERS (FUTURE DEVELOPMENT)
- EIR/FSS STUDY AREA LIMIT
- PROPOSED 2.1m SIDEWALK / MAJOR TRAIL
- PROPOSED 1.5m CONC. SIDEWALK
- PROPOSED PEDESTRIAN CROSSING

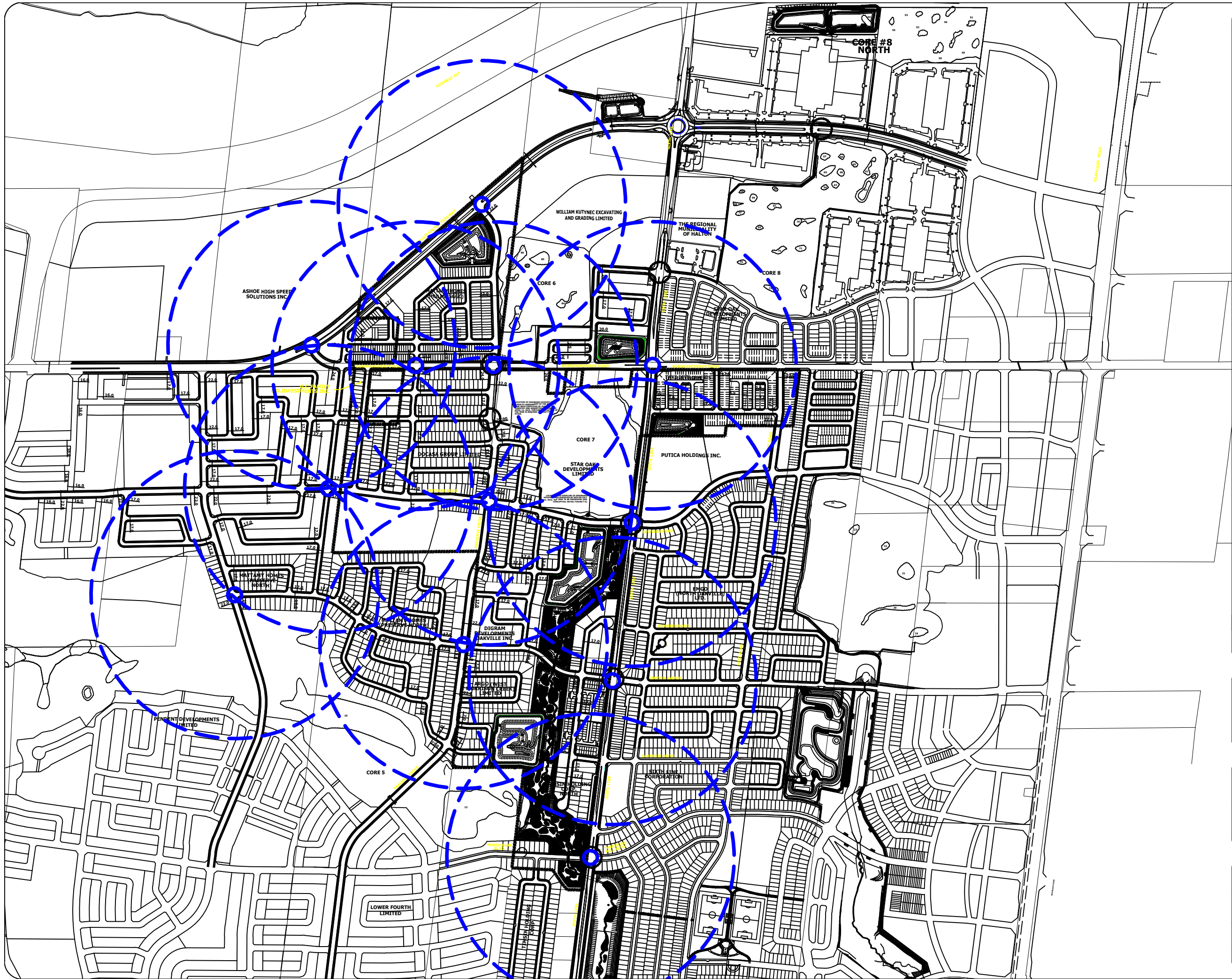
NOTES:

1. TRAILS WITHIN THE UWM1 SUBCATCHMENT AREA ARE TO COMPLY WITH THE PRINCIPLES SET FORTH IN THE APPROVED "NORTH OAKVILLE TRAILS PLAN" (MAY 2013).
2. IF TRAIL IS PROPOSED WITHIN THE RIGHT-OF-WAY, THE TRAIL TO BE CONSTRUCTED AS 2.1m WIDE CONCRETE SIDEWALK. IF THE TRAIL CANNOT BE SUBSTITUTED FOR A SIDEWALK, THE TRAIL TO BE LOCATED WITHIN THE NHIS BUFFER AND CONSTRUCTED OF TYPE A LIMESTONE SCREENING.
3. REFER TO FIGURE 7.3 FOR A TYPICAL TRAIL CROSS SECTION WITHIN 7.5m BUFFER IN THE PROPOSED NHIS CHANNEL CORRIDOR.
4. REFER TO FIGURE 7.4 FOR A TYPICAL TRAIL CROSS SECTION WITHIN 10.0m BUFFER FROM PROPERTY LINE TO DRIP LINE WITHIN CORE.
5. REFER TO FIGURE 7.5 FOR TRAIL LOCATION SOUTH OF SHAGBARK HICKORY TREE WITHIN CORE 7.
6. REFER TO FIGURES 11.1 TO 11.5 FOR TYPICAL ROW CROSS SECTIONS.
7. REFER TO GRADING PLANS AND CROSS SECTIONS FOR ADDITIONAL TRAIL GRADING DETAILS.


ENVIRONMENTAL IMPLEMENTATION REPORT AND FUNCTIONAL SERVICING STUDY ADDENDUM UPPER WEST MORRISON CREEK UWM1 NORTH OAKVILLE

DRAWING 7.2 TRAIL AND SIDEWALK PLAN

PROJECT 17-528 SCALE: 1:2500 DEC. 2018



Notes:

LEGEND:
 400m Transit Walking Distance

A	description	by	xx/xx/xx
REV:	DESCRIPTION:	BY:	DATE:
STATUS:	status		



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

CLIENT: Neighbourhood 9/10
 Landowners' Group

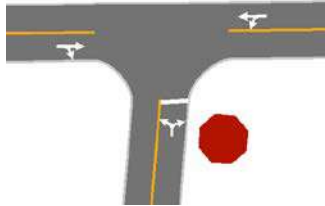
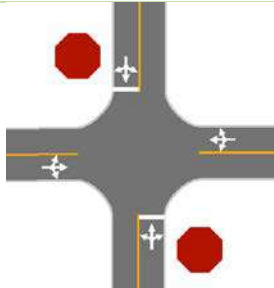
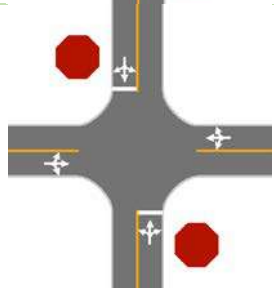
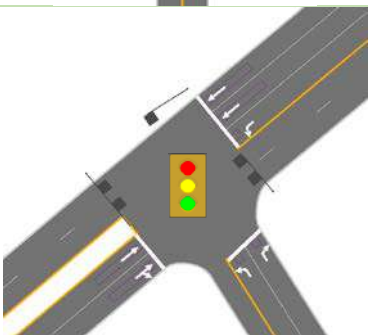
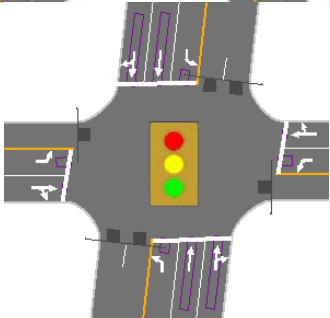
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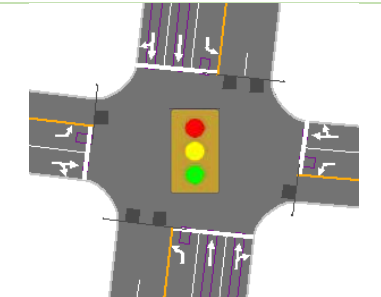
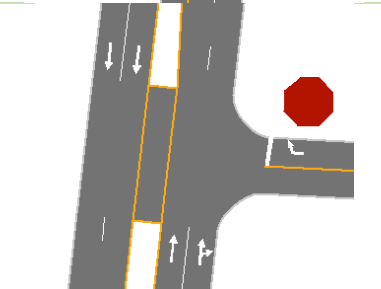
SITE: Neighbourhood 9/10			
TITLE: Transit Facilities Concept Plan			
SCALE AT A3: NTS	DATE: 2019-03-01	DRAWN: MC	CHECKED:
PROJECT NO: 2018-23	DRAWING NO: 036	REVISION:	

7 Recommendations

The recommended access configuration for each proposed access to the new development is illustrated in Table 15. This figure details both the lane configuration and traffic control of each intersection. For the left turn lanes along Sixth Line the design should be consistent with the Sixth Line EA Preliminary Design. At the intersection of Marvin Avenue at Sixth Line, in addition to the design requirements from the EA, 50 metres of storage should be provided to accommodate the projected vehicle queuing.

Table 15: Access Intersection Configuration

Intersection	Lane Configuration
<p>Access #1 at Burnhamthorpe Road</p>	
<p>Access #2 at Burnhamthorpe Road</p>	
<p>Access #3 at Burnhamthorpe Road</p>	
<p>Access #4 at William Halton Parkway</p>	
<p>Access #5 / Settlers Road at Sixth Line</p>	

<p>Access #6 / Marvin Avenue at Sixth Line</p>	
<p>Access #7 / Carnegie Drive at Sixth Line</p>	
<p>Access #8 at Burnhamthorpe Road</p>	
<p>Access #9 / Post Road at Burnhamthorpe Road</p>	
<p>Right in / Right out at Sixth Line</p>	

8 Conclusions

This Transportation Impact Study has examined the trip generation, access requirements, and Study Area road network impact of the proposed Neighbourhood 9/10/11 residential developments. The TIS has shown the following:

- a) The proposed developments are being undertaken by a group of ten development companies who have jointly commissioned this study.
- b) The combined development, referred to as Neighbourhood 9/10/11, will include 788 single detached homes, 1003 townhouses, and 175 mid-rise units.
- c) The proposed development will have a total of ten accesses to serve the combined developments. This will include four accesses on Sixth Line, five accesses on Burnhamthorpe Road, and a single access onto the future William Halton Parkway. All accesses are proposed as full movement intersections, with no turn restrictions.
- d) Historical turning movement counts and ATRs have been reviewed to determine what the approximate background growth rate is, from growth beyond the Study Area. Using several methods, it was determined that there was a wide variance in growth rates, ranging between negative growth rates on some roads, and positive growth rates on others. Based on a combination of the historical data and engineering judgement a 2% per annum compound annual growth rate was selected.
- e) To estimate the impact of the subject development on the Study Area a person trip generation exercise has been undertaken. The subject development is anticipated to generate 1412 AM and 1856 PM peak hour person trips. Using the projected mode shares for 2024 and 2030, the projected vehicle trips were calculated.
- f) Using the existing traffic volumes, projected to 2019, and balanced between adjacent intersections, an operational analysis of existing conditions was undertaken. Through this analysis it was determined that several of the existing intersections are experiencing capacity constraints. However, given the upcoming upgrades and changes to the Study Area road network (Sixth Line widening, William Halton Parkway construction) no major mitigation measures were proposed to address existing deficiencies.
- g) The 2024 future background traffic volumes, including background growth, the construction of William Halton Parkway, and the Sixth Line widening were analysed. To address projected deficiencies the following changes were made to the Study Area road network:
 - a. Neyagawa Boulevard at William Halton Parkway
 - i. Add a third through lane eastbound and westbound
 - ii. Westbound dual left turn lanes
 - iii. Signal timing and phasing changes
 - b. Trafalgar Road at Burnhamthorpe Road
 - i. Add right turn lanes on the northbound, eastbound, and westbound legs
 - ii. Signal timing and phasing changes
 - c. Sixth Line at Dundas Street
 - i. Signal timing and phasing changes

With the changes noted above, the Study Area road network operates with reasonable LOS and v/c ratios on most movements. The few exceptions, where generally turning movements are onto major arterial roads, the major through movements are given priority over turning movements from adjacent roads.

- h) With the addition of background traffic growth between 2024 and 2030 all the Study Area intersections begin to experience capacity constraints on some or all of the movements in the 2030 future background horizon. No additional mitigation was proposed to address these constraints as by this horizon it is anticipated that commuters would start to shift from single occupant vehicle trips to transit and active modes. This must be promoted in order to ensure that by 2030 the overall amount of traffic growth is

able to be accommodated by the Study Area road network. It should be noted that a 2% background growth rate has been applied to 2019 balanced volumes and this amount of growth will not be sustained into the future as the area surrounding the subject development will build-out and growth at this rate will not continue indefinitely.

- i) The projected development traffic was added to the 2024 future background volumes. Additionally, the mitigation measures discussed in the 2024 future background horizon were carried forward in the analysis of total future traffic. With these traffic volumes it was found that the addition of the site generated traffic has a minimal impact on the Study Area intersections. Additionally, the proposed access configurations were shown to operate with good LOS and low delays. One exception was Marvin Avenue / Access #6 at Sixth Line, which was shown to operate with v/c ratios greater than 1.0, indicating this intersection required additional capacity in order to accommodate the projected volumes. A traffic signal was examined to address these deficiencies. With the proposed signals the Marvin Avenue / Access #6 intersection was projected to operate with very good LOS.
- j) The addition of the site generated traffic to the 2030 future background traffic volumes does not have a significant impact on the Study Area intersections. However, the 2030 projected future background conditions were generally over capacity and experiencing significant delays. As discussed previously a shift from reliance on single occupant vehicles to other modes of travel is anticipated by 2030 which may alleviate some of these capacity constraints.
- k) TDM measures are implemented to encourage commuters to shift away from single occupant vehicle trips. For a development of the type proposed for Neighbourhood 9/10/11, primarily low-density residential units, the most effective measures are access and usability of transit, cycling and pedestrian facilities. To ensure that the proposed developments are appropriately served by transit, cycling, and pedestrian facilities, concept plans have been prepared.

The proposed development will have a minor impact on the Study Area road network. The proposed accesses will operate well. The proposed development will provide a good pedestrian and cycling network along with good access to transit throughout the development. It is recommended that, from a transportation perspective, the proposed development application proceed.

Prepared By:

Reviewed By:



Mark Crockford, P. Eng.
905-251-4070
Mark.Crockford@CGHTransportation.com



Christopher Gordon, P. Eng.
343-999-9117
Christopher.Gordon@CGHTransportation.com

Appendix A

Scope Confirmation

Mark Crockford

From: Krusto, Matt <Matt.Krusto@halton.ca>
Sent: November 27, 2018 1:56 PM
To: Mark Crockford; syed.rizvi@oakville.ca
Cc: Christopher Gordon
Subject: RE: Neighbourhood 10 - Revised Scope

All looks thorough and detailed enough for me.

Thanks Mark!

Matt

Matt Krusto

Transportation Planning Coordinator

Infrastructure Planning & Policy

Public Works

Halton Region

905-825-6000, ext. 7225 | 1-866-442-5866



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From: Mark Crockford [mailto:mark.crockford@cghtransportation.com]

Sent: Tuesday, November 27, 2018 12:54 PM

To: Krusto, Matt; syed.rizvi@oakville.ca

Cc: Christopher Gordon

Subject: Neighbourhood 10 - Revised Scope

Hi Matt and Syed,

Thank you both for your responses regarding our scope of work on the Neighbourhood 10 TIA. Given that you both had some comments and we've had some additional back and forth I wanted to consolidate it all into a single email. Please see below for the consolidated scope of work. I think I have consolidated everything in this e-mail but please reply to this email if I have missed anything.

Transportation Impact Study Requirements (TIS):

Study will be in accordance to Halton Region's Transportation Impact Guidelines and the North Oakville TIS Guidelines.

The TIS report will include:

- Site Plan and Map,
- Size & Number of Development Phases,
- Existing Conditions (Study Area Intersections, Road Network, Pedestrian Routes, Cycling Routes, Transit Services),
- Existing Traffic Conditions (Site Operating Characteristics, Data Collection/Traffic Counts, Analysis Periods (5 years Ahead),
- Future Background Conditions (Horizon Years, Horizon Year Volumes)
- Background Traffic Demand (with TMC's < 2 years old), [NOTE: Matt and I have discussed one exception where at Sixth Line and Burnhamthorpe Road a 3 year old count will be used, with growth up to 2018]
- Background Traffic Demand Forecast (with acceptable growth rates)
- Site Generated Traffic (Transit Modal Split, Trip Generation/Distribution/Assignment)
- Future Total Traffic Demand,
- Capacity Analysis (by Intersection, with LOS, Avg. Delay, V/C ratios),
- Traffic Impacts (Tables – Total Traffic with/without Mitigation)
- Access Considerations – Existing, Proposed, Geometrics (turn lanes, sight lines),
- Recommendations - Identify required/recommended road improvements either as a result of the development impacts, or general non-development improvements.
- TDM recommendations (Transit, Pedestrian & Cycling Facilities Analysis)
- Conclusions

Study Area:

The following additional intersections must also be included in the Transportation Impact Study:

- Trafalgar Road and Burnhamthorpe Road
- Trafalgar Road and William Halton Parkway
- Dundas Street and Sixth Line
- William Halton Parkway and Neyagawa
- William Halton Parkway and Street X (to be analyzed as a signalized intersection)
- Site Accesses Intersections (five anticipated at this time, but all will be included if that changes)
- Sixth Line at Burnhamthorpe Road
- Burnhamthorpe Road at William Halton Parkway
- Future Intersection of William Halton Parkway at Sixth Line

Study Horizon:

- Base year 2019, followed by 2024, 2030
- AM and PM peak hours for all horizons

Background Growth

- % background growth using historical counts
- No TISes for other developments have been provided for the adjacent lands. Therefore it is assumed this development will proceed in advance of the other developments and no specific background growth will be included in the forecasts.
- For William Halton Parkway, based on a review of Halton's transportation model and updated 2031 volume assumptions for William Halton Parkway, acceptable year 2024 and 2031 eastbound and westbound peak hours volumes are 2100 (eastbound) and 2100 (westbound).

Transit Mode Splits:

- Halton's Transportation Master Plan 2011 utilizes a transit mode split of 10% for 2021, 15% for 2026 and 20% for 2031. Assumption of travel via other modes (active transportation i.e.: walk, cycle) should utilize a 5% mode split for 2031. Transportation Demand Management (TDM) assumptions of 3% for 2031 would also be acceptable.

Trip Generation

- ITE Trip Generation Manual 10th Edition
- Base Vehicle Trips will be converted to Person Trips using a factor of 1.28
- Mode Share will be determined using TTS Data.
- Using the existing Mode Share the trip generation by mode will be calculated
- Distribution and Assignment will be determined using TTS Data

Changes to the Study Area Road Network:

Sixth Line Widening

- Assumed to be in place by the 2024 analysis horizon.

William Halton Parkway

- Assumed to be in place by the 2024 analysis horizon.

Thanks,

Mark



Mark Crockford, P.Eng.

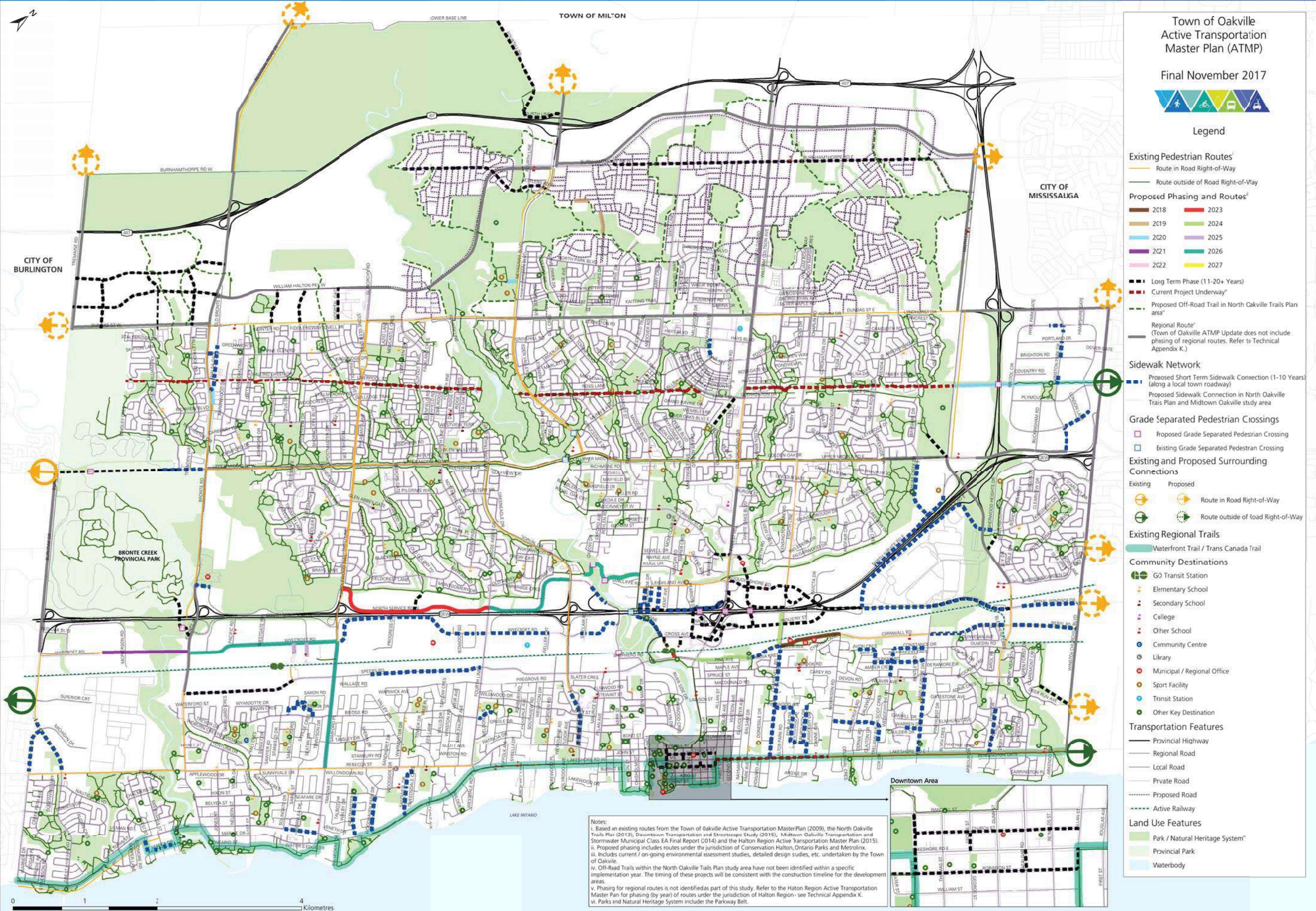
Director

P:905-251-4070

E:Mark.Crockford@CGHTransportation.com

Appendix B

Town of Oakville Active Transportation Master Plan Map 8 and Map 9



Town of Oakville Active Transportation Master Plan (ATMP)
Final November 2017

Legend

Existing Pedestrian Routes¹

- Route in Road Right-of-Way
- Route outside of Road Right-of-Way

Proposed Phasing and Routes²

2018	2023
2019	2024
2020	2025
2021	2026
2022	2027

- Long Term Phase (11-20+ Years)
- Current Project Underway³
- Proposed Off-Road Trail in North Oakville Trails Plan area⁴
- Regional Route⁵ (Town of Oakville ATMP Update does not include phasing of regional routes. Refer to Technical Appendix K.)

Sidewalk Network

- Proposed Short Term Sidewalk Connection (1-10 Years) (along a local town roadway)
- Proposed Sidewalk Connection in North Oakville Trails Plan and Midtown Oakville study area

Grade Separated Pedestrian Crossings

- Proposed Grade Separated Pedestrian Crossing
- Existing Grade Separated Pedestrian Crossing

Existing and Proposed Surrounding Connections

Existing	Proposed	Description
		Route in Road Right-of-Way
		Route outside of Road Right-of-Way

Existing Regional Trails

- Waterfront Trail / Trans Canada Trail

Community Destinations

- GO Transit Station
- Elementary School
- Secondary School
- College
- Other School
- Community Centre
- Library
- Municipal / Regional Office
- Sport Facility
- Transit Station
- Other Key Destination

Transportation Features

- Provincial Highway
- Regional Road
- Local Road
- Private Road
- Proposed Road
- Active Railway

Land Use Features

- Park / Natural Heritage System⁶
- Provincial Park
- Waterbody

Notes:

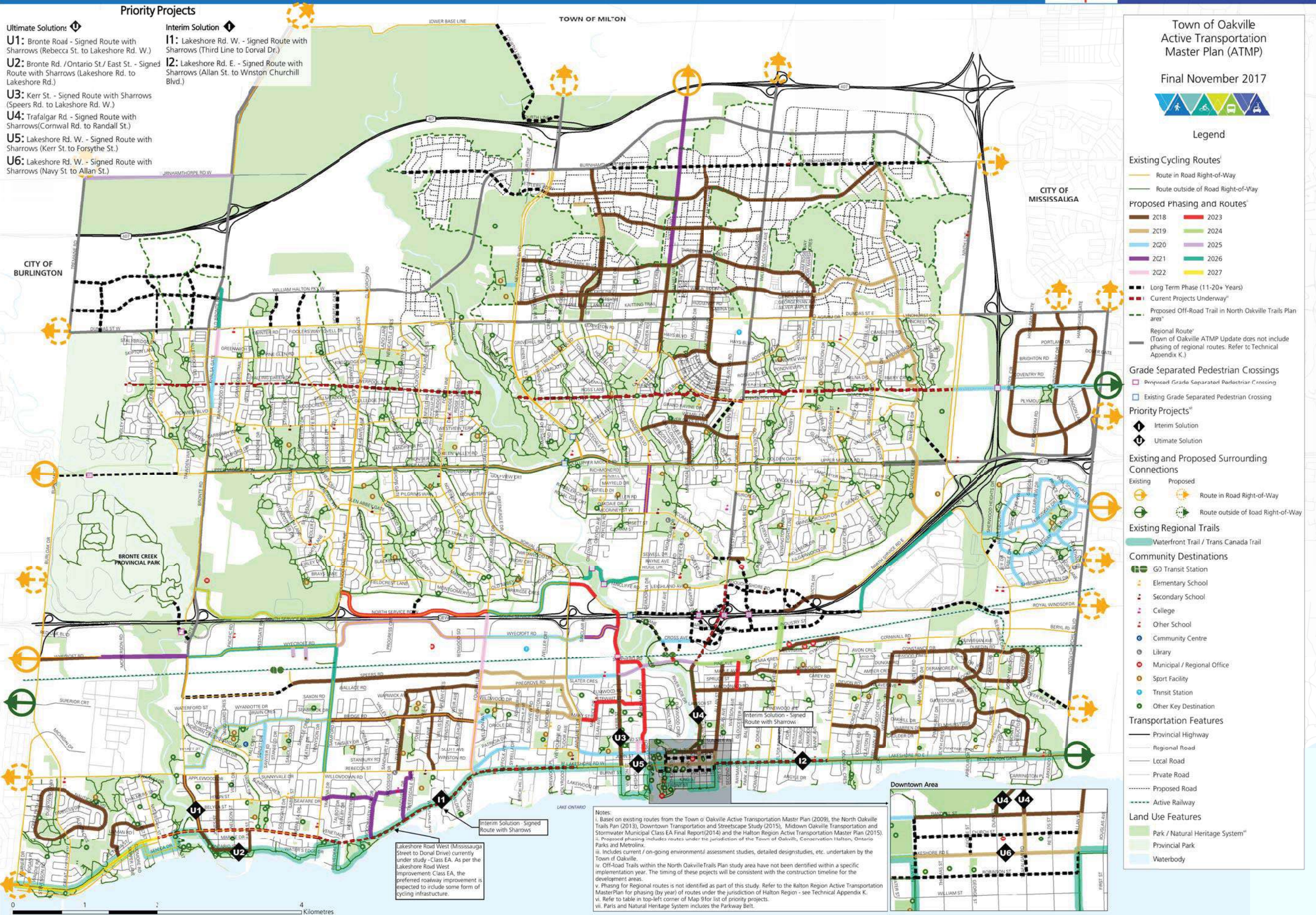
- Based on existing routes from the Town of Oakville Active Transportation Master Plan (2009), the North Oakville Trails Plan (2013), Downtown Transportation and Streetscape Study (2015), Midtown Oakville Transportation and Stormwater Municipal Class EA Final Report (2014) and the Halton Region Active Transportation Master Plan (2015).
- Proposed phasing includes routes under the jurisdiction of Conservation Halton, Ontario Parks and Metrolinx.
- Includes current / on-going environmental assessment studies, detailed design studies, etc. undertaken by the Town of Oakville.
- Off-Road Trails within the North Oakville Trails Plan study area have not been identified within a specific implementation year. The timing of these projects will be consistent with the construction timeline for the development areas.
- Phasing for regional routes is not identified as part of this study. Refer to the Halton Region Active Transportation Master Plan for phasing (by year) for routes under the jurisdiction of Halton Region - see Technical Appendix K.
- Parks and Natural Heritage System includes the Parkway Belt.



Map 9 - Proposed Cycling Network Phasing & Priority Projects



Map 9



- Ultimate Solutions**
- U1:** Bronte Road - Signed Route with Sharrows (Rebecca St. to Lakeshore Rd. W.)
 - U2:** Bronte Rd. /Ontario St./ East St. - Signed Route with Sharrows (Lakeshore Rd. to Lakeshore Rd.)
 - U3:** Kerr St. - Signed Route with Sharrows (Speers Rd. to Lakeshore Rd. W.)
 - U4:** Trafalgar Rd. - Signed Route with Sharrows (Cornwall Rd. to Randall St.)
 - U5:** Lakeshore Rd. W. - Signed Route with Sharrows (Kerr St. to Forsythe St.)
 - U6:** Lakeshore Rd. W. - Signed Route with Sharrows (Navy St. to Allan St.)

- Interim Solution**
- I1:** Lakeshore Rd. W. - Signed Route with Sharrows (Third Line to Corval Dr.)
 - I2:** Lakeshore Rd. E. - Signed Route with Sharrows (Allan St. to Winston Churchill Blvd.)

Town of Oakville Active Transportation Master Plan (ATMP)
Final November 2017

Legend

Existing Cycling Routes

- Route in Road Right-of-Way
- Route outside of Road Right-of-Way

Proposed Phasing and Routes

- 2018
- 2019
- 2020
- 2021
- 2022
- 2023
- 2024
- 2025
- 2026
- 2027

Other Symbols:

- Long Term Phase (11-20+ Years)
- Current Projects Underway
- Proposed Off-Road Trail in North Oakville Trails Plan area
- Regional Route (Town of Oakville ATMP Update does not include phasing of regional routes. Refer to Technical Appendix K.)
- Grade Separated Pedestrian Crossings
 - Proposed Grade Separated Pedestrian Crossing
 - Existing Grade Separated Pedestrian Crossing
- Priority Projects
 - Interim Solution
 - Ultimate Solution
- Existing and Proposed Surrounding Connections
 - Existing
 - Proposed
 - Route in Road Right-of-Way
 - Route outside of Road Right-of-Way
- Existing Regional Trails
 - Waterfront Trail / Trans Canada Trail
- Community Destinations
 - GO Transit Station
 - Elementary School
 - Secondary School
 - College
 - Other School
 - Community Centre
 - Library
 - Municipal / Regional Office
 - Sport Facility
 - Transit Station
 - Other Key Destination
- Transportation Features
 - Provincial Highway
 - Regional Road
 - Local Road
 - Private Road
 - Proposed Road
 - Active Railway
- Land Use Features
 - Park / Natural Heritage System
 - Provincial Park
 - Waterbody

Notes:

- Based on existing routes from the Town of Oakville Active Transportation Master Plan (2009), the North Oakville Trails Plan (2013), Downtown Transportation and Streetscape Study (2015), Midtown Oakville Transportation and Stormwater Municipal Class EA Final Report (2014) and the Halton Region Active Transportation Master Plan (2015).
- Proposed phasing includes routes under the jurisdiction of the Town of Oakville, Conservation Halton, Ontario Parks and Metrolinx.
- Includes current / on-going environmental assessment studies, detailed design studies, etc. undertaken by the Town of Oakville.
- Off-Road Trails within the North Oakville Trails Plan study area have not been identified within a specific implementation year. The timing of these projects will be consistent with the construction timeline for the development areas.
- Phasing for Regional routes is not identified as part of this study. Refer to the Halton Region Active Transportation Master Plan for phasing (by year) of routes under the jurisdiction of Halton Region - see Technical Appendix K.
- Refer to table in top-left corner of Map 9 for list of priority projects.
- Park and Natural Heritage System includes the Parkway Belt.



Appendix C

Turning Movement Count Data

Burnhamthorpe Rd W @ Neyagawa Blvd

Morning Peak Diagram

Specified Period

From: 7:00:00

To: 9:00:00

One Hour Peak

From: 7:45:00

To: 8:45:00

Municipality: Halton Region
Site #: 0000002837
Intersection: Neyagawa Blvd & Burnhamthorpe R
TFR File #: 2
Count date: 15-Nov-2017

Weather conditions:
Overcast/Dry
Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Neyagawa Blvd runs N/S

North Leg Total: 730
 North Entering: 254
 North Peds: 0
 Peds Cross: \times

Heavys	1	4	1	6
Trucks	1	1	1	3
Cars	55	162	28	245
Totals	57	167	30	



Heavys	5
Trucks	1
Cars	470
Totals	476

East Leg Total: 681
 East Entering: 291
 East Peds: 0
 Peds Cross: \times

Heavys	Trucks	Cars	Totals
13	1	290	304

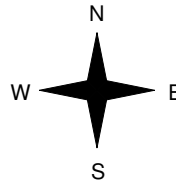


Neyagawa Blvd

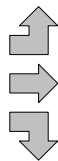
Cars	Trucks	Heavys	Totals
2	0	0	2
90	0	7	97
186	3	3	192
278	3	10	



Burnhamthorpe Rd W



Heavys	Trucks	Cars	Totals
0	1	32	33
4	0	64	68
9	0	127	136
13	1	223	



Neyagawa Blvd



Burnhamthorpe Rd W



Cars	Trucks	Heavys	Totals
382	1	7	390

Peds Cross: \times
 West Peds: 0
 West Entering: 237
 West Leg Total: 541

Cars	475	Cars	145	436	290	871
Trucks	4	Trucks	0	0	0	0
Heavys	16	Heavys	5	5	2	12
Totals	495	Totals	150	441	292	



Peds Cross: \times
 South Peds: 0
 South Entering: 883
 South Leg Total: 1378

Comments

Burnhamthorpe Rd W @ Neyagawa Blvd

Mid-day Peak Diagram

Specified Period

From: 11:00:00

To: 14:00:00

One Hour Peak

From: 11:30:00

To: 12:30:00

Municipality: Halton Region
Site #: 0000002837
Intersection: Neyagawa Blvd & Burnhamthorpe R
TFR File #: 2
Count date: 15-Nov-2017

Weather conditions:
Overcast/Dry
Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Neyagawa Blvd runs N/S

North Leg Total: 176

North Entering: 88

North Peds: 0

Peds Cross: \times

Heavys	0	3	1	4
Trucks	0	0	0	0
Cars	10	67	7	84
Totals	10	70	8	



Heavys 4

Trucks 3

Cars 81

Totals 88

East Leg Total: 229

East Entering: 121

East Peds: 0

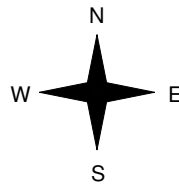
Peds Cross: \times

Heavys	0	Trucks	1	Cars	62	Totals	63
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Burnhamthorpe Rd W

Heavys	0	Trucks	0	Cars	4	Totals	4
	0		0		17		17
	0		1		53		54
	0		1		74		74



Neyagawa Blvd

Cars	4	Trucks	0	Heavys	1	Totals	5
	17		0		0		17
	91		2		6		99
	112		2		7		

Burnhamthorpe Rd W



Cars	102	Trucks	1	Heavys	5	Totals	108
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Peds Cross: \times

West Peds: 0

West Entering: 75

West Leg Total: 138

Cars	211	Cars	35	73	78	186
Trucks	3	Trucks	1	3	1	5
Heavys	9	Heavys	0	3	4	7
Totals	223	Totals	36	79	83	



Peds Cross: \times

South Peds: 0

South Entering: 198

South Leg Total: 421

Comments

Burnhamthorpe Rd W @ Neyagawa Blvd

Afternoon Peak Diagram

Specified Period

From: 15:00:00

To: 18:00:00

One Hour Peak

From: 16:45:00

To: 17:45:00

Municipality: Halton Region
Site #: 0000002837
Intersection: Neyagawa Blvd & Burnhamthorpe R
TFR File #: 2
Count date: 15-Nov-2017

Weather conditions:
 Overcast/Dry
Person(s) who counted:
 Cam

**** Signalized Intersection ****

Major Road: Neyagawa Blvd runs N/S

North Leg Total: 699
 North Entering: 475
 North Peds: 0
 Peds Cross: \times

Heavys	0	3	1	4
Trucks	1	2	0	3
Cars	23	432	13	468
Totals	24	437	14	



Heavys	4
Trucks	3
Cars	217
Totals	224

East Leg Total: 613
 East Entering: 401
 East Peds: 0
 Peds Cross: \times

Heavys	0
Trucks	1
Cars	78
Totals	79

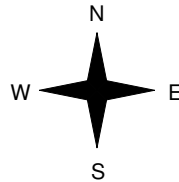


Neyagawa Blvd

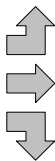
Cars	22	Trucks	0	Heavys	1	Totals	23
Cars	30	Trucks	0	Heavys	0	Totals	30
Cars	348	Trucks	0	Heavys	0	Totals	348
Totals	400	Totals	0	Totals	1		



Burnhamthorpe Rd W



Heavys	0
Trucks	0
Cars	24
Totals	24
Heavys	0
Trucks	0
Cars	34
Totals	34
Heavys	0
Trucks	1
Cars	50
Totals	51
Heavys	0
Trucks	1
Cars	108
Totals	108



Burnhamthorpe Rd W



Cars	211	Trucks	0	Heavys	1	Totals	212
------	-----	--------	---	--------	---	---------------	-----

Peds Cross: \times
 West Peds: 0
 West Entering: 109
 West Leg Total: 188

Cars	830	Cars	25	171	164	360
Trucks	3	Trucks	0	3	0	3
Heavys	3	Heavys	0	3	0	3
Totals	836	Totals	25	177	164	



Neyagawa Blvd



Peds Cross: \times
 South Peds: 0
 South Entering: 366
 South Leg Total: 1202

Comments

Burnhamthorpe Rd W @ Neyagawa Blvd

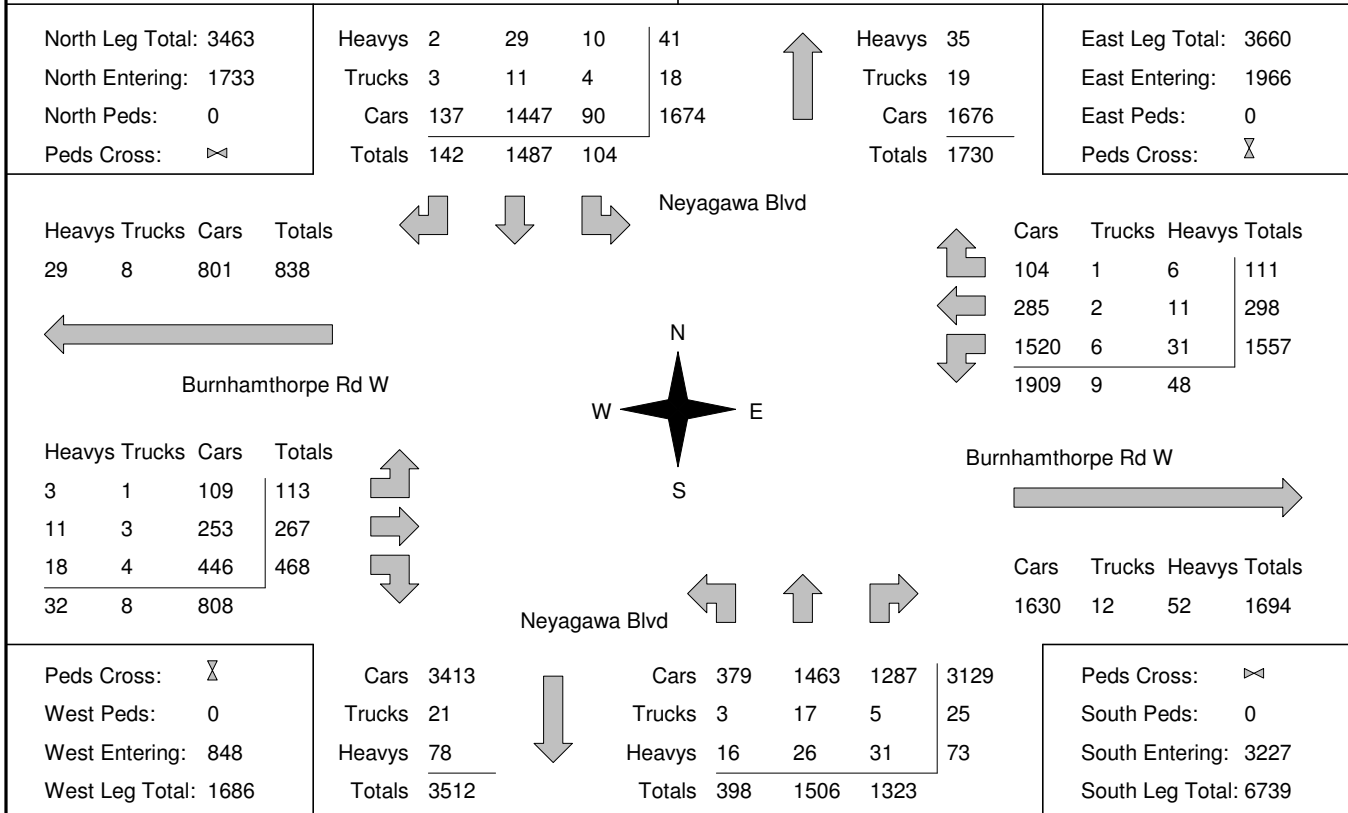
Total Count Diagram

Municipality: Halton Region
Site #: 0000002837
Intersection: Neyagawa Blvd & Burnhamthorpe R
TFR File #: 2
Count date: 15-Nov-2017

Weather conditions:
 Overcast/Dry
Person(s) who counted:
 Cam

**** Signalized Intersection ****

Major Road: Neyagawa Blvd runs N/S



Comments

Burnhamthorpe Rd @ 6 Line

Morning Peak Diagram

Specified Period

From: 7:00:00

To: 9:00:00

One Hour Peak

From: 7:30:00

To: 8:30:00

Municipality: Halton Region
Site #: 1006780100
Intersection: 6 Line & Burnhamthorpe Rd
TFR File #: 1
Count date: 19-Sep-2011

Weather conditions:
 Rain
Person(s) who counted:
 Ela M

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

Major Road: 6 Line runs N/S

North Leg Total: 799

North Entering: 379

North Peds: 1

Peds Cross: \times

Heavys	1	6	0	7
Trucks	2	6	3	11
Cars	35	179	147	361
Totals	38	191	150	



Heavys	5
Trucks	5
Cars	410
Totals	420

East Leg Total: 690

East Entering: 145

East Peds: 1

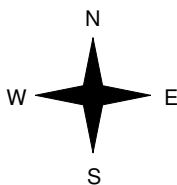
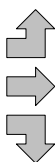
Peds Cross: \times

Heavys	Trucks	Cars	Totals
2	3	142	147



Burnhamthorpe Rd

Heavys	Trucks	Cars	Totals
2	1	104	107
1	2	193	196
1	0	48	49
4	3	345	



6 Line

Cars	Trucks	Heavys	Totals
13	0	0	13
100	1	1	102
28	2	0	30
141	3	1	



Burnhamthorpe Rd



Cars	Trucks	Heavys	Totals
538	6	1	545

Peds Cross: \times

West Peds: 1

West Entering: 352

West Leg Total: 499

Cars	255	Cars	7	293	198	498
Trucks	8	Trucks	0	4	1	5
Heavys	7	Heavys	0	3	0	3
Totals	270	Totals	7	300	199	



Peds Cross: \times

South Peds: 0

South Entering: 506

South Leg Total: 776

Comments

Burnhamthorpe Rd @ 6 Line

Mid-day Peak Diagram

Specified Period

From: 11:00:00

To: 14:00:00

One Hour Peak

From: 11:00:00

To: 12:00:00

Municipality: Halton Region
Site #: 1006780100
Intersection: 6 Line & Burnhamthorpe Rd
TFR File #: 1
Count date: 19-Sep-2011

Weather conditions:
 Rain
Person(s) who counted:
 Ela M

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

Major Road: 6 Line runs N/S

North Leg Total: 206

North Entering: 84

North Peds: 0

Peds Cross: \times

Heavys	0	8	0	8
Trucks	1	2	0	3
Cars	14	45	14	73
Totals	15	55	14	



Heavys 7

Trucks 3

Cars 112

Totals 122

East Leg Total: 164

East Entering: 102

East Peds: 0

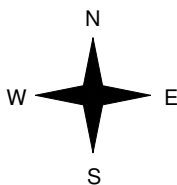
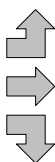
Peds Cross: \times

Heavys	0	Trucks	3	Cars	74	Totals	77
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Burnhamthorpe Rd

Heavys	0	Trucks	1	Cars	23	Totals	24
	2		1		28		31
	1		1		6		8
	3		3		57		



6 Line

Cars	17	Trucks	1	Heavys	0	Totals	18
	55		2		0		57
	25		1		1		27
	97		4		1		

Burnhamthorpe Rd



Cars	56	Trucks	3	Heavys	3	Totals	62
------	----	--------	---	--------	---	--------	----

Peds Cross: \times

West Peds: 1

West Entering: 63

West Leg Total: 140

Cars	76	Cars	5	72	14	91
Trucks	4	Trucks	0	1	2	3
Heavys	10	Heavys	0	7	1	8
Totals	90	Totals	5	80	17	



Peds Cross: \times

South Peds: 2

South Entering: 102

South Leg Total: 192

Comments

Burnhamthorpe Rd @ 6 Line

Afternoon Peak Diagram

Specified Period

From: 15:00:00

To: 18:00:00

One Hour Peak

From: 16:30:00

To: 17:30:00

Municipality: Halton Region
Site #: 1006780100
Intersection: 6 Line & Burnhamthorpe Rd
TFR File #: 1
Count date: 19-Sep-2011

Weather conditions:
 Rain
Person(s) who counted:
 Ela M

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

Major Road: 6 Line runs N/S

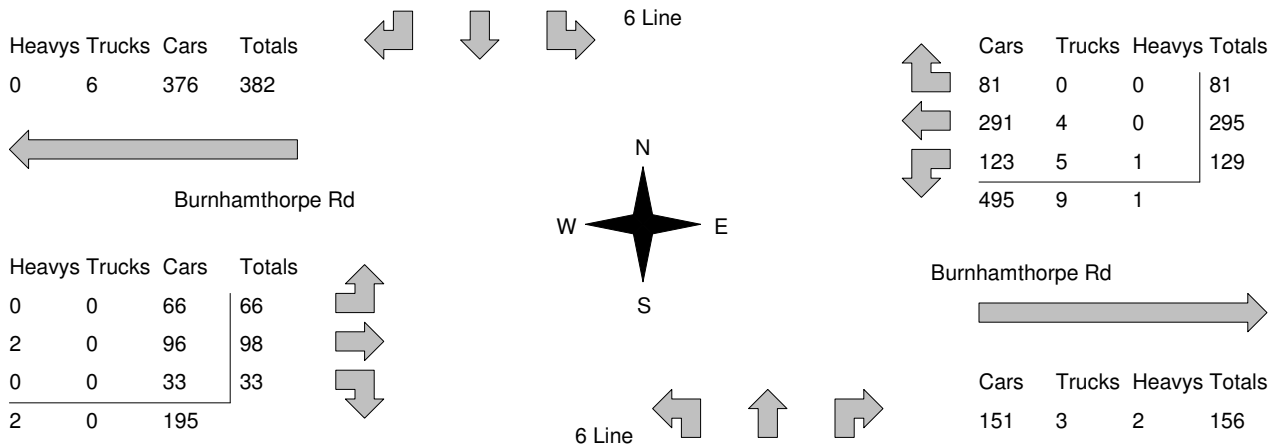
North Leg Total: 625
 North Entering: 259
 North Peds: 1
 Peds Cross: \times

Heavys	0	2	0	2
Trucks	2	3	3	8
Cars	52	177	20	249
Totals	54	182	23	



Heavys	2
Trucks	4
Cars	360
Totals	366

East Leg Total: 661
 East Entering: 505
 East Peds: 0
 Peds Cross: \times



Peds Cross: \times
 West Peds: 2
 West Entering: 197
 West Leg Total: 579

Cars	333	Cars	33	213	35	281
Trucks	8	Trucks	0	4	0	4
Heavys	3	Heavys	0	2	0	2
Totals	344	Totals	33	219	35	

Peds Cross: \times
 South Peds: 0
 South Entering: 287
 South Leg Total: 631

Comments

Burnhamthorpe Rd @ 6 Line

Total Count Diagram

Municipality: Halton Region
Site #: 1006780100
Intersection: 6 Line & Burnhamthorpe Rd
TFR File #: 1
Count date: 19-Sep-2011

Weather conditions:
 Rain
Person(s) who counted:
 Ela M

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

Major Road: 6 Line runs N/S

North Leg Total: 3375
 North Entering: 1562
 North Peds: 3
 Peds Cross: \bowtie

Heavys	3	34	3	40
Trucks	6	22	9	37
Cars	247	876	362	1485
Totals	256	932	374	



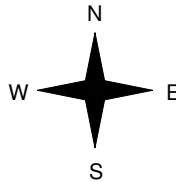
Heavys	39
Trucks	29
Cars	1745
Totals	1813

East Leg Total: 3280
 East Entering: 1709
 East Peds: 1
 Peds Cross: \bowtie

Heavys	Trucks	Cars	Totals
6	22	1281	1309



Burnhamthorpe Rd

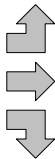


Cars	Trucks	Heavys	Totals
252	4	0	256
929	16	3	948
490	12	3	505
1671	32	6	

Burnhamthorpe Rd



Heavys	Trucks	Cars	Totals
5	4	335	344
12	9	632	653
5	7	171	183
22	20	1138	



6 Line



Cars	Trucks	Heavys	Totals
1531	22	18	1571

Peds Cross: \bowtie
 West Peds: 6
 West Entering: 1180
 West Leg Total: 2489

Cars	1537
Trucks	41
Heavys	42
Totals	1620



Cars	105	1158	537	1800
Trucks	0	21	4	25
Heavys	0	34	3	37
Totals	105	1213	544	

Peds Cross: \bowtie
 South Peds: 2
 South Entering: 1862
 South Leg Total: 3482

Comments

Burnhamthorpe Rd @ Sixth Line

Morning Peak Diagram

Specified Period

From: 7:00:00

To: 9:00:00

One Hour Peak

From: 7:45:00

To: 8:45:00

Municipality: Halton Region
Site #: 1006780100
Intersection: Burnhamthorpe Rd & Sixth Line
TFR File #: 2
Count date: 29-Apr-2013

Weather conditions:
 Cloudy/Dry
Person(s) who counted:
 Bronek

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

Major Road: Burnhamthorpe Rd runs W/E

North Leg Total: 882
 North Entering: 470
 North Peds: 0
 Peds Cross: \times

Heavys	2	0	0	2
Trucks	4	6	1	11
Cars	80	239	138	457
Totals	86	245	139	



Heavys	1
Trucks	8
Cars	403
Totals	412

East Leg Total: 686
 East Entering: 131
 East Peds: 1
 Peds Cross: \times

Heavys	Trucks	Cars	Totals
7	7	171	185

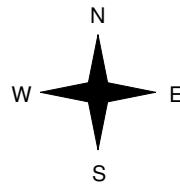


Sixth Line

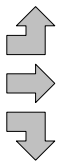
Cars	Trucks	Heavys	Totals
18	1	1	20
80	1	5	86
23	2	0	25
121	4	6	



Burnhamthorpe Rd



Heavys	Trucks	Cars	Totals
0	2	128	130
0	6	237	243
2	0	34	36
2	8	399	



Sixth Line

Burnhamthorpe Rd



Cars	Trucks	Heavys	Totals
545	10	0	555

Peds Cross: \times
 West Peds: 0
 West Entering: 409
 West Leg Total: 594

Cars	296	Cars	11	257	170	438
Trucks	8	Trucks	2	5	3	10
Heavys	2	Heavys	0	0	0	0
Totals	306	Totals	13	262	173	



Peds Cross: \times
 South Peds: 0
 South Entering: 448
 South Leg Total: 754

Comments

Burnhamthorpe Rd @ Sixth Line

Mid-day Peak Diagram

Specified Period

From: 11:00:00

To: 14:00:00

One Hour Peak

From: 13:00:00

To: 14:00:00

Municipality: Halton Region
Site #: 1006780100
Intersection: Burnhamthorpe Rd & Sixth Line
TFR File #: 2
Count date: 29-Apr-2013

Weather conditions:
 Cloudy/Dry
Person(s) who counted:
 Bronek

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

Major Road: Burnhamthorpe Rd runs W/E

North Leg Total: 235
 North Entering: 107
 North Peds: 0
 Peds Cross: \times

Heavys	0	0	1	1
Trucks	3	1	2	6
Cars	29	52	19	100
Totals	32	53	22	



Heavys	4
Trucks	6
Cars	118
Totals	128

East Leg Total: 177
 East Entering: 93
 East Peds: 0
 Peds Cross: \times

Heavys	Trucks	Cars	Totals
1	6	87	94

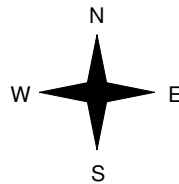


Sixth Line

Cars	Trucks	Heavys	Totals
17	1	1	19
53	3	1	57
17	0	0	17
87	4	2	



Burnhamthorpe Rd



Heavys	Trucks	Cars	Totals
1	1	26	28
1	2	42	45
0	0	5	5
2	3	73	



Sixth Line

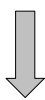
Burnhamthorpe Rd



Cars	Trucks	Heavys	Totals
78	4	2	84

Peds Cross: \times
 West Peds: 0
 West Entering: 78
 West Leg Total: 172

Cars	74	Cars	5	75	17	97
Trucks	1	Trucks	0	4	0	4
Heavys	0	Heavys	0	2	0	2
Totals	75	Totals	5	81	17	



Peds Cross: \times
 South Peds: 0
 South Entering: 103
 South Leg Total: 178

Comments

Burnhamthorpe Rd @ Sixth Line

Afternoon Peak Diagram

Specified Period

From: 15:00:00

To: 18:00:00

One Hour Peak

From: 16:30:00

To: 17:30:00

Municipality: Halton Region
Site #: 1006780100
Intersection: Burnhamthorpe Rd & Sixth Line
TFR File #: 2
Count date: 29-Apr-2013

Weather conditions:

Cloudy/Dry

Person(s) who counted:

Bronek

** Non-Signalized Intersection **

Major Road: Burnhamthorpe Rd runs W/E

North Leg Total: 681

North Entering: 344

North Peds: 0

Peds Cross: \times

Heavys	0	1	0	1
Trucks	0	2	1	3
Cars	136	176	28	340
Totals	136	179	29	



Heavys 0

Trucks 3

Cars 334

Totals 337

East Leg Total: 671

East Entering: 512

East Peds: 0

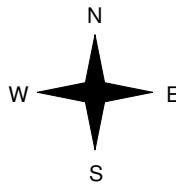
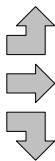
Peds Cross: \times

Heavys	0	Trucks	4	Cars	473	Totals	477
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Burnhamthorpe Rd

Heavys	0	Trucks	0	Cars	66	Totals	66
	1		0		82		83
	2		0		10		12
	3		0		158		



Sixth Line

Cars	102	Trucks	2	Heavys	0	Totals	104
	321		4		0		325
	83		0		0		83
	506		6		0		

Burnhamthorpe Rd



Cars	157	Trucks	1	Heavys	1	Totals	159
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Peds Cross: \times

West Peds: 0

West Entering: 161

West Leg Total: 638

Cars	269	Cars	16	166	47	229
Trucks	2	Trucks	0	1	0	1
Heavys	3	Heavys	0	0	0	0
Totals	274	Totals	16	167	47	



Peds Cross: \times

South Peds: 0

South Entering: 230

South Leg Total: 504

Comments

Burnhamthorpe Rd @ Sixth Line

Total Count Diagram

Municipality: Halton Region
Site #: 1006780100
Intersection: Burnhamthorpe Rd & Sixth Line
TFR File #: 2
Count date: 29-Apr-2013

Weather conditions:
 Cloudy/Dry
Person(s) who counted:
 Bronek

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

Major Road: Burnhamthorpe Rd runs W/E

North Leg Total: 3892
 North Entering: 1954
 North Peds: 0
 Peds Cross: \times

Heavys	6	6	1	13
Trucks	15	26	9	50
Cars	533	995	363	1891
Totals	554	1027	373	



Heavys	18
Trucks	36
Cars	1884
Totals	1938

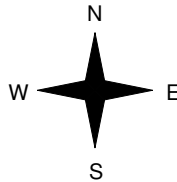
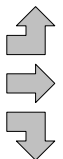
East Leg Total: 3313
 East Entering: 1678
 East Peds: 1
 Peds Cross: \times

Heavys	Trucks	Cars	Totals
15	32	1632	1679



Burnhamthorpe Rd

Heavys	Trucks	Cars	Totals
8	12	523	543
11	13	789	813
7	2	97	106
26	27	1409	



Sixth Line



Cars	Trucks	Heavys	Totals
307	6	3	316
1029	12	9	1050
309	3	0	312
1645	21	12	

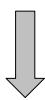
Burnhamthorpe Rd



Cars	Trucks	Heavys	Totals
1594	29	12	1635

Peds Cross: \times
 West Peds: 0
 West Entering: 1462
 West Leg Total: 3141

Cars	1401
Trucks	31
Heavys	13
Totals	1445



Cars	70	1054	442	1566
Trucks	5	18	7	30
Heavys	0	7	0	7
Totals	75	1079	449	

Peds Cross: \times
 South Peds: 0
 South Entering: 1603
 South Leg Total: 3048

Comments

Burnhamthorpe Rd @ Sixth Line

Morning Peak Diagram

Specified Period

From: 7:00:00

To: 9:00:00

One Hour Peak

From: 8:00:00

To: 9:00:00

Municipality: Halton Region
Site #: 0000002461
Intersection: Burnhamthorpe Rd & Sixth Line
TFR File #: 2
Count date: 4-May-2015

Weather conditions:
 Clear/Dry
Person(s) who counted:
 Adrianna

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

Major Road: Burnhamthorpe Rd runs W/E

North Leg Total: 1544
 North Entering: 818
 North Peds: 0
 Peds Cross: \times

Heavys	6	1	2	9
Trucks	4	2	0	6
Cars	178	419	206	803
Totals	188	422	208	



Heavys	4
Trucks	10
Cars	712
Totals	726

East Leg Total: 1372
 East Entering: 623
 East Peds: 0
 Peds Cross: \times

Heavys	Trucks	Cars	Totals
10	5	631	646

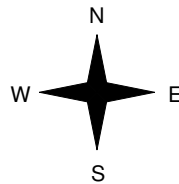


Sixth Line

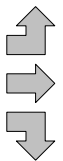
Cars	Trucks	Heavys	Totals
157	1	1	159
341	1	3	345
119	0	0	119
617	2	4	



Burnhamthorpe Rd



Heavys	Trucks	Cars	Totals
0	4	159	163
2	1	304	307
1	3	26	30
3	8	489	



Sixth Line

Burnhamthorpe Rd



Cars	Trucks	Heavys	Totals
744	1	4	749

Peds Cross: \times
 West Peds: 1
 West Entering: 500
 West Leg Total: 1146

Cars	564
Trucks	5
Heavys	2
Totals	571



Cars	112	396	234	742
Trucks	0	5	0	5
Heavys	1	3	0	4
Totals	113	404	234	

Peds Cross: \times
 South Peds: 0
 South Entering: 751
 South Leg Total: 1322

Comments

Burnhamthorpe Rd @ Sixth Line

Mid-day Peak Diagram

Specified Period

From: 11:00:00

To: 14:00:00

One Hour Peak

From: 12:00:00

To: 13:00:00

Municipality: Halton Region
Site #: 0000002461
Intersection: Burnhamthorpe Rd & Sixth Line
TFR File #: 2
Count date: 4-May-2015

Weather conditions:
 Clear/Dry
Person(s) who counted:
 Adrianna

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

Major Road: Burnhamthorpe Rd runs W/E

North Leg Total: 431
 North Entering: 212
 North Peds: 0
 Peds Cross: \times

Heavys	0	2	1	3
Trucks	0	3	0	3
Cars	2	170	34	206
Totals	2	175	35	



Heavys	0
Trucks	3
Cars	216
Totals	219

East Leg Total: 339
 East Entering: 203
 East Peds: 1
 Peds Cross: \times

Heavys	0
Trucks	1
Cars	107
Totals	108

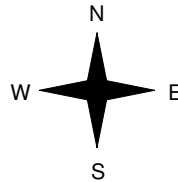


Sixth Line

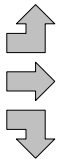
Cars	41	0	0	41
Trucks	103	1	0	104
Heavys	54	3	1	58
Totals	198	4	1	



Burnhamthorpe Rd



Heavys	0
Trucks	0
Cars	15
Totals	15
Heavys	0
Trucks	1
Cars	67
Totals	68
Heavys	2
Trucks	0
Cars	6
Totals	8
Heavys	2
Trucks	1
Cars	88
Totals	91



Sixth Line

Burnhamthorpe Rd



Cars	134	1	1	136
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Peds Cross: \times
 West Peds: 1
 West Entering: 91
 West Leg Total: 199

Cars	230	2	160	33	195
Trucks	6	0	3	0	3
Heavys	5	0	0	0	0
Totals	241	2	163	33	



Peds Cross: \times
 South Peds: 0
 South Entering: 198
 South Leg Total: 439

Comments

Burnhamthorpe Rd @ Sixth Line

Afternoon Peak Diagram

Specified Period

From: 15:00:00

To: 18:00:00

One Hour Peak

From: 17:00:00

To: 18:00:00

Municipality: Halton Region
Site #: 0000002461
Intersection: Burnhamthorpe Rd & Sixth Line
TFR File #: 2
Count date: 4-May-2015

Weather conditions:

Clear/Dry

Person(s) who counted:

Adrianna

** Non-Signalized Intersection **

Major Road: Burnhamthorpe Rd runs W/E

North Leg Total: 1162
 North Entering: 558
 North Peds: 0
 Peds Cross: ∇

Heavys	0	3	0	3
Trucks	0	8	1	9
Cars	45	413	88	546
Totals	45	424	89	



Heavys	1
Trucks	8
Cars	595
Totals	604

East Leg Total: 899
 East Entering: 486
 East Peds: 0
 Peds Cross: ∇

Heavys	0
Trucks	6
Cars	392
Totals	398

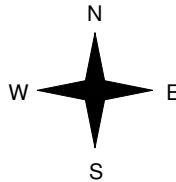


Sixth Line

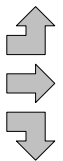
Cars	77	0	0	77
Trucks	252	6	0	258
Heavys	151	0	0	151
Totals	480	6	0	



Burnhamthorpe Rd



Heavys	0
Trucks	2
Cars	27
Totals	29
Heavys	0
Trucks	3
Cars	206
Totals	209
Heavys	0
Trucks	1
Cars	56
Totals	57
Heavys	0
Trucks	6
Cars	289
Totals	295



Burnhamthorpe Rd



Cars	409	4	0	413
Trucks				
Heavys				
Totals	409	4	0	413

Sixth Line



Peds Cross: ∇
 West Peds: 0
 West Entering: 295
 West Leg Total: 693

Cars	620	95	491	115	701
Trucks	9	0	6	0	6
Heavys	3	0	1	0	1
Totals	632	95	498	115	



Peds Cross: ∇
 South Peds: 0
 South Entering: 708
 South Leg Total: 1340

Comments

Burnhamthorpe Rd @ Sixth Line

Total Count Diagram

Municipality: Halton Region
Site #: 0000002461
Intersection: Burnhamthorpe Rd & Sixth Line
TFR File #: 2
Count date: 4-May-2015

Weather conditions:
 Clear/Dry
Person(s) who counted:
 Adrianna

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

Major Road: Burnhamthorpe Rd runs W/E

North Leg Total: 6415
 North Entering: 3183
 North Peds: 0
 Peds Cross: \times

Heavys	9	24	5	38
Trucks	5	36	6	47
Cars	367	2109	622	3098
Totals	381	2169	633	



Heavys	9
Trucks	48
Cars	3175
Totals	3232

East Leg Total: 5098
 East Entering: 2421
 East Peds: 1
 Peds Cross: \times

Heavys	Trucks	Cars	Totals
15	23	2010	2048

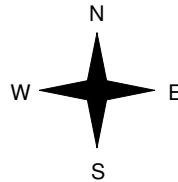


Sixth Line

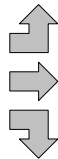
Cars	Trucks	Heavys	Totals
462	6	2	470
1358	12	4	1374
568	8	1	577
2388	26	7	



Burnhamthorpe Rd



Heavys	Trucks	Cars	Totals
0	8	417	425
3	16	1254	1273
7	9	168	184
10	33	1839	



Burnhamthorpe Rd



Sixth Line



Peds Cross: \times
 West Peds: 3
 West Entering: 1882
 West Leg Total: 3930

Cars	2845	Cars	285	2296	763	3344
Trucks	53	Trucks	6	34	8	48
Heavys	32	Heavys	2	7	0	9
Totals	2930	Totals	293	2337	771	



Peds Cross: \times
 South Peds: 0
 South Entering: 3401
 South Leg Total: 6331

Comments

Burnhamthorpe Rd E @ Trafalgar Rd

Morning Peak Diagram

Specified Period

From: 7:00:00

To: 9:00:00

One Hour Peak

From: 7:30:00

To: 8:30:00

Municipality: Halton Region
Site #: 0000002983
Intersection: Trafalgar Rd & Burnhamthorpe Rd E
TFR File #: 2
Count date: 26-Jun-2017

Weather conditions:
 Cloudy/Dry
Person(s) who counted:
 Bronek
 Radek

**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Leg Total: 2653
 North Entering: 1328
 North Peds: 0
 Peds Cross: \bowtie

Heavys	0	45	2	47
Trucks	1	26	2	29
Cars	36	976	240	1252
Totals	37	1047	244	



Heavys	37
Trucks	17
Cars	1271
Totals	1325

East Leg Total: 917
 East Entering: 216
 East Peds: 0
 Peds Cross: \bowtie

Heavys	8	Trucks	5	Cars	144	Totals	157
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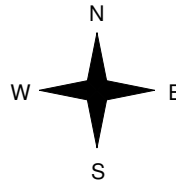


Trafalgar Rd

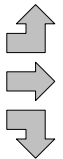
Cars	81	Trucks	2	Heavys	2	Totals	85
Cars	72	Trucks	1	Heavys	1	Totals	74
Cars	55	Trucks	1	Heavys	1	Totals	57
Totals	208	4	4				



Burnhamthorpe Rd E



Heavys	3	Trucks	0	Cars	75	Totals	78
Heavys	0	Trucks	7	Cars	338	Totals	345
Heavys	1	Trucks	3	Cars	147	Totals	151
Totals	4	10	560				



Burnhamthorpe Rd E



Trafalgar Rd



Cars	689	Trucks	10	Heavys	2	Totals	701
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Peds Cross: \bowtie
 West Peds: 0
 West Entering: 574
 West Leg Total: 731

Cars	1178	Cars	36	1115	111	1262
Trucks	30	Trucks	3	15	1	19
Heavys	47	Heavys	7	32	0	39
Totals	1255	Totals	46	1162	112	



Peds Cross: \bowtie
 South Peds: 0
 South Entering: 1320
 South Leg Total: 2575

Comments

Burnhamthorpe Rd E @ Trafalgar Rd

Mid-day Peak Diagram

Specified Period

From: 11:00:00

To: 14:00:00

One Hour Peak

From: 13:00:00

To: 14:00:00

Municipality: Halton Region
Site #: 0000002983
Intersection: Trafalgar Rd & Burnhamthorpe Rd E
TFR File #: 2
Count date: 26-Jun-2017

Weather conditions:
 Cloudy/Dry
Person(s) who counted:
 Bronek
 Radek

**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Leg Total: 1498
 North Entering: 757
 North Peds: 0
 Peds Cross: \times

Heavys	1	47	2	50
Trucks	0	17	0	17
Cars	27	556	107	690
Totals	28	620	109	



Heavys	46
Trucks	27
Cars	668
Totals	741

East Leg Total: 541
 East Entering: 303
 East Peds: 0
 Peds Cross: \times

Heavys	8
Trucks	6
Cars	145
Totals	159

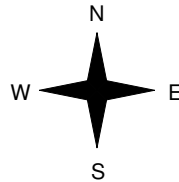


Trafalgar Rd

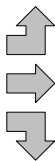
Cars	110	Trucks	2	Heavys	2	Totals	114
Cars	86	Trucks	3	Heavys	0	Totals	89
Cars	100	Trucks	0	Heavys	0	Totals	100
Totals	296	Totals	5	Totals	2		



Burnhamthorpe Rd E



Heavys	1	Trucks	0	Cars	27	Totals	28
Heavys	0	Trucks	2	Cars	54	Totals	56
Heavys	0	Trucks	2	Cars	32	Totals	34
Totals	1	Totals	4	Totals	113		



Burnhamthorpe Rd E



Peds Cross: \times
 West Peds: 0
 West Entering: 118
 West Leg Total: 277

Cars	688	Cars	32	531	72	635
Trucks	19	Trucks	3	25	1	29
Heavys	47	Heavys	7	43	0	50
Totals	754	Totals	42	599	73	



Trafalgar Rd



Peds Cross: \times
 South Peds: 0
 South Entering: 714
 South Leg Total: 1468

Comments

Burnhamthorpe Rd E @ Trafalgar Rd

Afternoon Peak Diagram

Specified Period

From: 15:00:00
To: 18:00:00

One Hour Peak

From: 16:45:00
To: 17:45:00

Municipality: Halton Region
Site #: 0000002983
Intersection: Trafalgar Rd & Burnhamthorpe Rd E
TFR File #: 2
Count date: 26-Jun-2017

Weather conditions:

Cloudy/Dry

Person(s) who counted:

Bronek
Radek

** Signalized Intersection **

Major Road: Trafalgar Rd runs N/S

North Leg Total: 2876
North Entering: 1267
North Peds: 0
Peds Cross: \times

Heavys	0	20	0	20
Trucks	0	9	0	9
Cars	140	940	158	1238
Totals	140	969	158	



Heavys	29
Trucks	19
Cars	1561
Totals	1609

East Leg Total: 989
East Entering: 629
East Peds: 0
Peds Cross: \times

Heavys	Trucks	Cars	Totals
0	4	672	676

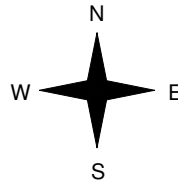


Trafalgar Rd

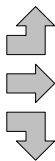
Cars	Trucks	Heavys	Totals
209	0	0	209
322	3	0	325
95	0	0	95
626	3	0	



Burnhamthorpe Rd E



Heavys	Trucks	Cars	Totals
1	0	42	43
0	1	119	120
1	0	46	47
2	1	207	



Burnhamthorpe Rd E



Cars	Trucks	Heavys	Totals
358	1	1	360

Peds Cross: \times
West Peds: 0
West Entering: 210
West Leg Total: 886

Cars	1081
Trucks	9
Heavys	21
Totals	1111



Cars	210	1310	81	1601
Trucks	1	19	0	20
Heavys	0	28	1	29
Totals	211	1357	82	

Peds Cross: \times
South Peds: 0
South Entering: 1650
South Leg Total: 2761

Comments

Burnhamthorpe Rd E @ Trafalgar Rd

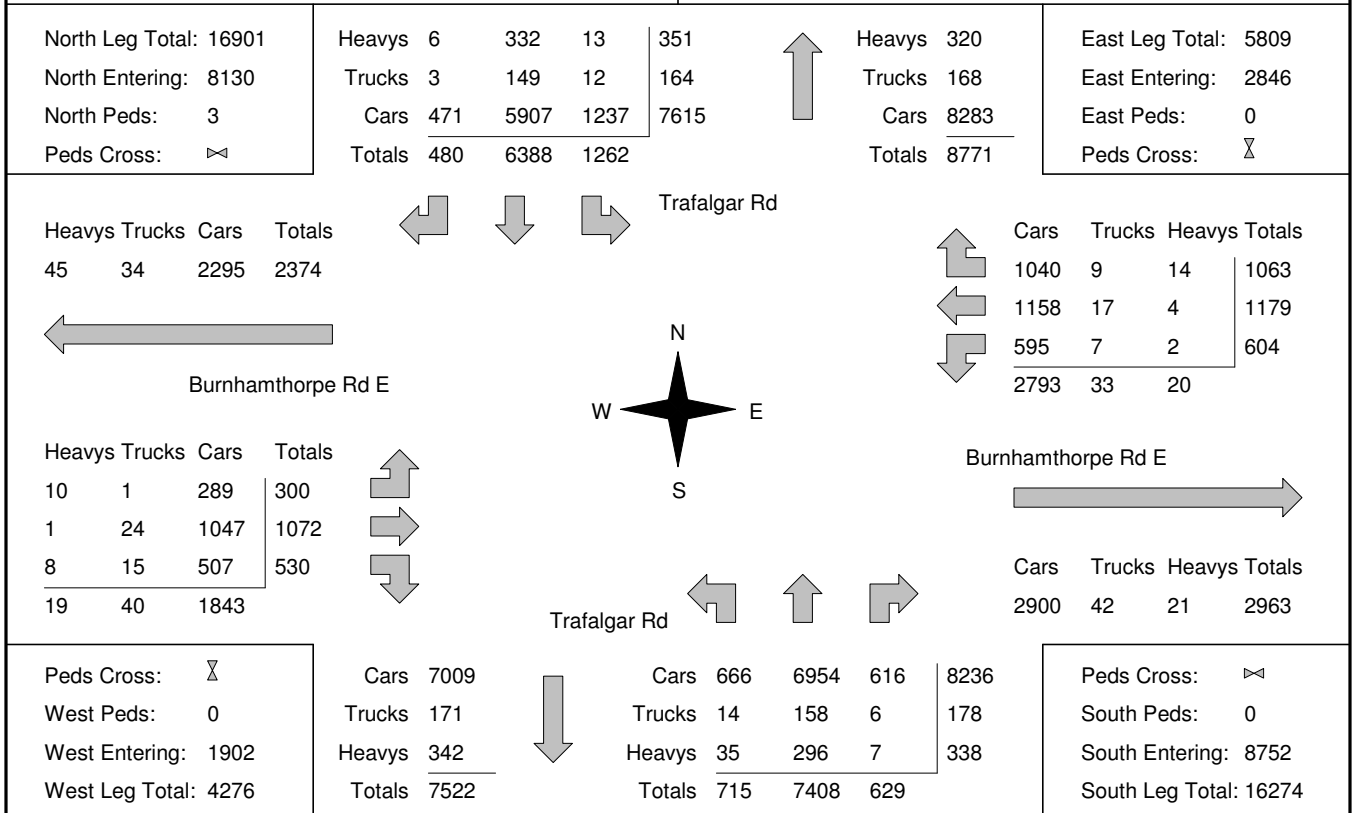
Total Count Diagram

Municipality: Halton Region
Site #: 0000002983
Intersection: Trafalgar Rd & Burnhamthorpe Rd E
TFR File #: 2
Count date: 26-Jun-2017

Weather conditions:
 Cloudy/Dry
Person(s) who counted:
 Bronek
 Radek

**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S



Comments

Dundas St @ Sixth Line

Morning Peak Diagram

Specified Period

From: 7:00:00

To: 9:00:00

One Hour Peak

From: 7:45:00

To: 8:45:00

Municipality: Oakville
Site #: 1000980100
Intersection: Dundas St & Sixth Line
TFR File #: 1
Count date: 25-Mar-2013

Weather conditions:
 Cloudy/Dry
Person(s) who counted:
 Margaret
 Paula

**** Signalized Intersection ****

Major Road: Dundas St runs W/E

North Leg Total: 917
 North Entering: 377
 North Peds: 0
 Peds Cross: ∇

Heavys	1	4	2	7
Trucks	3	6	4	13
Cars	108	157	92	357
Totals	112	167	98	



Heavys	6
Trucks	9
Cars	525
Totals	540

East Leg Total: 2420
 East Entering: 622
 East Peds: 0
 Peds Cross: ∇

Heavys	Trucks	Cars	Totals
37	29	600	666

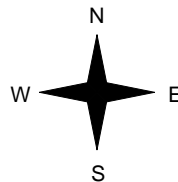


Sixth Line

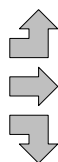
Cars	Trucks	Heavys	Totals
58	1	1	60
418	21	30	469
92	0	1	93
568	22	32	



Dundas St



Heavys	Trucks	Cars	Totals
2	3	246	251
21	16	1444	1481
0	1	142	143
23	20	1832	



Dundas St



Peds Cross: ∇
 West Peds: 0
 West Entering: 1875
 West Leg Total: 2541

Cars	391	Cars	74	221	214	509
Trucks	7	Trucks	5	5	2	12
Heavys	5	Heavys	6	3	3	12
Totals	403	Totals	85	229	219	



Sixth Line



Peds Cross: ∇
 South Peds: 0
 South Entering: 533
 South Leg Total: 936

Comments

Dundas St @ Sixth Line

Mid-day Peak Diagram

Specified Period

From: 11:00:00

To: 14:00:00

One Hour Peak

From: 13:00:00

To: 14:00:00

Municipality: Oakville
Site #: 1000980100
Intersection: Dundas St & Sixth Line
TFR File #: 1
Count date: 25-Mar-2013

Weather conditions:
 Cloudy/Dry
Person(s) who counted:
 Margaret
 Paula

**** Signalized Intersection ****

Major Road: Dundas St runs W/E

North Leg Total: 299
 North Entering: 139
 North Peds: 1
 Peds Cross: \times

Heavys	0	0	2	2
Trucks	1	1	0	2
Cars	60	36	39	135
Totals	61	37	41	



Heavys	11
Trucks	9
Cars	140
Totals	160

East Leg Total: 1766
 East Entering: 894
 East Peds: 0
 Peds Cross: \times

Heavys	Trucks	Cars	Totals
44	24	795	863

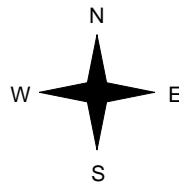


Sixth Line

Cars	Trucks	Heavys	Totals
42	3	6	51
696	23	41	760
82	1	0	83
820	27	47	



Dundas St



Heavys	Trucks	Cars	Totals
3	2	49	54
31	19	651	701
0	1	58	59
34	22	758	



Sixth Line

Dundas St



Cars	Trucks	Heavys	Totals
814	23	35	872

Peds Cross: \times
 West Peds: 0
 West Entering: 814
 West Leg Total: 1677

Cars	176	Cars	39	49	124	212
Trucks	3	Trucks	0	4	4	8
Heavys	0	Heavys	3	2	2	7
Totals	179	Totals	42	55	130	



Peds Cross: \times
 South Peds: 0
 South Entering: 227
 South Leg Total: 406

Comments

Dundas St @ Sixth Line

Afternoon Peak Diagram

Specified Period

From: 15:00:00
To: 18:00:00

One Hour Peak

From: 16:30:00
To: 17:30:00

Municipality: Oakville
Site #: 1000980100
Intersection: Dundas St & Sixth Line
TFR File #: 1
Count date: 25-Mar-2013

Weather conditions:
Cloudy/Dry
Person(s) who counted:
Margaret
Paula

**** Signalized Intersection ****

Major Road: Dundas St runs W/E

North Leg Total: 909
North Entering: 530
North Peds: 0
Peds Cross: \times

Heavys	2	1	3	6
Trucks	5	6	3	14
Cars	188	216	106	510
Totals	195	223	112	



Heavys	5
Trucks	12
Cars	362
Totals	379

East Leg Total: 3297
East Entering: 2007
East Peds: 0
Peds Cross: \times

Heavys	Trucks	Cars	Totals
23	30	1894	1947

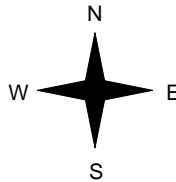


Sixth Line

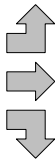
Cars	Trucks	Heavys	Totals
102	3	1	106
1599	24	21	1644
244	9	4	257
1945	36	26	



Dundas St



Heavys	Trucks	Cars	Totals
0	2	73	75
14	21	975	1010
1	4	135	140
15	27	1183	



Sixth Line

Dundas St



Cars	Trucks	Heavys	Totals
1245	27	18	1290

Peds Cross: \times
West Peds: 0
West Entering: 1225
West Leg Total: 3172

Cars	595	Cars	107	187	164	458
Trucks	19	Trucks	1	7	3	11
Heavys	6	Heavys	0	4	1	5
Totals	620	Totals	108	198	168	



Peds Cross: \times
South Peds: 0
South Entering: 474
South Leg Total: 1094

Comments

Dundas St @ Sixth Line

Total Count Diagram

Municipality: Oakville
Site #: 1000980100
Intersection: Dundas St & Sixth Line
TFR File #: 1
Count date: 25-Mar-2013

Weather conditions:
 Cloudy/Dry
Person(s) who counted:
 Margaret
 Paula

**** Signalized Intersection ****

Major Road: Dundas St runs W/E

North Leg Total: 4579
 North Entering: 2262
 North Peds: 1
 Peds Cross: \bowtie

Heavys	10	12	13	35
Trucks	28	27	26	81
Cars	765	833	548	2146
Totals	803	872	587	



Heavys	42
Trucks	79
Cars	2196
Totals	2317

East Leg Total: 17753
 East Entering: 8261
 East Peds: 7
 Peds Cross: \bowtie

Heavys	Trucks	Cars	Totals
294	230	7656	8180

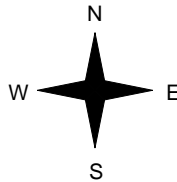


Sixth Line

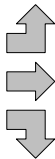
Cars	Trucks	Heavys	Totals
486	17	15	518
6290	185	267	6742
962	25	14	1001
7738	227	296	



Dundas St



Heavys	Trucks	Cars	Totals
9	23	787	819
206	148	7241	7595
4	17	726	747
219	188	8754	



Sixth Line



Dundas St



Cars	Trucks	Heavys	Totals
9063	195	234	9492

Peds Cross: \bowtie
 West Peds: 1
 West Entering: 9161
 West Leg Total: 17341

Cars	2521
Trucks	69
Heavys	30
Totals	2620



Cars	601	923	1274	2798
Trucks	17	39	21	77
Heavys	17	18	15	50
Totals	635	980	1310	

Peds Cross: \bowtie
 South Peds: 1
 South Entering: 2925
 South Leg Total: 5545

Comments

Dundas St @ Sixth Line

Morning Peak Diagram

Specified Period

From: 7:00:00

To: 9:00:00

One Hour Peak

From: 7:30:00

To: 8:30:00

Municipality: Halton Region
Site #: 0000002554
Intersection: Dundas St & Sixth Line
TFR File #: 7
Count date: 21-Apr-2015

Weather conditions:
 Sunny/Dry am, Rain pm
Person(s) who counted:
 Teresa
 Elizabeth

**** Signalized Intersection ****

Major Road: Dundas St runs W/E

North Leg Total: 1113
 North Entering: 712
 North Peds: 0
 Peds Cross: \times

Heavys	4	5	4	13
Trucks	6	4	3	13
Cars	61	364	261	686
Totals	71	373	268	



Heavys	9
Trucks	9
Cars	383
Totals	401

East Leg Total: 4094
 East Entering: 736
 East Peds: 0
 Peds Cross: \times

Heavys	Trucks	Cars	Totals
64	34	654	752

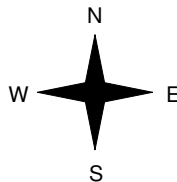


Sixth Line

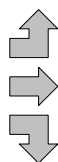
Cars	Trucks	Heavys	Totals
52	1	2	55
506	27	58	591
83	3	4	90
641	31	64	



Dundas St



Heavys	Trucks	Cars	Totals
5	4	155	164
36	23	2761	2820
3	2	154	159
44	29	3070	



Sixth Line

Dundas St



Cars	Trucks	Heavys	Totals
3287	27	44	3358

Peds Cross: \times
 West Peds: 3
 West Entering: 3143
 West Leg Total: 3895

Cars	601	Cars	87	176	265	528
Trucks	9	Trucks	1	4	1	6
Heavys	12	Heavys	2	2	4	8
Totals	622	Totals	90	182	270	



Peds Cross: \times
 South Peds: 0
 South Entering: 542
 South Leg Total: 1164

Comments

Dundas St @ Sixth Line

Mid-day Peak Diagram

Specified Period

From: 11:00:00
To: 14:00:00

One Hour Peak

From: 12:00:00
To: 13:00:00

Municipality: Halton Region
Site #: 0000002554
Intersection: Dundas St & Sixth Line
TFR File #: 7
Count date: 21-Apr-2015

Weather conditions:
Sunny/Dry am, Rain pm
Person(s) who counted:
Teresa
Elizabeth

**** Signalized Intersection ****

Major Road: Dundas St runs W/E

North Leg Total: 353
North Entering: 184
North Peds: 1
Peds Cross: \times

Heavys	1	0	0	1
Trucks	2	3	1	6
Cars	26	60	91	177
Totals	29	63	92	



Heavys	0
Trucks	4
Cars	165
Totals	169

East Leg Total: 2099
East Entering: 996
East Peds: 1
Peds Cross: \times

Heavys	41
Trucks	32
Cars	847
Totals	920

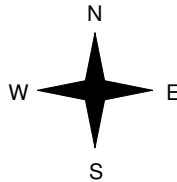


Sixth Line

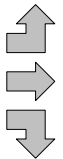
Cars	79	0	0	79
Trucks	741	29	39	809
Heavys	104	3	1	108
Totals	924	32	40	



Dundas St



Heavys	0
Trucks	1
Cars	36
Totals	37
Heavys	32
Trucks	38
Cars	850
Totals	920
Heavys	0
Trucks	2
Cars	67
Totals	69



Dundas St



Peds Cross: \times
West Peds: 2
West Entering: 1026
West Leg Total: 1946

Cars	231	80	50	91	221
Trucks	8	1	3	0	4
Heavys	1	1	0	0	1
Totals	240	82	53	91	



Sixth Line



Peds Cross: \times
South Peds: 2
South Entering: 226
South Leg Total: 466

Comments

Dundas St @ Sixth Line

Afternoon Peak Diagram

Specified Period

From: 15:00:00

To: 18:00:00

One Hour Peak

From: 17:00:00

To: 18:00:00

Municipality: Halton Region
Site #: 0000002554
Intersection: Dundas St & Sixth Line
TFR File #: 7
Count date: 21-Apr-2015

Weather conditions:

Sunny/Dry am, Rain pm

Person(s) who counted:

Teresa
Elizabeth

** Signalized Intersection **

Major Road: Dundas St runs W/E

North Leg Total: 1355
 North Entering: 640
 North Peds: 0
 Peds Cross: \times

Heavys	3	0	0	3
Trucks	0	0	5	5
Cars	183	314	135	632
Totals	186	314	140	



Heavys	6
Trucks	6
Cars	703
Totals	715

East Leg Total: 3758
 East Entering: 2301
 East Peds: 1
 Peds Cross: \times

Heavys	Trucks	Cars	Totals
27	22	2195	2244

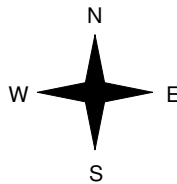


Sixth Line

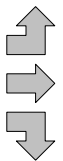
Cars	Trucks	Heavys	Totals
188	3	3	194
1860	17	24	1901
206	0	0	206
2254	20	27	



Dundas St



Heavys	Trucks	Cars	Totals
0	2	123	125
22	6	1156	1184
0	1	123	124
22	9	1402	



Dundas St



Cars	Trucks	Heavys	Totals
1416	19	22	1457

Sixth Line

Peds Cross: \times
 West Peds: 3
 West Entering: 1433
 West Leg Total: 3677

Cars	643	Cars	152	392	125	669
Trucks	1	Trucks	5	1	8	14
Heavys	0	Heavys	0	3	0	3
Totals	644	Totals	157	396	133	



Peds Cross: \times
 South Peds: 1
 South Entering: 686
 South Leg Total: 1330

Comments

Dundas St @ Sixth Line

Total Count Diagram

Municipality: Halton Region
Site #: 0000002554
Intersection: Dundas St & Sixth Line
TFR File #: 7
Count date: 21-Apr-2015

Weather conditions:
 Sunny/Dry am, Rain pm
Person(s) who counted:
 Teresa
 Elizabeth

**** Signalized Intersection ****

Major Road: Dundas St runs W/E

North Leg Total: 5942
 North Entering: 3199
 North Peds: 11
 Peds Cross: \bowtie

Heavys	19	11	12	42
Trucks	16	42	21	79
Cars	576	1385	1117	3078
Totals	611	1438	1150	



Heavys	33
Trucks	49
Cars	2661
Totals	2743

East Leg Total: 23264
 East Entering: 10563
 East Peds: 12
 Peds Cross: \bowtie

Heavys	Trucks	Cars	Totals
342	273	9735	10350

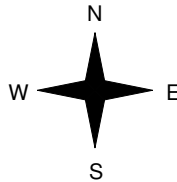


Sixth Line

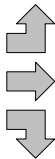
Cars	Trucks	Heavys	Totals
708	12	13	733
8387	235	306	8928
883	13	6	902
9978	260	325	



Dundas St



Heavys	Trucks	Cars	Totals
11	15	693	719
270	224	10006	10500
13	12	747	772
294	251	11446	



Sixth Line

Dundas St



Cars	Trucks	Heavys	Totals
12146	264	291	12701

Peds Cross: \bowtie
 West Peds: 25
 West Entering: 11991
 West Leg Total: 22341

Cars	3015	Cars	772	1260	1023	3055
Trucks	67	Trucks	22	22	19	63
Heavys	30	Heavys	17	9	9	35
Totals	3112	Totals	811	1291	1051	



Peds Cross: \bowtie
 South Peds: 7
 South Entering: 3153
 South Leg Total: 6265

Comments

Dundas St W @ Sixth Line

Morning Peak Diagram

Specified Period

From: 7:00:00

To: 9:00:00

One Hour Peak

From: 7:45:00

To: 8:45:00

Municipality: Halton Region
Site #: 0000002967
Intersection: Dundas St W & Sixth Line
TFR File #: 4
Count date: 24-May-2017

Weather conditions:
 Cloudy/Dry
Person(s) who counted:
 Cam

**** Signalized Intersection ****

Major Road: Dundas St W runs W/E

North Leg Total: 542

North Entering: 400

North Peds: 0

Peds Cross: \times

Heavys	2	2	5	9
Trucks	0	0	5	5
Cars	19	95	272	386
Totals	21	97	282	



Heavys 9

Trucks 2

Cars 131

Totals 142

East Leg Total: 3280

East Entering: 979

East Peds: 0

Peds Cross: \times

Heavys	Trucks	Cars	Totals
71	31	846	948

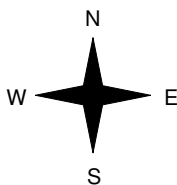


Sixth Line

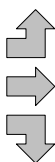
Cars	Trucks	Heavys	Totals
72	1	4	77
693	30	65	788
111	0	3	114
876	31	72	



Dundas St W



Heavys	Trucks	Cars	Totals
2	0	17	19
23	20	1721	1764
2	1	172	175
27	21	1910	



Sixth Line

Dundas St W



Cars	Trucks	Heavys	Totals
2245	26	30	2301

Peds Cross: \times
 West Peds: 4
 West Entering: 1958
 West Leg Total: 2906

Cars	378	Cars	134	42	252	428
Trucks	1	Trucks	1	1	1	3
Heavys	7	Heavys	4	3	2	9
Totals	386	Totals	139	46	255	



Peds Cross: \times
 South Peds: 1
 South Entering: 440
 South Leg Total: 826

Comments

Dundas St W @ Sixth Line

Mid-day Peak Diagram

Specified Period

From: 11:00:00

To: 14:00:00

One Hour Peak

From: 12:30:00

To: 13:30:00

Municipality: Halton Region
Site #: 0000002967
Intersection: Dundas St W & Sixth Line
TFR File #: 4
Count date: 24-May-2017

Weather conditions:
 Cloudy/Dry
Person(s) who counted:
 Cam

**** Signalized Intersection ****

Major Road: Dundas St W runs W/E

North Leg Total: 284

North Entering: 141

North Peds: 0

Peds Cross: \times

Heavys	3	0	1	4
Trucks	1	0	3	4
Cars	8	20	105	133
Totals	12	20	109	



Heavys 5

Trucks 7

Cars 131

Totals 143

East Leg Total: 2527

East Entering: 1314

East Peds: 0

Peds Cross: \times

Heavys	Trucks	Cars	Totals
67	22	1132	1221



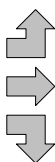
Sixth Line

Cars	Trucks	Heavys	Totals
98	5	2	105
1034	21	63	1118
90	1	0	91
1222	27	65	



Dundas St W

Heavys	Trucks	Cars	Totals
3	2	11	16
38	19	914	971
3	0	102	105
44	21	1027	



Dundas St W



Peds Cross: \times
 West Peds: 4
 West Entering: 1092
 West Leg Total: 2313

Cars	212	Cars	90	22	132	244
Trucks	1	Trucks	0	0	1	1
Heavys	3	Heavys	1	0	0	1
Totals	216	Totals	91	22	133	



Sixth Line



Peds Cross: \times
 South Peds: 5
 South Entering: 246
 South Leg Total: 462

Comments

Dundas St W @ Sixth Line

Afternoon Peak Diagram

Specified Period

From: 15:00:00
To: 18:00:00

One Hour Peak

From: 17:00:00
To: 18:00:00

Municipality: Halton Region
Site #: 0000002967
Intersection: Dundas St W & Sixth Line
TFR File #: 4
Count date: 24-May-2017

Weather conditions:
Cloudy/Dry
Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Dundas St W runs W/E

North Leg Total: 525
North Entering: 206
North Peds: 3
Peds Cross: \times

Heavys	0	0	0	0
Trucks	0	0	0	0
Cars	20	43	143	206
Totals	20	43	143	



Heavys	0
Trucks	1
Cars	318
Totals	319

East Leg Total: 3803
East Entering: 2313
East Peds: 1
Peds Cross: \times

Heavys	Trucks	Cars	Totals
38	12	2088	2138

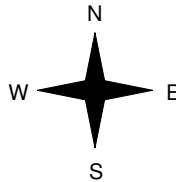


Sixth Line

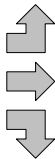
Cars	Trucks	Heavys	Totals
195	1	0	196
1899	12	38	1949
167	0	1	168
2261	13	39	



Dundas St W



Heavys	Trucks	Cars	Totals
0	0	20	20
29	8	1154	1191
0	2	141	143
29	10	1315	



Sixth Line

Dundas St W



Cars	Trucks	Heavys	Totals
1452	8	30	1490

Peds Cross: \times
West Peds: 4
West Entering: 1354
West Leg Total: 3492

Cars	351	Cars	169	103	155	427
Trucks	2	Trucks	0	0	0	0
Heavys	1	Heavys	0	0	1	1
Totals	354	Totals	169	103	156	



Peds Cross: \times
South Peds: 0
South Entering: 428
South Leg Total: 782

Comments

Dundas St W @ Sixth Line

Total Count Diagram

Municipality: Halton Region
Site #: 0000002967
Intersection: Dundas St W & Sixth Line
TFR File #: 4
Count date: 24-May-2017

Weather conditions:
 Cloudy/Dry
Person(s) who counted:
 Cam

**** Signalized Intersection ****

Major Road: Dundas St W runs W/E

North Leg Total: 2997
 North Entering: 1652
 North Peds: 8
 Peds Cross: \bowtie

Heavys	16	9	21	46
Trucks	4	0	18	22
Cars	90	345	1149	1584
Totals	110	354	1188	



Heavys	47
Trucks	17
Cars	1281
Totals	1345

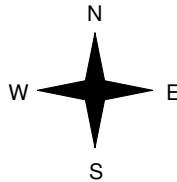
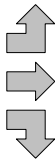
East Leg Total: 24360
 East Entering: 11989
 East Peds: 8
 Peds Cross: \bowtie

Heavys	456	Trucks	168	Cars	10597	Totals	11221
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Dundas St W

Heavys	14	Trucks	6	Cars	90	Totals	110
	281		140		9427		9848
	19		3		924		946
Totals	314	149	10441				



Sixth Line

Cars	844	Trucks	9	Heavys	20	Totals	873
	9548		159		426		10133
	963		9		11		983
Totals	11355	177	457				



Dundas St W



Cars	11886	Trucks	170	Heavys	315	Totals	12371
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Peds Cross: \bowtie
 West Peds: 26
 West Entering: 10904
 West Leg Total: 22125

Cars	2232
Trucks	12
Heavys	39
Totals	2283



Cars	959	347	1310	2616
Trucks	5	2	12	19
Heavys	14	13	13	40
Totals	978	362	1335	

Peds Cross: \bowtie
 South Peds: 17
 South Entering: 2675
 South Leg Total: 4958

Comments

Appendix D

2019 Existing Conditions Synchro Worksheets

Lanes, Volumes, Timings
1: Neyagawa Boulevard & Burnhamthorpe Road

2019 Existing AM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	100	141	346	394	5	156	459	426	43	174	59
Future Volume (vph)	34	100	141	346	394	5	156	459	426	43	174	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.478			0.603			0.593			0.369		
Satd. Flow (perm)	890	3539	1583	1123	3539	1583	1105	3539	1583	687	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			172			81			520			124
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		433.0			261.8			285.2			280.3	
Travel Time (s)		26.0			15.7			17.1			16.8	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	41	122	172	422	480	6	190	560	520	52	212	72
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	122	172	422	480	6	190	560	520	52	212	72
Enter Blocked Intersection	No	No	No	No	No	No	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	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lanes, Volumes, Timings
1: Neyagawa Boulevard & Burnhamthorpe Road

2019 Existing AM
Neighbourhood 10

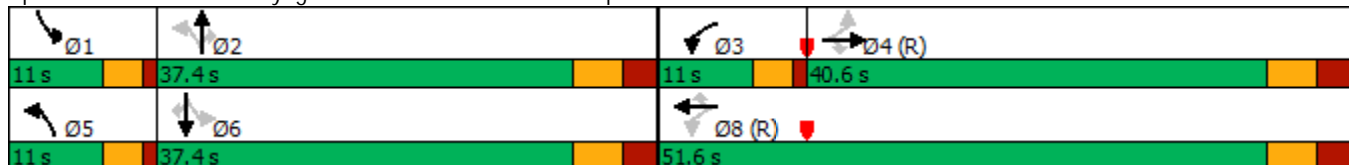


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	15.0	15.0	7.0	15.0	15.0
Minimum Split (s)	40.4	40.4	40.4	11.0	40.4	40.4	11.0	37.4	37.4	11.0	37.4	37.4
Total Split (s)	40.6	40.6	40.6	11.0	51.6	51.6	11.0	37.4	37.4	11.0	37.4	37.4
Total Split (%)	40.6%	40.6%	40.6%	11.0%	51.6%	51.6%	11.0%	37.4%	37.4%	11.0%	37.4%	37.4%
Maximum Green (s)	34.2	34.2	34.2	7.0	45.2	45.2	7.0	31.0	31.0	7.0	31.0	31.0
Yellow Time (s)	3.7	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)	27.0	27.0	27.0		27.0	27.0		24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)	0	0	0		0	0		0	0		0	0
Act Effct Green (s)	34.2	34.2	34.2	47.6	45.2	45.2	41.2	33.2	33.2	40.4	31.0	31.0
Actuated g/C Ratio	0.34	0.34	0.34	0.48	0.45	0.45	0.41	0.33	0.33	0.40	0.31	0.31
v/c Ratio	0.13	0.10	0.26	0.73	0.30	0.01	0.38	0.48	0.60	0.15	0.19	0.12
Control Delay	24.3	22.8	4.8	28.4	18.0	0.0	20.5	28.9	5.6	17.1	25.9	1.3
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	24.3	22.8	4.8	28.4	18.0	0.0	20.5	28.9	5.6	17.1	25.9	1.3
LOS	C	C	A	C	B	A	C	C	A	B	C	A
Approach Delay		13.7			22.7			18.1			19.3	
Approach LOS		B			C			B			B	

Intersection Summary

























Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 21.4 (21%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 19.2
 Intersection LOS: B
 Intersection Capacity Utilization 63.4%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 1: Neyagawa Boulevard & Burnhamthorpe Road



HCM 2010 Signalized Intersection Summary
1: Neyagawa Boulevard & Burnhamthorpe Road

2019 Existing AM
Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	100	141	346	394	5	156	459	426	43	174	59
Future Volume (veh/h)	34	100	141	346	394	5	156	459	426	43	174	59
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	41	122	172	422	480	6	190	560	520	52	212	72
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	382	1210	542	540	1600	716	486	1156	517	271	1097	491
Arrive On Green	0.34	0.34	0.34	0.07	0.45	0.45	0.07	0.33	0.33	0.05	0.31	0.31
Sat Flow, veh/h	906	3539	1583	1774	3539	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	41	122	172	422	480	6	190	560	520	52	212	72
Grp Sat Flow(s),veh/h/ln	906	1770	1583	1774	1770	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	3.1	2.3	8.0	7.0	8.6	0.2	7.0	12.7	32.7	1.9	4.4	3.3
Cycle Q Clear(g_c), s	3.1	2.3	8.0	7.0	8.6	0.2	7.0	12.7	32.7	1.9	4.4	3.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	382	1210	542	540	1600	716	486	1156	517	271	1097	491
V/C Ratio(X)	0.11	0.10	0.32	0.78	0.30	0.01	0.39	0.48	1.01	0.19	0.19	0.15
Avail Cap(c_a), veh/h	382	1210	542	540	1600	716	486	1156	517	300	1097	491
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.7	22.4	24.3	25.7	17.4	15.1	21.8	26.9	33.7	21.5	25.3	24.9
Incr Delay (d2), s/veh	0.6	0.2	1.5	7.3	0.5	0.0	0.5	1.5	41.0	0.3	0.4	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.2	3.7	8.4	4.3	0.1	3.6	6.4	20.1	1.0	2.2	1.5
LnGrp Delay(d),s/veh	23.2	22.6	25.8	33.0	17.9	15.1	22.4	28.4	74.7	21.9	25.7	25.6
LnGrp LOS	C	C	C	C	B	B	C	C	F	C	C	C
Approach Vol, veh/h		335			908			1270			336	
Approach Delay, s/veh		24.3			24.9			46.5			25.1	
Approach LOS		C			C			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	9.3	39.1	11.0	40.6	11.0	37.4		51.6				
Change Period (Y+Rc), s	4.0	6.4	4.0	6.4	4.0	6.4		6.4				
Max Green Setting (Gmax), s	7.0	31.0	7.0	34.2	7.0	31.0		45.2				
Max Q Clear Time (g_c+I1), s	3.9	34.7	9.0	10.0	9.0	6.4		10.6				
Green Ext Time (p_c), s	0.0	0.0	0.0	2.0	0.0	1.8		4.1				
Intersection Summary												
HCM 2010 Ctrl Delay			34.5									
HCM 2010 LOS			C									

Lanes, Volumes, Timings
10: Sixth Line & Burnhamthorpe Road

2019 Existing AM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	176	332	32	129	373	172	122	437	253	225	457	203
Future Volume (vph)	176	332	32	129	373	172	122	437	253	225	457	203
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		0.992			0.966			0.958			0.969	
Flt Protected		0.984			0.991			0.993			0.987	
Satd. Flow (prot)	0	1818	0	0	1783	0	0	1772	0	0	1782	0
Flt Permitted		0.984			0.991			0.993			0.987	
Satd. Flow (perm)	0	1818	0	0	1783	0	0	1772	0	0	1782	0
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		1521.4			1246.0			2017.5			1085.8	
Travel Time (s)		91.3			74.8			90.8			48.9	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	187	353	34	137	397	183	130	465	269	239	486	216
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	574	0	0	717	0	0	864	0	0	941	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			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		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	136.4%
ICU Level of Service	H
Analysis Period (min)	15

Intersection	
Intersection Delay, s/veh	568.1
Intersection LOS	F























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	176	332	32	129	373	172	122	437	253	225	457	203
Future Vol, veh/h	176	332	32	129	373	172	122	437	253	225	457	203
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	187	353	34	137	397	183	130	465	269	239	486	216
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	330	470.2	632.9	728.6
HCM LOS	F	F	F	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	15%	33%	19%	25%
Vol Thru, %	54%	61%	55%	52%
Vol Right, %	31%	6%	26%	23%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	812	540	674	885
LT Vol	122	176	129	225
Through Vol	437	332	373	457
RT Vol	253	32	172	203
Lane Flow Rate	864	574	717	941
Geometry Grp	1	1	1	1
Degree of Util (X)	2.273	1.542	1.895	2.496
Departure Headway (Hd)	21.274	25.182	22.089	20.207
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	181	149	172	188
Service Time	19.274	23.182	20.089	18.207
HCM Lane V/C Ratio	4.773	3.852	4.169	5.005
HCM Control Delay	632.9	330	470.2	728.6
HCM Lane LOS	F	F	F	F
HCM 95th-tile Q	31.5	15.1	23.2	37.7

Lanes, Volumes, Timings
13: Trafalgar Road & Burnhamthorpe Road

2019 Existing AM
Neighbourhood 10

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	512	224	59	340	88	212	1209	117	254	1089	170
Future Volume (vph)	116	512	224	59	340	88	212	1209	117	254	1089	170
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	180.0		0.0	180.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	70.0			45.0			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		0.954			0.969			0.987			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1777	0	1770	1805	0	1770	3493	0	1770	3468	0
Flt Permitted	0.167			0.165			0.213			0.092		
Satd. Flow (perm)	311	1777	0	307	1805	0	397	3493	0	171	3468	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			12			14			34	
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		1246.0			414.4			579.3			1019.4	
Travel Time (s)		74.8			24.9			26.1			45.9	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	118	522	229	60	347	90	216	1234	119	259	1111	173
Shared Lane Traffic (%)												
Lane Group Flow (vph)	118	751	0	60	437	0	216	1353	0	259	1284	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		23.8	23.8		26.0	26.0		11.5	26.0	
Total Split (s)	30.0	30.0		30.0	30.0		60.0	60.0		15.0	75.0	
Total Split (%)	28.6%	28.6%		28.6%	28.6%		57.1%	57.1%		14.3%	71.4%	
Maximum Green (s)	24.0	24.0		24.2	24.2		54.0	54.0		11.0	69.0	
Yellow Time (s)	3.7	3.7		3.5	3.5		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		5.8	5.8		6.0	6.0		4.0	6.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	24.0	24.0		24.2	24.2		54.0	54.0		71.0	69.0	
Actuated g/C Ratio	0.23	0.23		0.23	0.23		0.51	0.51		0.68	0.66	
v/c Ratio	1.66	1.79		0.86	1.03		1.06	0.75		0.92	0.56	

Lanes, Volumes, Timings
 13: Trafalgar Road & Burnhamthorpe Road

2019 Existing AM
 Neighbourhood 10

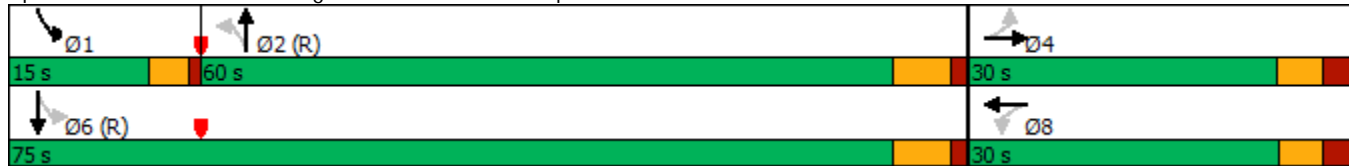


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	381.3	391.0		115.8	90.8		107.9	23.2		58.1	10.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	381.3	391.0		115.8	90.8		107.9	23.2		58.1	10.6	
LOS	F	F		F	F		F	C		E	B	
Approach Delay		389.7			93.8			34.9			18.6	
Approach LOS		F			F			C			B	

Intersection Summary






















Area Type:	Other
Cycle Length:	105
Actuated Cycle Length:	105
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	90
Control Type:	Pretimed
Maximum v/c Ratio:	1.79
Intersection Signal Delay:	104.7
Intersection LOS:	F
Intersection Capacity Utilization	120.9%
ICU Level of Service	H
Analysis Period (min)	15

Splits and Phases: 13: Trafalgar Road & Burnhamthorpe Road


























HCM 2010 Signalized Intersection Summary
 13: Trafalgar Road & Burnhamthorpe Road

2019 Existing AM
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	116	512	224	59	340	88	212	1209	117	254	1089	170
Future Volume (veh/h)	116	512	224	59	340	88	212	1209	117	254	1089	170
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	118	522	229	60	347	90	216	1234	119	259	1111	173
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	68	283	124	68	328	85	266	1675	161	341	2014	313
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.51	0.51	0.51	0.10	0.66	0.66
Sat Flow, veh/h	948	1229	539	709	1427	370	429	3263	314	1774	3071	477
Grp Volume(v), veh/h	118	0	751	60	0	437	216	668	685	259	639	645
Grp Sat Flow(s),veh/h/ln	948	0	1768	709	0	1797	429	1770	1807	1774	1770	1779
Q Serve(g_s), s	0.0	0.0	24.2	0.0	0.0	24.2	48.4	31.0	31.3	6.5	20.5	20.6
Cycle Q Clear(g_c), s	24.2	0.0	24.2	24.2	0.0	24.2	54.0	31.0	31.3	6.5	20.5	20.6
Prop In Lane	1.00		0.30	1.00		0.21	1.00		0.17	1.00		0.27
Lane Grp Cap(c), veh/h	68	0	407	68	0	413	266	908	928	341	1161	1167
V/C Ratio(X)	1.72	0.00	1.85	0.88	0.00	1.06	0.81	0.74	0.74	0.76	0.55	0.55
Avail Cap(c_a), veh/h	68	0	407	68	0	413	266	908	928	341	1161	1167
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.6	0.0	40.5	52.6	0.0	40.5	30.5	20.0	20.1	19.2	9.7	9.8
Incr Delay (d2), s/veh	379.6	0.0	390.5	77.8	0.0	60.1	23.1	5.3	5.2	14.7	1.9	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.2	0.0	55.9	3.2	0.0	18.8	7.9	16.4	16.8	5.4	10.5	10.6
LnGrp Delay(d),s/veh	432.2	0.0	431.0	130.4	0.0	100.6	53.6	25.3	25.3	34.0	11.6	11.7
LnGrp LOS	F		F	F		F	D	C	C	C	B	B
Approach Vol, veh/h		869			497			1569			1543	
Approach Delay, s/veh		431.2			104.2			29.2			15.4	
Approach LOS		F			F			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	15.0	60.0		30.2		75.0		30.2				
Change Period (Y+Rc), s	4.0	* 6		6.0		* 6		* 6				
Max Green Setting (Gmax), s	11.0	* 54		24.0		* 69		* 24				
Max Q Clear Time (g_c+I1), s	8.5	56.0		26.2		22.6		26.2				
Green Ext Time (p_c), s	0.3	0.0		0.0		14.7		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			110.8									
HCM 2010 LOS			F									
Notes												

Lanes, Volumes, Timings
17: Sixth Line & Dundas Street

2019 Existing AM
Neighbourhood 10

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	1835	182	119	820	80	145	48	265	293	101	22
Future Volume (vph)	20	1835	182	119	820	80	145	48	265	293	101	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		80.0	35.0		0.0	80.0		0.0	45.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	100.0			75.0			100.0			45.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95
Frt			0.850		0.987				0.850		0.973	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3493	0	1770	1863	1583	1770	3444	0
Flt Permitted	0.274			0.063			0.671			0.725		
Satd. Flow (perm)	510	3539	1583	117	3493	0	1250	1863	1583	1350	3444	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			111		11				261		22	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		409.7			323.7			341.1			111.8	
Travel Time (s)		24.6			19.4			20.5			6.7	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	21	1892	188	123	845	82	149	49	273	302	104	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	1892	188	123	927	0	149	49	273	302	127	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	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6			8		8	4		

Lanes, Volumes, Timings
17: Sixth Line & Dundas Street

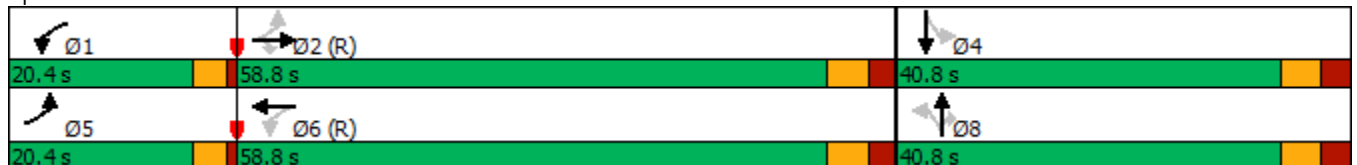
2019 Existing AM
Neighbourhood 10

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	11.5	37.2	37.2	11.5	34.2		40.5	40.5	40.5	40.5	40.5	
Total Split (s)	20.4	58.8	58.8	20.4	58.8		40.8	40.8	40.8	40.8	40.8	
Total Split (%)	17.0%	49.0%	49.0%	17.0%	49.0%		34.0%	34.0%	34.0%	34.0%	34.0%	
Maximum Green (s)	16.4	52.6	52.6	16.4	52.6		34.3	34.3	34.3	34.3	34.3	
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5		2.8	2.8	2.8	2.8	2.8	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.2	6.2	4.0	6.2		6.5	6.5	6.5	6.5	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	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	C-Max	C-Max	None	C-Max		Max	Max	Max	Max	Max	
Walk Time (s)		7.0	7.0		7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		24.0	24.0		21.0		27.0	27.0	27.0	27.0	27.0	
Pedestrian Calls (#/hr)		0	0		0		0	0	0	0	0	
Act Effect Green (s)	68.2	59.0	59.0	75.2	68.6		34.3	34.3	34.3	34.3	34.3	
Actuated g/C Ratio	0.57	0.49	0.49	0.63	0.57		0.29	0.29	0.29	0.29	0.29	
v/c Ratio	0.06	1.09	0.23	0.59	0.46		0.42	0.09	0.43	0.78	0.13	
Control Delay	9.2	79.9	8.4	29.3	16.5		39.1	32.1	6.9	55.2	26.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	9.2	79.9	8.4	29.3	16.5		39.1	32.1	6.9	55.2	26.6	
LOS	A	E	A	C	B		D	C	A	E	C	
Approach Delay		72.8			18.0			19.7			46.7	
Approach LOS		E			B			B			D	

Intersection Summary
























Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 42 (35%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.09
 Intersection Signal Delay: 49.6
 Intersection LOS: D
 Intersection Capacity Utilization 101.2%
 ICU Level of Service G
 Analysis Period (min) 15

Splits and Phases: 17: Sixth Line & Dundas Street


























HCM 2010 Signalized Intersection Summary
 17: Sixth Line & Dundas Street

2019 Existing AM
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	1835	182	119	820	80	145	48	265	293	101	22
Future Volume (veh/h)	20	1835	182	119	820	80	145	48	265	293	101	22
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	21	1892	188	123	845	82	149	49	273	302	104	23
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	2	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	344	1832	820	162	1779	173	385	532	453	341	829	178
Arrive On Green	0.03	0.52	0.52	0.06	0.55	0.55	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	1774	3539	1583	1774	3260	316	1258	1863	1583	1053	2899	624
Grp Volume(v), veh/h	21	1892	188	123	459	468	149	49	273	302	62	65
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1807	1258	1863	1583	1053	1770	1753
Q Serve(g_s), s	0.7	62.1	7.8	4.1	19.1	19.1	12.0	2.3	17.9	32.0	3.1	3.3
Cycle Q Clear(g_c), s	0.7	62.1	7.8	4.1	19.1	19.1	15.2	2.3	17.9	34.3	3.1	3.3
Prop In Lane	1.00		1.00	1.00		0.18	1.00		1.00	1.00		0.36
Lane Grp Cap(c), veh/h	344	1832	820	162	966	986	385	532	453	341	506	501
V/C Ratio(X)	0.06	1.03	0.23	0.76	0.48	0.48	0.39	0.09	0.60	0.89	0.12	0.13
Avail Cap(c_a), veh/h	535	1832	820	302	966	986	385	532	453	341	506	501
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.5	28.9	15.8	30.0	16.7	16.7	37.4	31.4	37.0	45.1	31.7	31.8
Incr Delay (d2), s/veh	0.1	30.0	0.7	7.2	1.7	1.6	2.9	0.3	5.9	26.9	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	37.7	3.5	4.3	9.7	9.9	4.5	1.2	8.5	12.5	1.6	1.7
LnGrp Delay(d),s/veh	13.6	58.9	16.5	37.2	18.4	18.4	40.3	31.8	42.8	72.1	32.2	32.3
LnGrp LOS	B	F	B	D	B	B	D	C	D	E	C	C
Approach Vol, veh/h		2101			1050			471			429	
Approach Delay, s/veh		54.7			20.6			40.9			60.3	
Approach LOS		D			C			D			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.9	68.3		40.8	7.5	71.7		40.8				
Change Period (Y+Rc), s	4.0	* 6.2		6.5	4.0	* 6.2		6.5				
Max Green Setting (Gmax), s	16.4	* 53		34.3	16.4	* 53		34.3				
Max Q Clear Time (g_c+I1), s	6.1	64.1		36.3	2.7	21.1		19.9				
Green Ext Time (p_c), s	0.3	0.0		0.0	0.0	8.1		2.0				
Intersection Summary												
HCM 2010 Ctrl Delay			44.8									
HCM 2010 LOS			D									
Notes												

Lanes, Volumes, Timings
17: Sixth Line & Dundas Street

2019 Existing AM
Neighbourhood 10 - Mitigation

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	1835	182	119	820	80	145	48	265	293	101	22
Future Volume (vph)	20	1835	182	119	820	80	145	48	265	293	101	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		80.0	35.0		0.0	80.0		0.0	45.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	100.0			75.0			100.0			45.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95
Frt			0.850		0.987				0.850		0.973	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3493	0	1770	1863	1583	1770	3444	0
Flt Permitted	0.261			0.053			0.671			0.725		
Satd. Flow (perm)	486	3539	1583	99	3493	0	1250	1863	1583	1350	3444	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			128		12				112		20	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		409.7			323.7			341.1			111.8	
Travel Time (s)		24.6			19.4			20.5			6.7	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	21	1892	188	123	845	82	149	49	273	302	104	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	1892	188	123	927	0	149	49	273	302	127	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	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8				4
Permitted Phases	2		2	6			8		8	4		

Lanes, Volumes, Timings
 17: Sixth Line & Dundas Street

2019 Existing AM
 Neighbourhood 10 - Mitigation

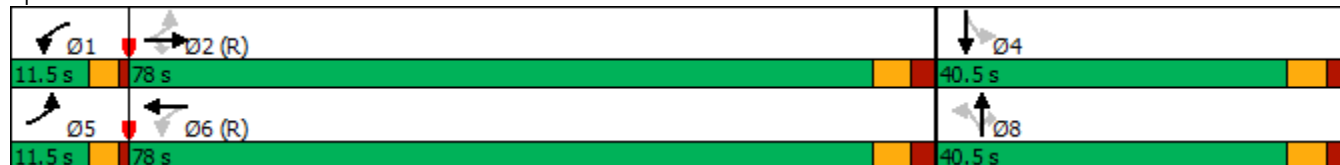


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	11.5	37.2	37.2	11.5	34.2		40.5	40.5	40.5	40.5	40.5	
Total Split (s)	11.5	78.0	78.0	11.5	78.0		40.5	40.5	40.5	40.5	40.5	
Total Split (%)	8.8%	60.0%	60.0%	8.8%	60.0%		31.2%	31.2%	31.2%	31.2%	31.2%	
Maximum Green (s)	7.5	71.8	71.8	7.5	71.8		34.0	34.0	34.0	34.0	34.0	
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5		2.8	2.8	2.8	2.8	2.8	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.2	6.2	4.0	6.2		6.5	6.5	6.5	6.5	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	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	C-Max	C-Max	None	C-Max		Max	Max	Max	Max	Max	
Walk Time (s)		7.0	7.0		7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		24.0	24.0		21.0		27.0	27.0	27.0	27.0	27.0	
Pedestrian Calls (#/hr)		0	0		0		0	0	0	0	0	
Act Effect Green (s)	81.0	71.8	71.8	83.4	76.7		34.0	34.0	34.0	34.0	34.0	
Actuated g/C Ratio	0.62	0.55	0.55	0.64	0.59		0.26	0.26	0.26	0.26	0.26	
v/c Ratio	0.06	0.97	0.20	0.77	0.45		0.46	0.10	0.55	0.86	0.14	
Control Delay	8.2	42.4	5.5	55.1	16.1		45.7	37.2	28.5	68.9	31.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	8.2	42.4	5.5	55.1	16.1		45.7	37.2	28.5	68.9	31.4	
LOS	A	D	A	E	B		D	D	C	E	C	
Approach Delay		38.8			20.7			34.9			57.8	
Approach LOS		D			C			C			E	

Intersection Summary

Area Type:	Other
Cycle Length:	130
Actuated Cycle Length:	130
Offset:	0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	120
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.97
Intersection Signal Delay:	35.6
Intersection LOS:	D
Intersection Capacity Utilization:	101.2%
ICU Level of Service:	G
Analysis Period (min):	15

Splits and Phases: 17: Sixth Line & Dundas Street



HCM 2010 Signalized Intersection Summary

























17: Sixth Line & Dundas Street

2019 Existing AM
Neighbourhood 10 - Mitigation

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	1835	182	119	820	80	145	48	265	293	101	22
Future Volume (veh/h)	20	1835	182	119	820	80	145	48	265	293	101	22
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	21	1892	188	123	845	82	149	49	273	302	104	23
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	2	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	368	1971	882	159	1895	184	349	487	414	310	758	163
Arrive On Green	0.03	0.56	0.56	0.05	0.58	0.58	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1774	3539	1583	1774	3260	316	1258	1863	1583	1053	2899	624
Grp Volume(v), veh/h	21	1892	188	123	459	468	149	49	273	302	62	65
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1807	1258	1863	1583	1053	1770	1753
Q Serve(g_s), s	0.6	66.2	7.8	4.1	19.0	19.0	13.4	2.6	20.0	31.4	3.5	3.7
Cycle Q Clear(g_c), s	0.6	66.2	7.8	4.1	19.0	19.0	17.1	2.6	20.0	34.0	3.5	3.7
Prop In Lane	1.00		1.00	1.00		0.18	1.00		1.00	1.00		0.36
Lane Grp Cap(c), veh/h	368	1971	882	159	1029	1051	349	487	414	310	463	458
V/C Ratio(X)	0.06	0.96	0.21	0.77	0.45	0.45	0.43	0.10	0.66	0.97	0.13	0.14
Avail Cap(c_a), veh/h	419	1971	882	167	1029	1051	349	487	414	310	463	458
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.3	27.4	14.5	32.8	15.4	15.4	43.3	36.4	42.8	51.8	36.7	36.8
Incr Delay (d2), s/veh	0.1	12.8	0.6	19.0	1.4	1.4	3.8	0.4	8.0	45.1	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	35.6	3.5	5.2	9.7	9.9	5.0	1.4	9.6	14.7	1.8	1.9
LnGrp Delay(d),s/veh	12.4	40.3	15.0	51.7	16.8	16.7	47.1	36.8	50.8	96.8	37.3	37.4
LnGrp LOS	B	D	B	D	B	B	D	D	D	F	D	D
Approach Vol, veh/h		2101			1050			471			429	
Approach Delay, s/veh		37.7			20.9			48.2			79.2	
Approach LOS		D			C			D			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.9	78.6		40.5	7.7	81.8		40.5				
Change Period (Y+Rc), s	4.0	* 6.2		6.5	4.0	* 6.2		6.5				
Max Green Setting (Gmax), s	7.5	* 72		34.0	7.5	* 72		34.0				
Max Q Clear Time (g_c+I1), s	6.1	68.2		36.0	2.6	21.0		22.0				
Green Ext Time (p_c), s	0.1	3.4		0.0	0.0	8.8		1.9				
Intersection Summary												
HCM 2010 Ctrl Delay			39.0									
HCM 2010 LOS			D									
Notes												

Lanes, Volumes, Timings
1: Neyagawa Boulevard & Burnhamthorpe Road

2019 Existing PM
Neighbourhood 10

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	54	53	413	92	31	26	184	261	23	455	25
Future Volume (vph)	25	54	53	413	92	31	26	184	261	23	455	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.690			0.620			0.428			0.629		
Satd. Flow (perm)	1285	3539	1583	1155	3539	1583	797	3539	1583	1172	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			124			81			278			124
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		433.0			261.8			285.2			280.3	
Travel Time (s)		26.0			15.7			17.1			16.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	27	57	56	439	98	33	28	196	278	24	484	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	57	56	439	98	33	28	196	278	24	484	27
Enter Blocked Intersection	No	No	No	No	No	No	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	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6

Lanes, Volumes, Timings
 1: Neyagawa Boulevard & Burnhamthorpe Road

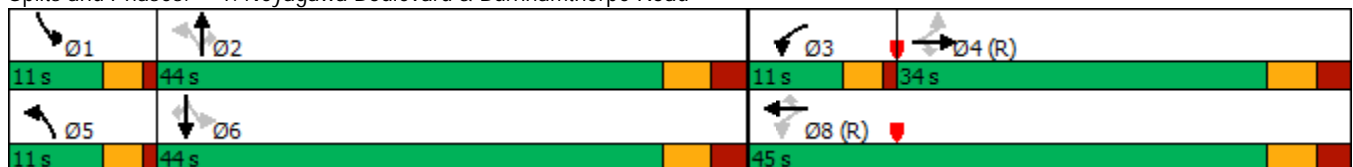
2019 Existing PM
 Neighbourhood 10

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	15.0	15.0	7.0	15.0	15.0
Minimum Split (s)	16.4	16.4	16.4	11.0	40.4	40.4	11.0	37.4	37.4	11.0	37.4	37.4
Total Split (s)	34.0	34.0	34.0	11.0	45.0	45.0	11.0	44.0	44.0	11.0	44.0	44.0
Total Split (%)	34.0%	34.0%	34.0%	11.0%	45.0%	45.0%	11.0%	44.0%	44.0%	11.0%	44.0%	44.0%
Maximum Green (s)	27.6	27.6	27.6	7.0	38.6	38.6	7.0	37.6	37.6	7.0	37.6	37.6
Yellow Time (s)	3.7	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	None	C-Max	C-Max	None	Max	Max	None	Max	Max
Walk Time (s)								7.0	7.0		7.0	7.0
Flash Dont Walk (s)								24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)								0	0		0	0
Act Effct Green (s)	27.6	27.6	27.6	41.0	38.6	38.6	49.4	44.2	44.2	48.6	42.0	42.0
Actuated g/C Ratio	0.28	0.28	0.28	0.41	0.39	0.39	0.49	0.44	0.44	0.49	0.42	0.42
v/c Ratio	0.08	0.06	0.11	0.85	0.07	0.05	0.06	0.13	0.33	0.04	0.33	0.04
Control Delay	27.6	26.9	0.4	42.9	19.6	0.1	12.7	18.0	3.8	12.5	21.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.6	26.9	0.4	42.9	19.6	0.1	12.7	18.0	3.8	12.5	21.3	0.1
LOS	C	C	A	D	B	A	B	B	A	B	C	A
Approach Delay		16.5			36.4			9.8			19.8	
Approach LOS		B			D			A			B	

Intersection Summary

























Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 49 (49%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 22.1 Intersection LOS: C
 Intersection Capacity Utilization 61.8% ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 1: Neyagawa Boulevard & Burnhamthorpe Road



HCM 2010 Signalized Intersection Summary
1: Neyagawa Boulevard & Burnhamthorpe Road

2019 Existing PM
Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	54	53	413	92	31	26	184	261	23	455	25
Future Volume (veh/h)	25	54	53	413	92	31	26	184	261	23	455	25
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	27	57	56	439	98	33	28	196	278	24	484	27
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	458	1091	488	575	1480	662	385	1344	601	447	1331	595
Arrive On Green	0.31	0.31	0.31	0.07	0.42	0.42	0.04	0.38	0.38	0.03	0.38	0.38
Sat Flow, veh/h	1254	3539	1583	1774	3539	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	27	57	56	439	98	33	28	196	278	24	484	27
Grp Sat Flow(s),veh/h/ln	1254	1770	1583	1774	1770	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	1.5	1.1	2.5	7.0	1.7	1.2	0.9	3.6	13.2	0.8	9.9	1.1
Cycle Q Clear(g_c), s	1.5	1.1	2.5	7.0	1.7	1.2	0.9	3.6	13.2	0.8	9.9	1.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	458	1091	488	575	1480	662	385	1344	601	447	1331	595
V/C Ratio(X)	0.06	0.05	0.11	0.76	0.07	0.05	0.07	0.15	0.46	0.05	0.36	0.05
Avail Cap(c_a), veh/h	458	1091	488	575	1480	662	442	1344	601	511	1331	595
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.5	24.3	24.8	27.5	17.4	17.3	18.0	20.4	23.3	17.7	22.6	19.8
Incr Delay (d2), s/veh	0.2	0.1	0.5	6.1	0.1	0.1	0.1	0.2	2.5	0.0	0.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.6	1.2	9.0	0.8	0.6	0.5	1.8	6.2	0.4	5.0	0.5
LnGrp Delay(d),s/veh	24.7	24.4	25.3	33.5	17.5	17.4	18.0	20.6	25.9	17.7	23.3	20.0
LnGrp LOS	C	C	C	C	B	B	B	C	C	B	C	B
Approach Vol, veh/h		140			570			502			535	
Approach Delay, s/veh		24.8			29.8			23.4			22.9	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	7.4	44.4	11.0	37.2	7.8	44.0		48.2				
Change Period (Y+Rc), s	4.0	6.4	4.0	6.4	4.0	6.4		6.4				
Max Green Setting (Gmax), s	7.0	37.6	7.0	27.6	7.0	37.6		38.6				
Max Q Clear Time (g_c+I1), s	2.8	15.2	9.0	4.5	2.9	11.9		3.7				
Green Ext Time (p_c), s	0.0	2.8	0.0	0.7	0.0	4.0		0.8				
Intersection Summary												
HCM 2010 Ctrl Delay			25.5									
HCM 2010 LOS			C									

Lanes, Volumes, Timings
10: Sixth Line & Burnhamthorpe Road

2019 Existing PM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	31	226	62	213	365	109	103	539	124	96	459	49
Future Volume (vph)	31	226	62	213	365	109	103	539	124	96	459	49
Ideal Flow (vphp)	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		0.974			0.979			0.978			0.989	
Flt Protected		0.995			0.985			0.993			0.992	
Satd. Flow (prot)	0	1805	0	0	1796	0	0	1809	0	0	1828	0
Flt Permitted		0.995			0.985			0.993			0.992	
Satd. Flow (perm)	0	1805	0	0	1796	0	0	1809	0	0	1828	0
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		1521.4			1246.0			2007.1			1085.8	
Travel Time (s)		91.3			74.8			90.3			48.9	
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)	34	246	67	232	397	118	112	586	135	104	499	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	347	0	0	747	0	0	833	0	0	656	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			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		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	118.1%
ICU Level of Service	H
Analysis Period (min)	15

Intersection	
Intersection Delay, s/veh	428.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	31	226	62	213	365	109	103	539	124	96	459	49
Future Vol, veh/h	31	226	62	213	365	109	103	539	124	96	459	49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	34	246	67	232	397	118	112	586	135	104	499	53
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0























Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	99.5	471.7	566.8	376.9
HCM LOS	F	F	F	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	13%	10%	31%	16%
Vol Thru, %	70%	71%	53%	76%
Vol Right, %	16%	19%	16%	8%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	766	319	687	604
LT Vol	103	31	213	96
Through Vol	539	226	365	459
RT Vol	124	62	109	49
Lane Flow Rate	833	347	747	657
Geometry Grp	1	1	1	1
Degree of Util (X)	2.162	0.918	1.947	1.715
Departure Headway (Hd)	14.744	20.68	14.509	16.496
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	258	180	261	230
Service Time	12.744	18.68	12.509	14.496
HCM Lane V/C Ratio	3.229	1.928	2.862	2.857
HCM Control Delay	566.8	99.5	471.7	376.9
HCM Lane LOS	F	F	F	F
HCM 95th-tile Q	40.4	6.9	34.6	25.1

Lanes, Volumes, Timings

13: Trafalgar Road & Burnhamthorpe Road

2019 Existing PM
Neighbourhood 10

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	271	106	99	338	217	220	1412	85	164	1008	146
Future Volume (vph)	98	271	106	99	338	217	220	1412	85	164	1008	146
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	180.0		0.0	180.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	70.0			45.0			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		0.958			0.941			0.991			0.981	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1785	0	1770	1753	0	1770	3507	0	1770	3472	0
Flt Permitted	0.167			0.177			0.240			0.069		
Satd. Flow (perm)	311	1785	0	330	1753	0	447	3507	0	129	3472	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			28			9			32	
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		1246.0			414.4			579.3			1019.4	
Travel Time (s)		74.8			24.9			26.1			45.9	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	100	277	108	101	345	221	224	1441	87	167	1029	149
Shared Lane Traffic (%)												
Lane Group Flow (vph)	100	385	0	101	566	0	224	1528	0	167	1178	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)	30.0	30.0		30.0	30.0		60.0	60.0		15.0	75.0	
Total Split (%)	28.6%	28.6%		28.6%	28.6%		57.1%	57.1%		14.3%	71.4%	
Maximum Green (s)	24.0	24.0		24.0	24.0		54.0	54.0		11.0	69.0	
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		
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effect Green (s)	24.0	24.0		24.0	24.0		54.0	54.0		71.0	69.0	
Actuated g/C Ratio	0.23	0.23		0.23	0.23		0.51	0.51		0.68	0.66	
v/c Ratio	1.41	0.91		1.35	1.34		0.98	0.85		0.64	0.51	

Lanes, Volumes, Timings
 13: Trafalgar Road & Burnhamthorpe Road

2019 Existing PM
 Neighbourhood 10

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	282.3	65.8		256.6	201.3		82.3	27.4		30.2	10.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	282.3	65.8		256.6	201.3		82.3	27.4		30.2	10.0	
LOS	F	E		F	F		F	C		C	A	
Approach Delay		110.4			209.6			34.4			12.5	
Approach LOS		F			F			C			B	

Intersection Summary






















Area Type:	Other
Cycle Length:	105
Actuated Cycle Length:	105
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	100
Control Type:	Pretimed
Maximum v/c Ratio:	1.41
Intersection Signal Delay:	63.7
Intersection LOS:	E
Intersection Capacity Utilization	108.5%
ICU Level of Service	G
Analysis Period (min)	15

Splits and Phases: 13: Trafalgar Road & Burnhamthorpe Road



HCM 2010 Signalized Intersection Summary
13: Trafalgar Road & Burnhamthorpe Road

2019 Existing PM
Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	98	271	106	99	338	217	220	1412	85	164	1008	146
Future Volume (veh/h)	98	271	106	99	338	217	220	1412	85	164	1008	146
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	100	277	108	101	345	221	224	1441	87	167	1029	149
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	69	292	114	83	243	156	299	1745	105	307	2040	295
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.51	0.51	0.51	0.10	0.66	0.66
Sat Flow, veh/h	842	1277	498	994	1062	680	474	3392	204	1774	3104	449
Grp Volume(v), veh/h	100	0	385	101	0	566	224	749	779	167	586	592
Grp Sat Flow(s),veh/h/ln	842	0	1775	994	0	1743	474	1770	1827	1774	1770	1784
Q Serve(g_s), s	0.0	0.0	22.4	1.6	0.0	24.0	48.3	37.5	37.9	3.9	17.8	17.9
Cycle Q Clear(g_c), s	24.0	0.0	22.4	24.0	0.0	24.0	51.1	37.5	37.9	3.9	17.8	17.9
Prop In Lane	1.00		0.28	1.00		0.39	1.00		0.11	1.00		0.25
Lane Grp Cap(c), veh/h	69	0	406	83	0	398	299	910	939	307	1163	1172
V/C Ratio(X)	1.46	0.00	0.95	1.21	0.00	1.42	0.75	0.82	0.83	0.54	0.50	0.50
Avail Cap(c_a), veh/h	69	0	406	83	0	398	299	910	939	307	1163	1172
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.5	0.0	39.9	52.4	0.0	40.5	26.2	21.5	21.6	20.0	9.2	9.2
Incr Delay (d2), s/veh	270.0	0.0	33.5	166.0	0.0	203.6	15.7	8.4	8.4	6.8	1.6	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	0.0	14.8	6.3	0.0	34.0	7.6	20.2	21.2	3.2	9.1	9.2
LnGrp Delay(d),s/veh	322.5	0.0	73.4	218.4	0.0	244.1	41.9	29.8	29.9	26.8	10.8	10.8
LnGrp LOS	F		E	F		F	D	C	C	C	B	B
Approach Vol, veh/h		485			667			1752			1345	
Approach Delay, s/veh		124.8			240.2			31.4			12.8	
Approach LOS		F			F			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	15.0	60.0		30.0		75.0		30.0				
Change Period (Y+Rc), s	4.0	* 6		6.0		* 6		6.0				
Max Green Setting (Gmax), s	11.0	* 54		24.0		* 69		24.0				
Max Q Clear Time (g_c+I1), s	5.9	53.1		26.0		19.9		26.0				
Green Ext Time (p_c), s	0.3	0.8		0.0		12.9		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			69.0									
HCM 2010 LOS			E									
Notes												

Lanes, Volumes, Timings
17: Sixth Line & Dundas Street

2019 Existing PM
Neighbourhood 10

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	1239	149	175	2028	204	176	107	162	149	45	21
Future Volume (vph)	21	1239	149	175	2028	204	176	107	162	149	45	21
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		80.0	35.0		0.0	80.0		0.0	45.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	100.0			75.0			100.0			45.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95
Frt			0.850		0.986				0.850		0.952	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3490	0	1770	1863	1583	1770	3369	0
Flt Permitted	0.064			0.107			0.710			0.684		
Satd. Flow (perm)	119	3539	1583	199	3490	0	1323	1863	1583	1274	3369	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			151		14				171		22	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		409.7			323.7			341.1			122.2	
Travel Time (s)		24.6			19.4			20.5			7.3	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	22	1304	157	184	2135	215	185	113	171	157	47	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	1304	157	184	2350	0	185	113	171	157	69	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	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6			8		8	4		

Lanes, Volumes, Timings
17: Sixth Line & Dundas Street

2019 Existing PM
Neighbourhood 10

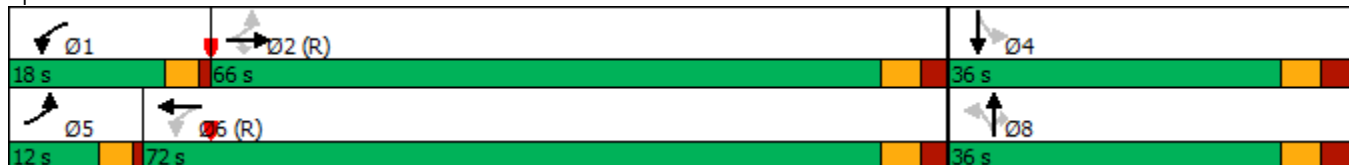


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	11.5	37.2	37.2	11.5	34.2		16.5	16.5	16.5	16.5	16.5	
Total Split (s)	12.0	66.0	66.0	18.0	72.0		36.0	36.0	36.0	36.0	36.0	
Total Split (%)	10.0%	55.0%	55.0%	15.0%	60.0%		30.0%	30.0%	30.0%	30.0%	30.0%	
Maximum Green (s)	8.0	59.8	59.8	14.0	65.8		29.5	29.5	29.5	29.5	29.5	
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5		2.8	2.8	2.8	2.8	2.8	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.2	6.2	4.0	6.2		6.5	6.5	6.5	6.5	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	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	C-Max	C-Max	None	C-Max		Max	Max	Max	Max	Max	
Walk Time (s)		7.0	7.0		7.0							
Flash Dont Walk (s)		24.0	24.0		21.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effect Green (s)	72.1	62.9	62.9	80.0	71.2		29.5	29.5	29.5	29.5	29.5	
Actuated g/C Ratio	0.60	0.52	0.52	0.67	0.59		0.25	0.25	0.25	0.25	0.25	
v/c Ratio	0.13	0.70	0.17	0.67	1.13		0.57	0.25	0.33	0.50	0.08	
Control Delay	9.1	24.6	3.3	24.8	91.3		47.7	38.1	7.2	45.5	25.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	9.1	24.6	3.3	24.8	91.3		47.7	38.1	7.2	45.5	25.1	
LOS	A	C	A	C	F		D	D	A	D	C	
Approach Delay		22.1			86.5			30.6			39.2	
Approach LOS		C			F			C			D	

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	22 (18%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	130
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.13
Intersection Signal Delay:	58.4
Intersection LOS:	E
Intersection Capacity Utilization:	98.7%
ICU Level of Service:	F
Analysis Period (min):	15

Splits and Phases: 17: Sixth Line & Dundas Street



HCM 2010 Signalized Intersection Summary
17: Sixth Line & Dundas Street

2019 Existing PM
Neighbourhood 10

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	1239	149	175	2028	204	176	107	162	149	45	21
Future Volume (veh/h)	21	1239	149	175	2028	204	176	107	162	149	45	21
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	22	1304	157	184	2135	215	185	113	171	157	47	22
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	114	1956	875	276	1902	188	365	458	389	275	589	258
Arrive On Green	0.03	0.55	0.55	0.06	0.58	0.58	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	1774	3539	1583	1774	3253	322	1326	1863	1583	1091	2396	1051
Grp Volume(v), veh/h	22	1304	157	184	1145	1205	185	113	171	157	34	35
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1806	1326	1863	1583	1091	1770	1677
Q Serve(g_s), s	0.6	31.3	5.9	5.1	70.2	70.2	15.0	5.8	11.0	16.2	1.8	1.9
Cycle Q Clear(g_c), s	0.6	31.3	5.9	5.1	70.2	70.2	16.9	5.8	11.0	22.0	1.8	1.9
Prop In Lane	1.00		1.00	1.00		0.18	1.00		1.00	1.00		0.63
Lane Grp Cap(c), veh/h	114	1956	875	276	1035	1056	365	458	389	275	435	412
V/C Ratio(X)	0.19	0.67	0.18	0.67	1.11	1.14	0.51	0.25	0.44	0.57	0.08	0.09
Avail Cap(c_a), veh/h	178	1956	875	372	1035	1056	365	458	389	275	435	412
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.9	19.0	13.3	18.5	24.9	24.9	41.4	36.3	38.3	45.2	34.8	34.9
Incr Delay (d2), s/veh	0.8	1.8	0.4	2.8	61.9	75.2	5.0	1.3	3.6	8.3	0.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	15.7	2.7	3.6	51.7	56.7	6.0	3.2	5.2	5.5	0.9	0.9
LnGrp Delay(d),s/veh	29.7	20.8	13.8	21.2	86.8	100.2	46.3	37.6	41.8	53.5	35.1	35.3
LnGrp LOS	C	C	B	C	F	F	D	D	D	D	D	D
Approach Vol, veh/h		1483			2534			469			226	
Approach Delay, s/veh		20.2			88.4			42.6			47.9	
Approach LOS		C			F			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.5	72.5		36.0	7.6	76.4		36.0				
Change Period (Y+Rc), s	4.0	* 6.2		6.5	4.0	* 6.2		6.5				
Max Green Setting (Gmax), s	14.0	* 60		29.5	8.0	* 66		29.5				
Max Q Clear Time (g_c+I1), s	7.1	33.3		24.0	2.6	72.2		18.9				
Green Ext Time (p_c), s	0.4	13.8		0.5	0.0	0.0		1.8				
Intersection Summary												
HCM 2010 Ctrl Delay			60.4									
HCM 2010 LOS			E									
Notes												

Lanes, Volumes, Timings
17: Sixth Line & Dundas Street

2019 Existing PM
Neighbourhood 10 - Mitigation



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	1239	149	175	2028	204	176	107	162	149	45	21
Future Volume (vph)	21	1239	149	175	2028	204	176	107	162	149	45	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		80.0	35.0		0.0	80.0		0.0	45.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	100.0			75.0			100.0			45.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95
Frt			0.850		0.986				0.850		0.952	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3490	0	1770	1863	1583	1770	3369	0
Flt Permitted	0.047			0.151			0.710			0.650		
Satd. Flow (perm)	88	3539	1583	281	3490	0	1323	1863	1583	1211	3369	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			157		18				171		22	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		409.7			323.7			341.1			122.2	
Travel Time (s)		24.6			19.4			20.5			7.3	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	22	1304	157	184	2135	215	185	113	171	157	47	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	1304	157	184	2350	0	185	113	171	157	69	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	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6			8		8	4		

Lanes, Volumes, Timings
17: Sixth Line & Dundas Street

2019 Existing PM
Neighbourhood 10 - Mitigation

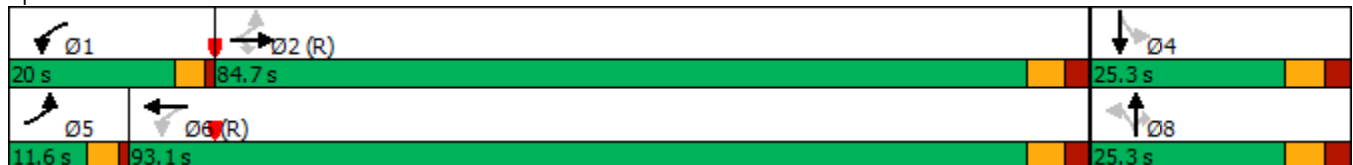


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	11.5	37.2	37.2	11.5	34.2		16.5	16.5	16.5	16.5	16.5	
Total Split (s)	11.6	84.7	84.7	20.0	93.1		25.3	25.3	25.3	25.3	25.3	
Total Split (%)	8.9%	65.2%	65.2%	15.4%	71.6%		19.5%	19.5%	19.5%	19.5%	19.5%	
Maximum Green (s)	7.6	78.5	78.5	16.0	86.9		18.8	18.8	18.8	18.8	18.8	
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5		2.8	2.8	2.8	2.8	2.8	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.2	6.2	4.0	6.2		6.5	6.5	6.5	6.5	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	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	C-Max	C-Max	None	C-Max		Max	Max	Max	Max	Max	
Walk Time (s)		7.0	7.0		7.0							
Flash Dont Walk (s)		24.0	24.0		21.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effect Green (s)	94.5	85.3	85.3	100.0	91.9		18.8	18.8	18.8	18.8	18.8	
Actuated g/C Ratio	0.73	0.66	0.66	0.77	0.71		0.14	0.14	0.14	0.14	0.14	
v/c Ratio	0.14	0.56	0.14	0.57	0.95		0.97	0.42	0.46	0.90	0.14	
Control Delay	5.9	13.6	1.7	11.0	28.2		112.7	56.0	11.2	100.3	35.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	5.9	13.6	1.7	11.0	28.2		112.7	56.0	11.2	100.3	35.0	
LOS	A	B	A	B	C		F	E	B	F	C	
Approach Delay		12.2			26.9			62.0			80.3	
Approach LOS		B			C			E			F	

Intersection Summary
























Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 130
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 28.4
 Intersection LOS: C
 Intersection Capacity Utilization 98.7%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 17: Sixth Line & Dundas Street



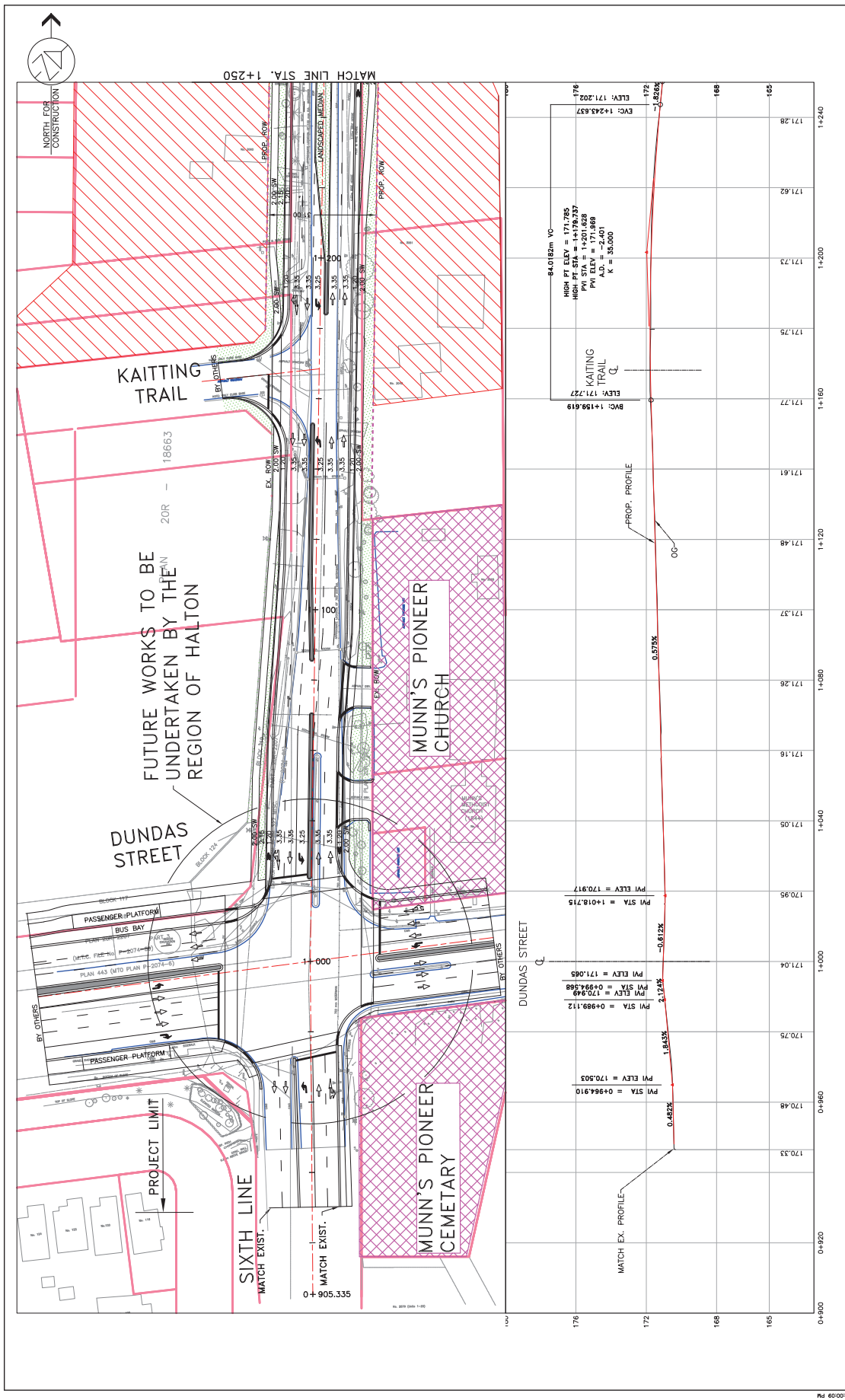
HCM 2010 Signalized Intersection Summary
 17: Sixth Line & Dundas Street

2019 Existing PM
 Neighbourhood 10 - Mitigation

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	1239	149	175	2028	204	176	107	162	149	45	21
Future Volume (veh/h)	21	1239	149	175	2028	204	176	107	162	149	45	21
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	22	1304	157	184	2135	215	185	113	171	157	47	22
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	121	2382	1066	325	2269	225	223	269	229	153	347	152
Arrive On Green	0.03	0.67	0.67	0.05	0.70	0.70	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1774	3539	1583	1774	3253	322	1326	1863	1583	1091	2396	1051
Grp Volume(v), veh/h	22	1304	157	184	1145	1205	185	113	171	157	34	35
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1806	1326	1863	1583	1091	1770	1677
Q Serve(g_s), s	0.5	24.8	4.7	4.0	72.1	78.9	16.4	7.2	13.5	11.6	2.2	2.4
Cycle Q Clear(g_c), s	0.5	24.8	4.7	4.0	72.1	78.9	18.8	7.2	13.5	18.8	2.2	2.4
Prop In Lane	1.00		1.00	1.00		0.18	1.00		1.00	1.00		0.63
Lane Grp Cap(c), veh/h	121	2382	1066	325	1234	1259	223	269	229	153	256	243
V/C Ratio(X)	0.18	0.55	0.15	0.57	0.93	0.96	0.83	0.42	0.75	1.03	0.13	0.14
Avail Cap(c_a), veh/h	173	2382	1066	448	1234	1259	223	269	229	153	256	243
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.6	11.0	7.7	10.3	16.9	17.9	57.6	50.6	53.3	61.3	48.5	48.6
Incr Delay (d2), s/veh	0.7	0.9	0.3	1.5	13.3	16.9	28.7	4.7	19.8	80.1	1.1	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	12.3	2.1	2.7	39.2	44.8	8.4	4.1	7.1	8.9	1.1	1.2
LnGrp Delay(d),s/veh	32.3	11.9	8.0	11.9	30.1	34.8	86.2	55.4	73.1	141.7	49.6	49.8
LnGrp LOS	C	B	A	B	C	C	F	E	E	F	D	D
Approach Vol, veh/h		1483			2534			469			226	
Approach Delay, s/veh		11.8			31.0			74.0			113.6	
Approach LOS		B			C			E			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	93.7		25.3	7.8	96.9		25.3				
Change Period (Y+Rc), s	4.0	* 6.2		6.5	4.0	* 6.2		6.5				
Max Green Setting (Gmax), s	16.0	* 79		18.8	7.6	* 87		18.8				
Max Q Clear Time (g_c+I1), s	6.0	26.8		20.8	2.5	80.9		20.8				
Green Ext Time (p_c), s	0.5	18.4		0.0	0.0	5.8		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			33.2									
HCM 2010 LOS			C									
Notes												

Appendix E

Sixth Line EA Preliminary Design



LEGEND

- EXISTING EDGE OF NEIGHBOURHOOD CENTRE AREA
- EXISTING R.O.W.
- PROPOSED R.O.W.
- PROPOSED ALIGNMENT
- LANDSCAPED AREAS
- CULTURAL HERITAGE RESOURCE
- NATURAL HERITAGE SYSTEM
- PROVINCIAL SIGNIFICANT WETLANDS

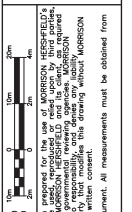
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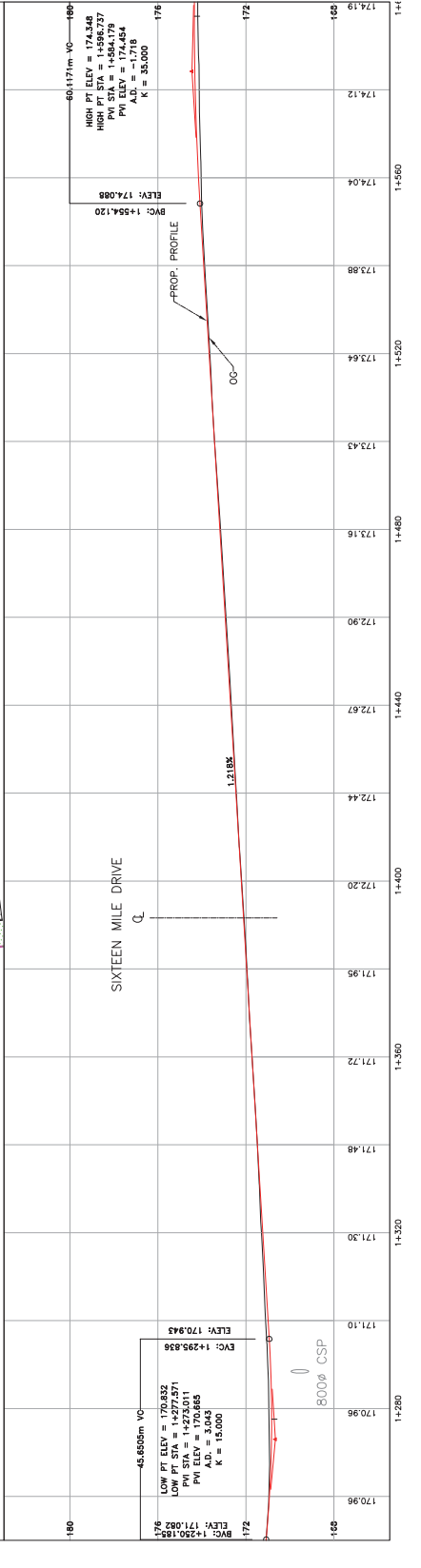
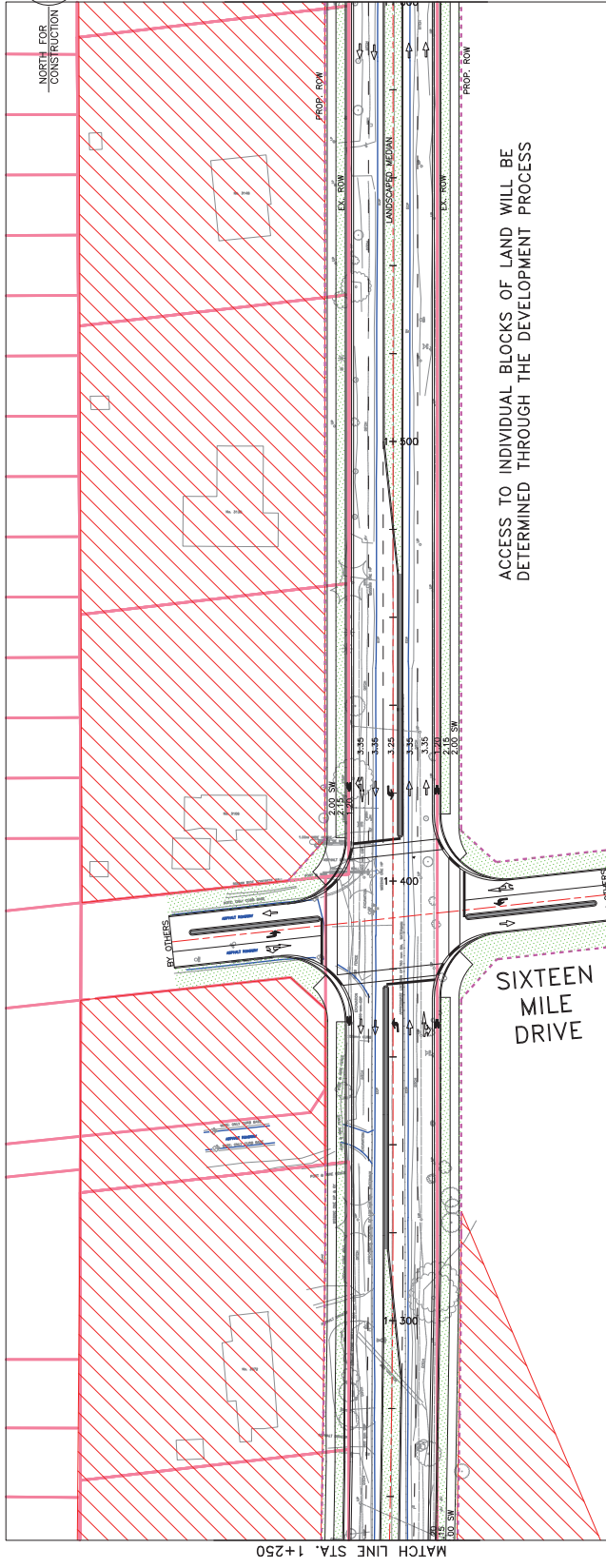
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SIXTH LINE CLASS ENVIRONMENTAL ASSESSMENT
 PRELIMINARY PREFERRED DESIGN

STA. 0+905 TO STA. 1+250

PROJECT NUMBER: EA-067-11
 DRAWING NUMBER: 1
 ISSUE/REVISION: 1





SIXTH LINE CLASS ENVIRONMENTAL ASSESSMENT PRELIMINARY PREFERRED DESIGN	
PROJECT NUMBER EA-067-11	DRAWING NUMBER 2
ISSUE/REVISION 1	STA. 1+250 TO STA. 1+600



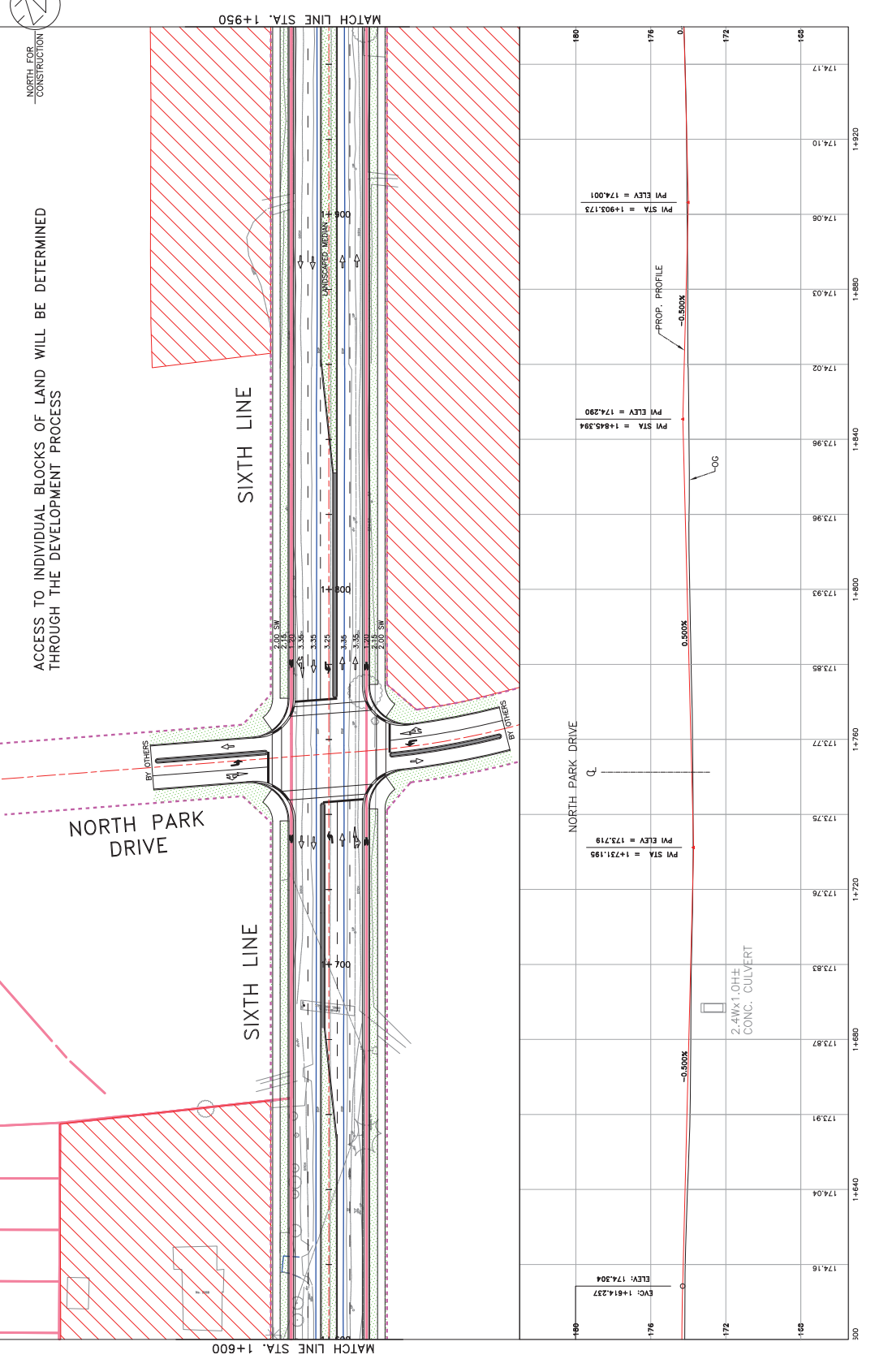
NEIGHBOURHOOD CENTRE AREA	EXISTING R.O.W.
CULTURAL HERITAGE RESOURCE	PROPOSED R.O.W.
NATURAL HERITAGE SYSTEM	PROVINCIAL SIGNIFICANT WETLANDS
LANDSCAPED AREAS	

LEGEND

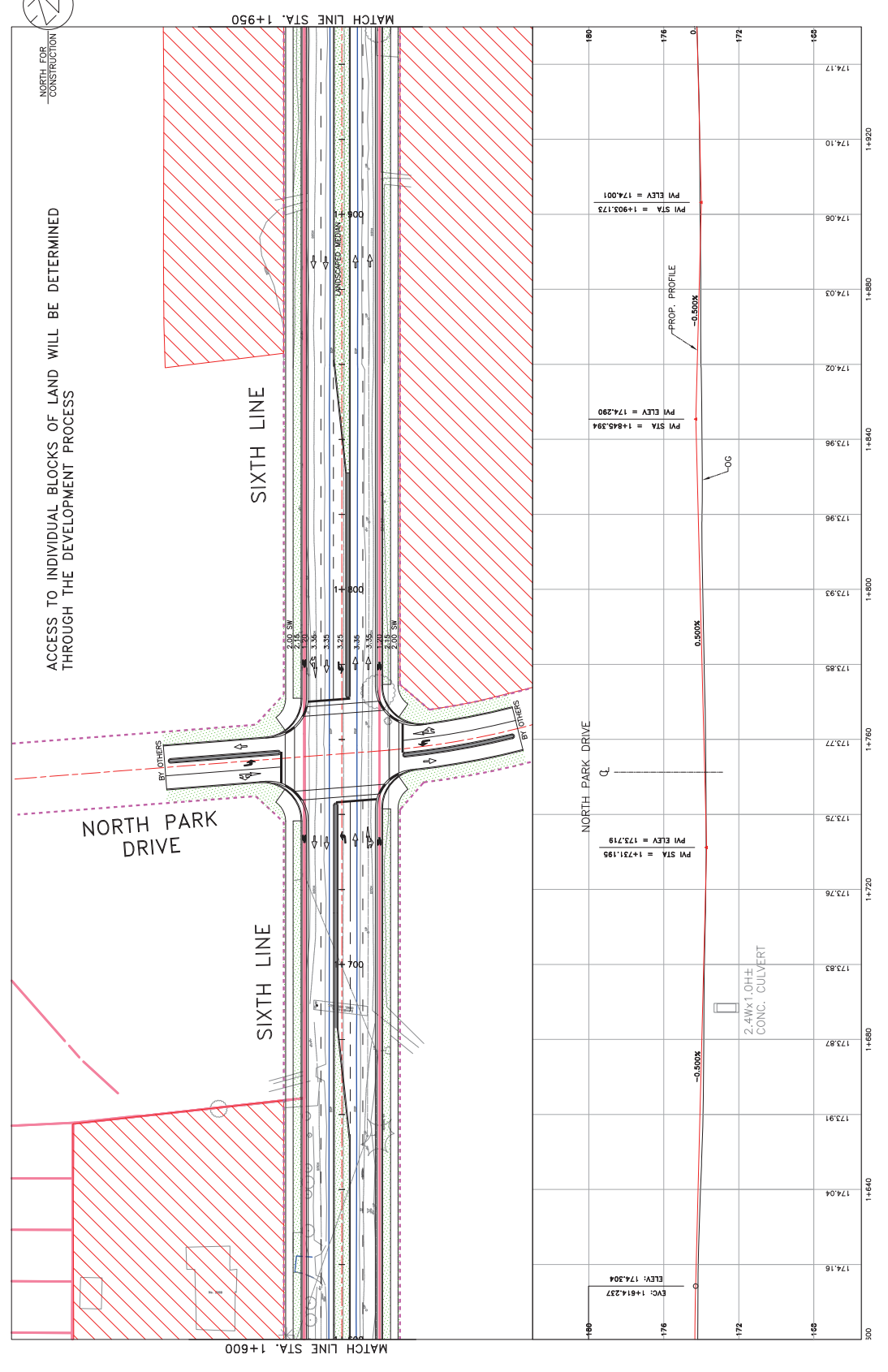
- EXISTING R.O.W.
- PROPOSED R.O.W.
- PROVINCIAL SIGNIFICANT WETLANDS
- LANDSCAPED AREAS

SCALE
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H: 1:100

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ACCESS TO INDIVIDUAL BLOCKS OF LAND WILL BE DETERMINED THROUGH THE DEVELOPMENT PROCESS



LEGEND

- EXISTING EDGE OF ADJACENT R.O.W.
- EXISTING R.O.W.
- PROPOSED R.O.W.
- PROPOSED ALIGNMENT
- LANDSCAPED AREAS
- NEIGHBOURHOOD CENTRE AREA
- CULTURAL HERITAGE RESOURCE
- NATURAL HERITAGE SYSTEM
- PROVINCIAL SIGNIFICANT WETLANDS

SCALE
 V: 1:100
 H: 1:500

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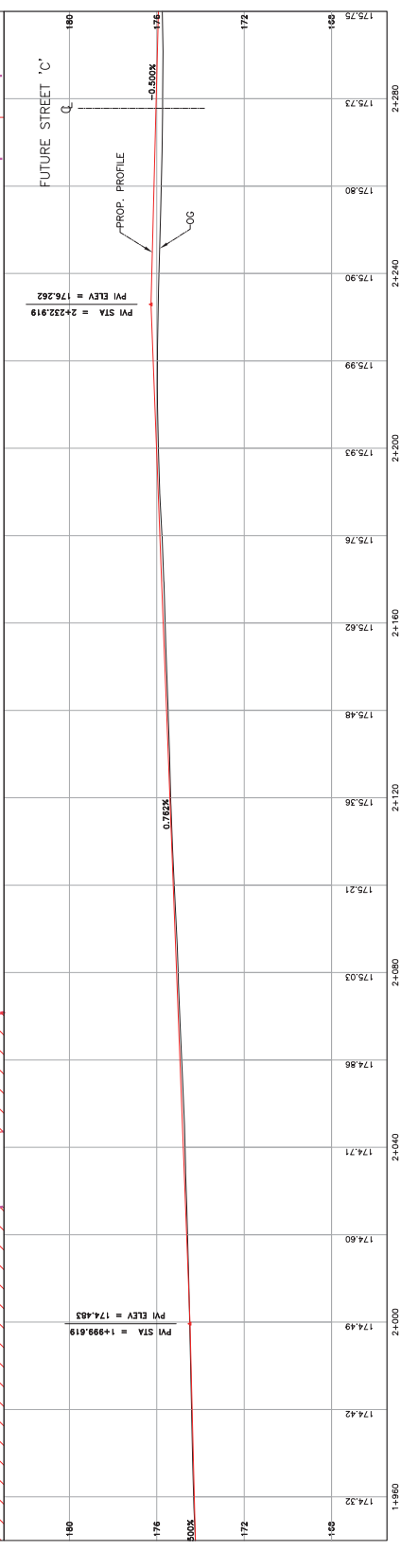
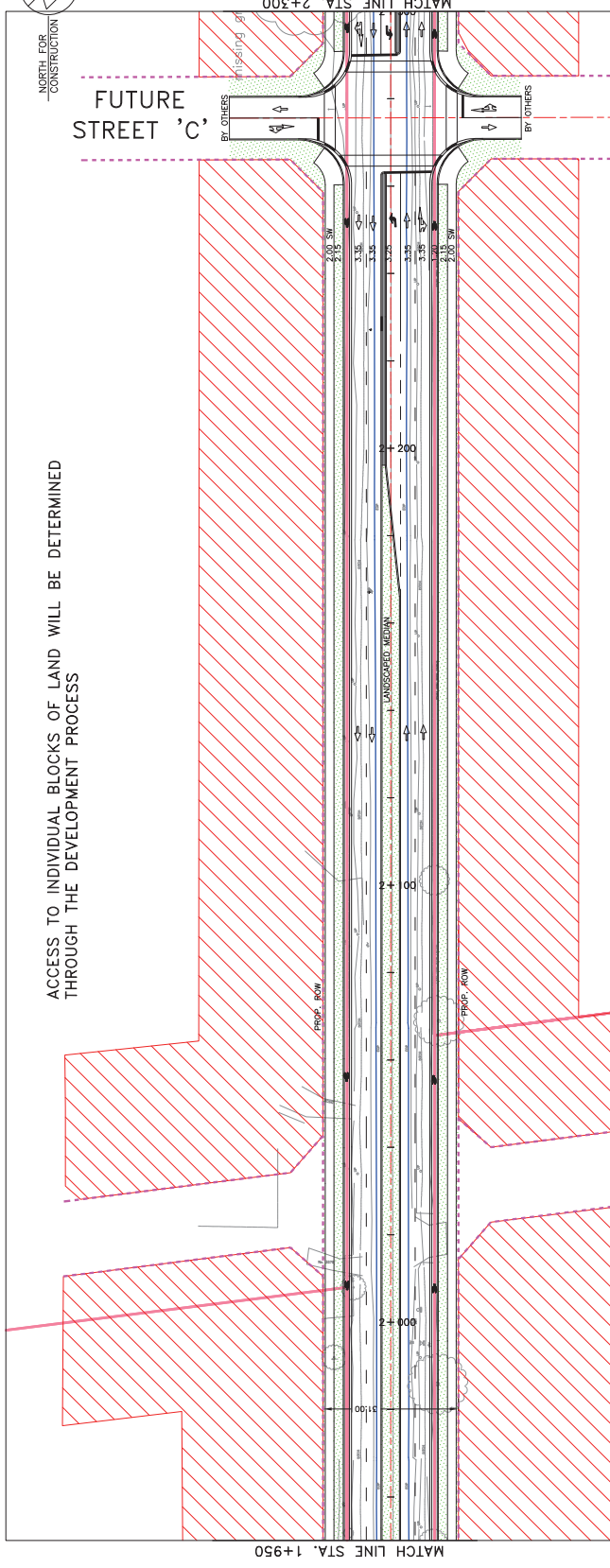
SIXTH LINE CLASS ENVIRONMENTAL ASSESSMENT
 PRELIMINARY PREFERRED DESIGN

PROJECT NUMBER: EA-067-11
 DRAWING NUMBER: 3
 ISSUE/REVISION: 1

MORRISON HERSHFELD
OAKVILLE



ACCESS TO INDIVIDUAL BLOCKS OF LAND WILL BE DETERMINED THROUGH THE DEVELOPMENT PROCESS



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LEGEND

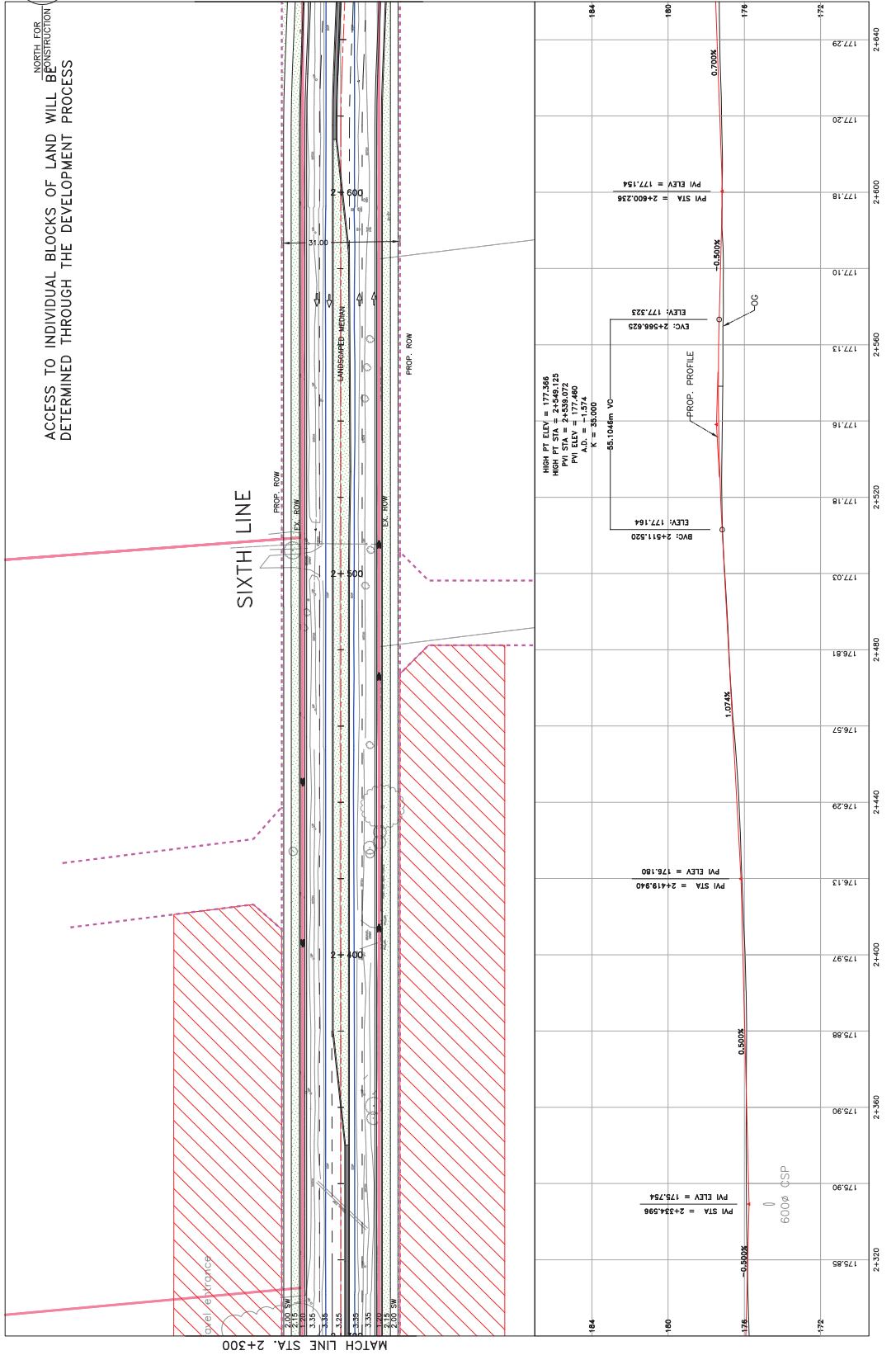
- EXISTING EDGE OF ALLEYS
- EXISTING R.O.W.
- PROPOSED R.O.W.
- PROPOSED ALIGNMENT
- LANDSCAPED AREAS
- NEIGHBOURHOOD CENTRE AREA
- CULTURAL HERITAGE RESOURCE
- NATURAL HERITAGE SYSTEM
- PROVINCIAL SIGNIFICANT WETLANDS



SIXTH LINE CLASS ENVIRONMENTAL ASSESSMENT PRELIMINARY PREFERRED DESIGN		PROJECT NUMBER EA-067-11	DRAWING NUMBER 4	ISSUE/REVISION 1
STA. 1+950 TO STA. 2+300				



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LEGEND

- EXISTING EDGE OF ALLEYS
- EXISTING R.O.W.
- PROPOSED R.O.W.
- PROPOSED ALIGNMENT
- LANDSCAPED AREAS
- NEIGHBOURHOOD CENTRE AREA
- CULTURAL HERITAGE RESOURCE
- NATURAL HERITAGE SYSTEM
- PROVINCIALLY SIGNIFICANT WETLANDS

MORRISON HERSHFELD

OAKVILLE

SIXTH LINE CLASS ENVIRONMENTAL ASSESSMENT
PRELIMINARY PREFERRED DESIGN

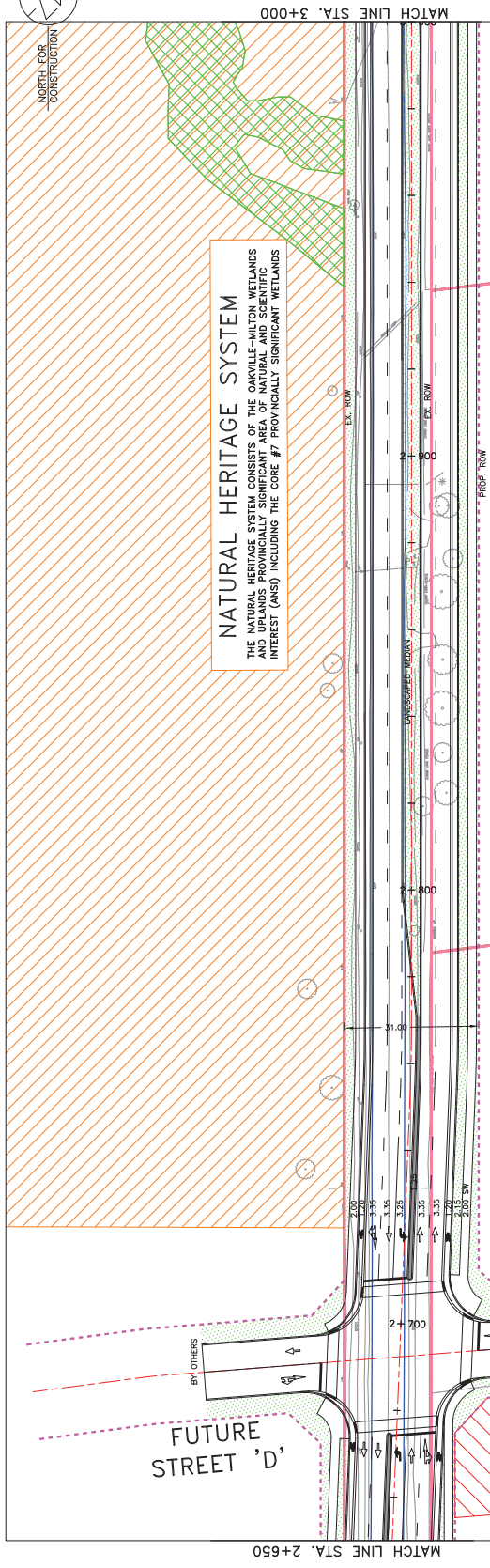
ISSUE/REVISION
1

STA. 2+300 TO STA. 2+650

DRAWING NUMBER
5

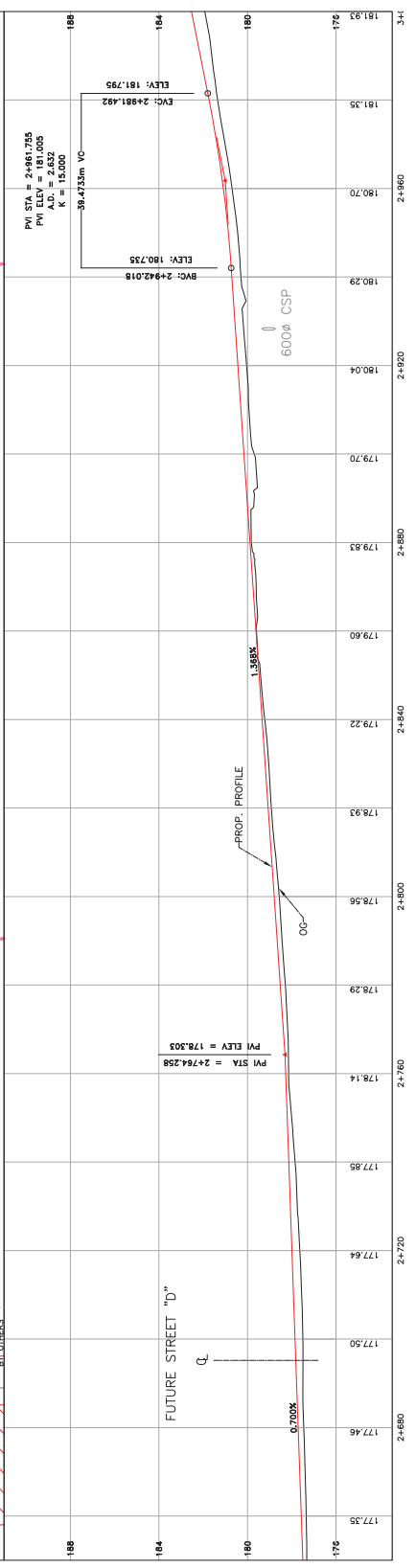
PROJECT NUMBER
EA-067-11

DRAWING NUMBER
5



NATURAL HERITAGE SYSTEM
 THE NATURAL HERITAGE SYSTEM CONSISTS OF THE OAKVILLE-MILTON WETLANDS AND UPLANDS PROVINCIAL SIGNIFICANT AREA OF NATURAL AND SCIENTIFIC INTEREST (ANSI) INCLUDING THE CORE #7 PROVINCIAL SIGNIFICANT WETLANDS

ACCESS TO INDIVIDUAL BLOCKS OF LAND WILL BE DETERMINED THROUGH THE DEVELOPMENT PROCESS



SIXTH LINE CLASS ENVIRONMENTAL ASSESSMENT PRELIMINARY PREFERRED DESIGN		PROJECT NUMBER EA-067-11	DRAWING NUMBER 6	ISSUE/REVISION 1
STA. 2+650 TO STA. 3+000				



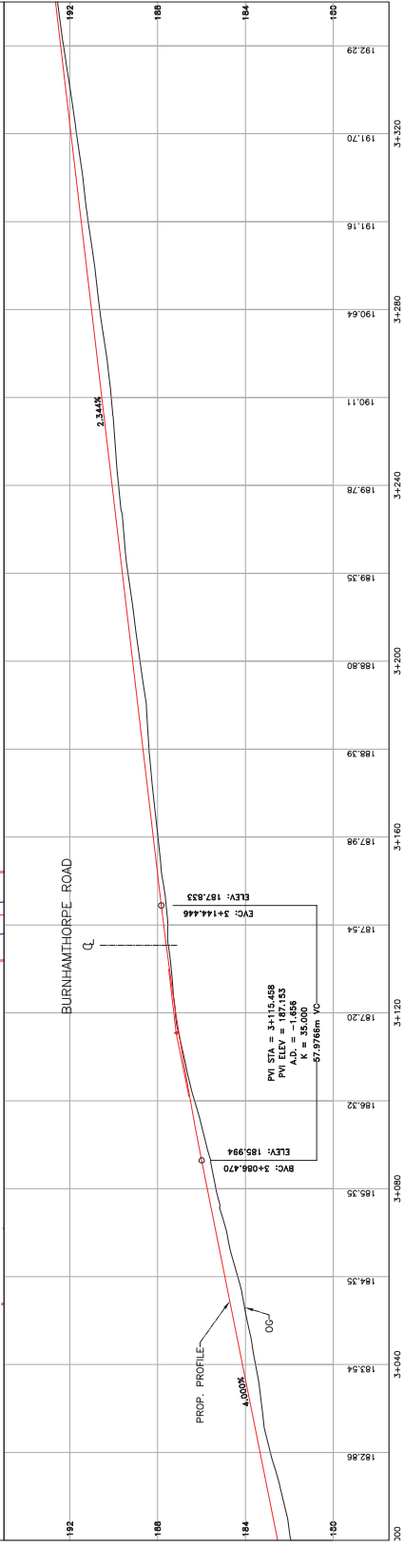
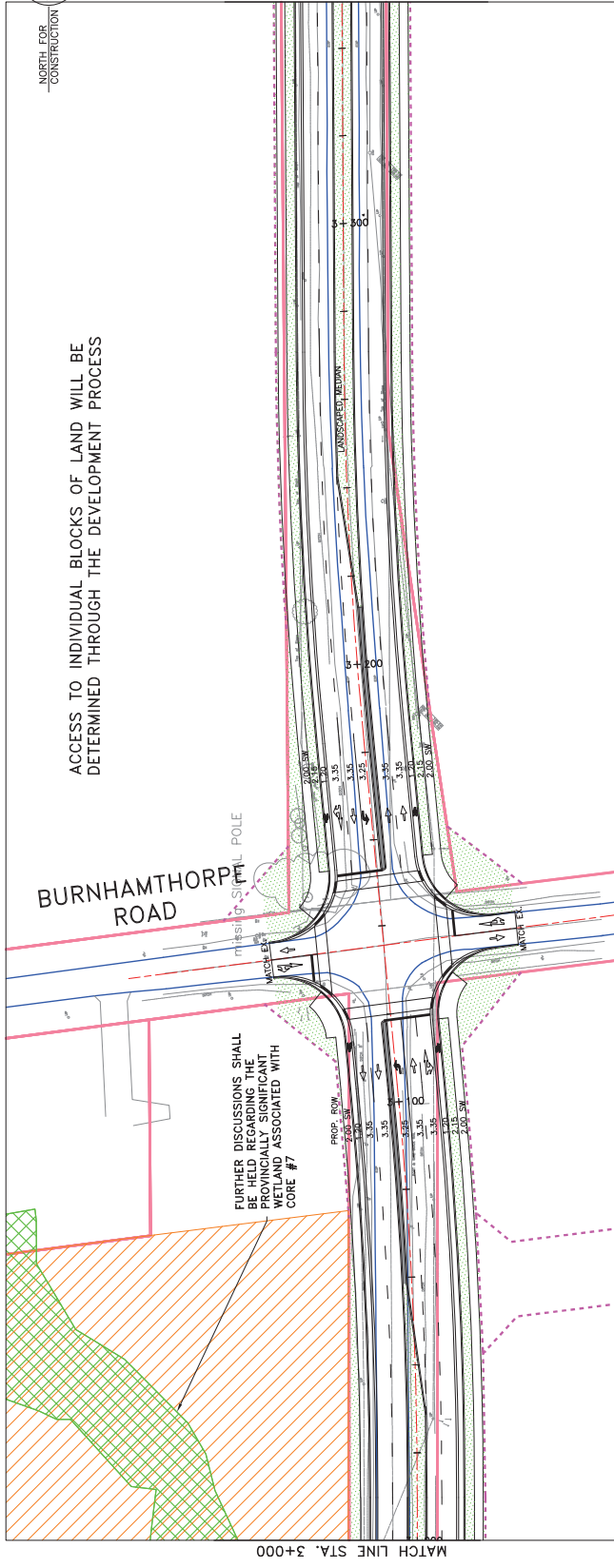
	EXISTING EDGE OF	NEIGHBOURHOOD CENTRE AREA
	EXISTING R.O.W.	CULTURAL HERITAGE RESOURCE
	PROPOSED R.O.W.	NATURAL HERITAGE SYSTEM
	PROPOSED ALIGNMENT	PROVINCIAL SIGNIFICANT WETLANDS
	LANDSCAPED AREAS	

LEGEND
 EXISTING EDGE OF
 EXISTING R.O.W.
 PROPOSED R.O.W.
 PROPOSED ALIGNMENT
 LANDSCAPED AREAS

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ACCESS TO INDIVIDUAL BLOCKS OF LAND WILL BE DETERMINED THROUGH THE DEVELOPMENT PROCESS



SIXTH LINE CLASS ENVIRONMENTAL ASSESSMENT
 PRELIMINARY PREFERRED DESIGN
 STA. 3+000 TO STA. 3+350
 PROJECT NUMBER: EA-067-11
 DRAWING NUMBER: 7
 ISSUE/REVISION: 1



MORRISON HERSHFELD
 NEIGHBOURHOOD CENTRE AREA
 CULTURAL HERITAGE RESOURCE
 NATURAL HERITAGE SYSTEM
 PROVINCIAL SIGNIFICANT WETLANDS

- LEGEND**
- EXISTING EDGE OF
 - EXISTING R.O.W.
 - PROPOSED R.O.W.
 - LANDSCAPED AREAS
 - PROVINCIAL SIGNIFICANT WETLANDS

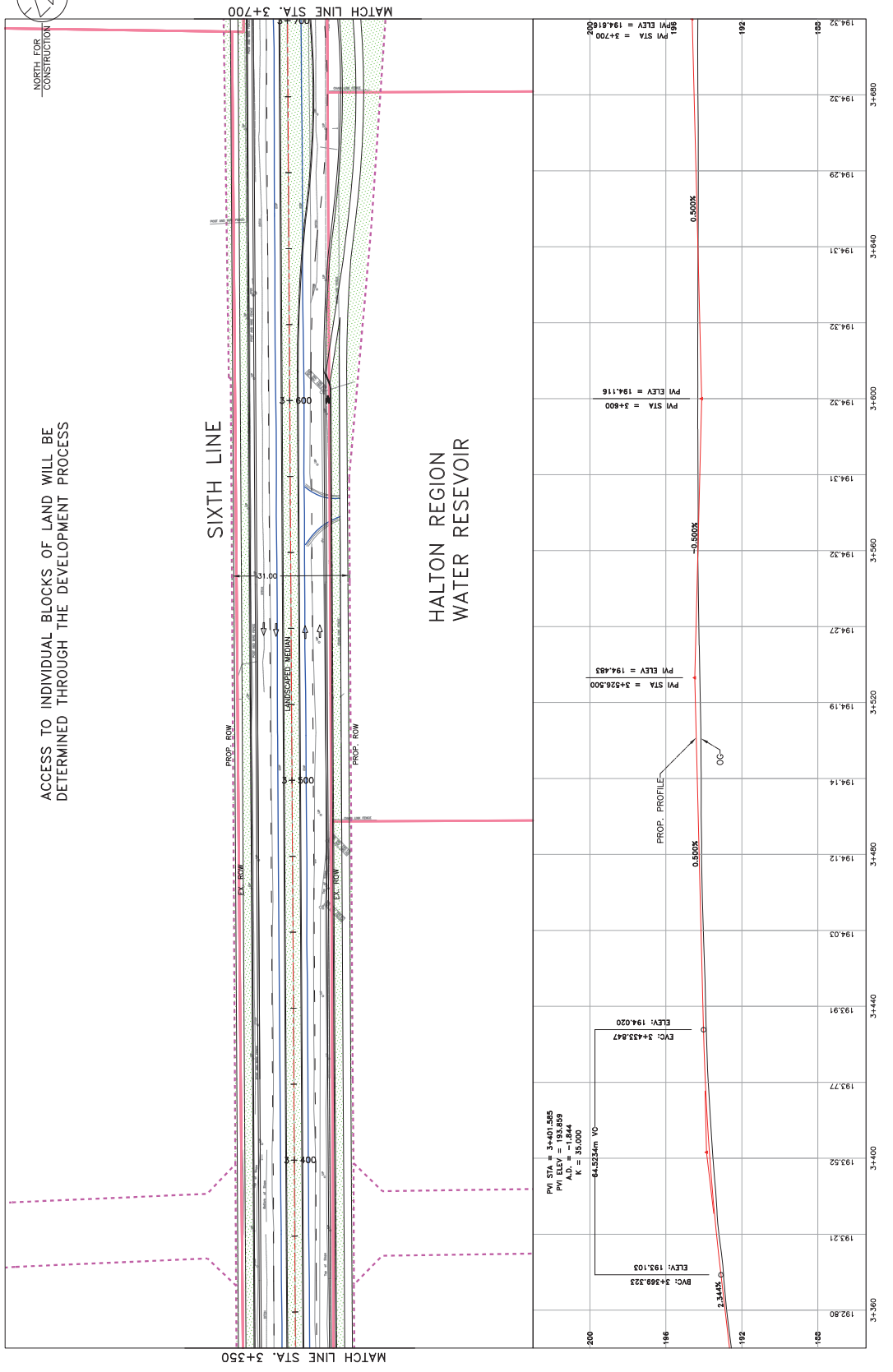
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ACCESS TO INDIVIDUAL BLOCKS OF LAND WILL BE DETERMINED THROUGH THE DEVELOPMENT PROCESS

SIXTH LINE

HALTON REGION WATER RESEVOIR



SIXTH LINE CLASS ENVIRONMENTAL ASSESSMENT
PRELIMINARY PREFERRED DESIGN
 STA. 3+350 TO STA. 3+700
 PROJECT NUMBER: EA-067-11
 DRAWING NUMBER: 8
 ISSUE/REVISION: 1



LEGEND

- NEIGHBOURHOOD CENTRE AREA
- CULTURAL HERITAGE RESOURCE
- NATURAL HERITAGE SYSTEM
- PROVINCIAL SIGNIFICANT WETLANDS
- EXISTING R.O.W.
- PROPOSED R.O.W.
- LANDSCAPED AREAS

SCALE
 V: 1:500
 H: 1:100

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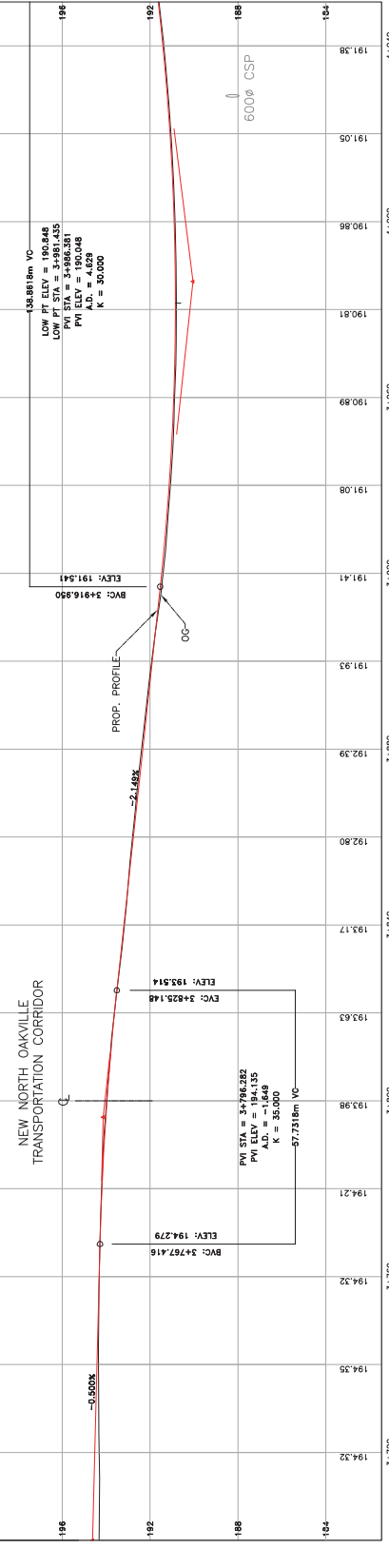
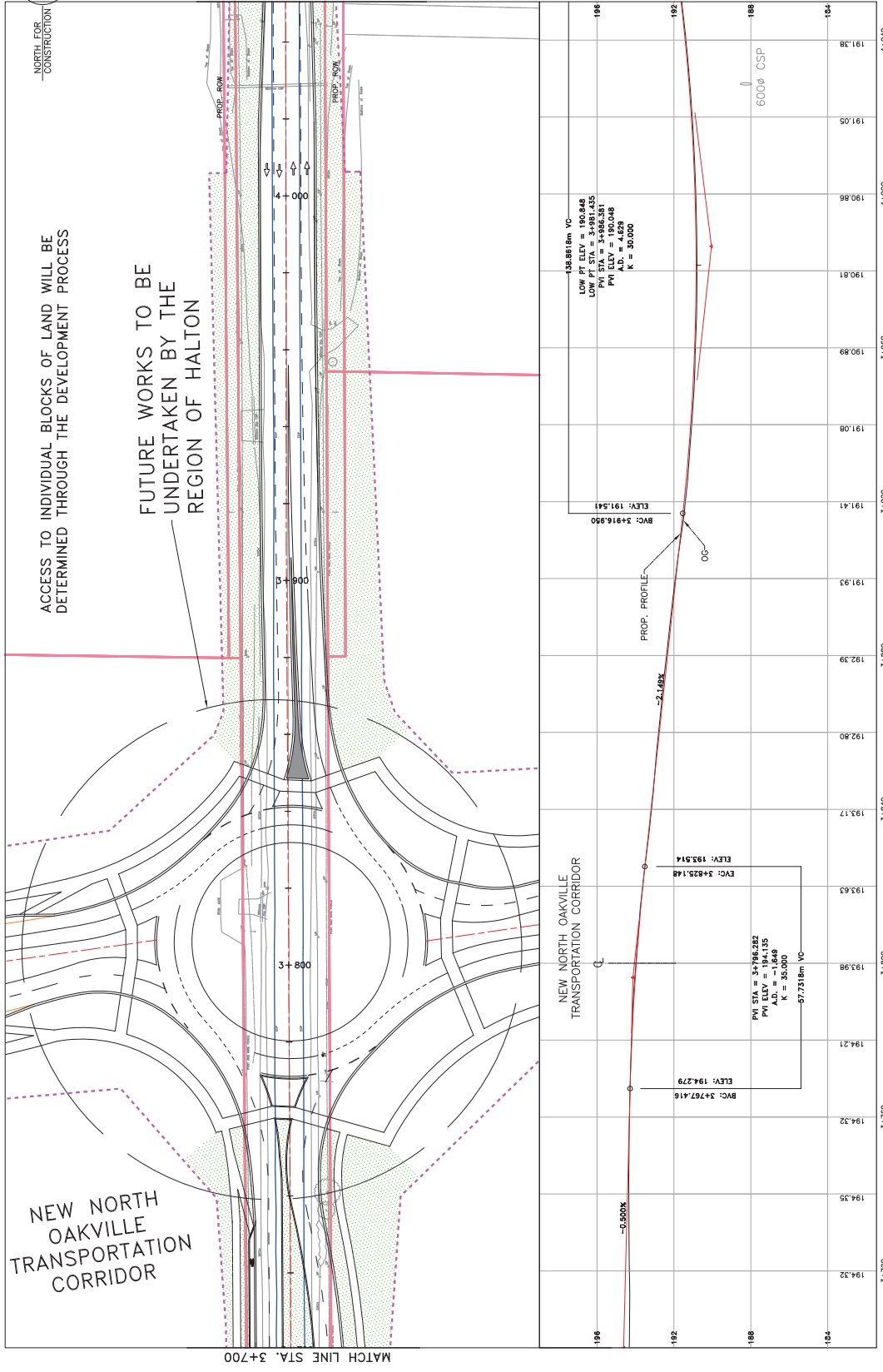
DATE: 2014/09/22
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ACCESS TO INDIVIDUAL BLOCKS OF LAND WILL BE DETERMINED THROUGH THE DEVELOPMENT PROCESS

FUTURE WORKS TO BE UNDERTAKEN BY THE REGION OF HALTON

NEW NORTH OAKVILLE TRANSPORTATION CORRIDOR



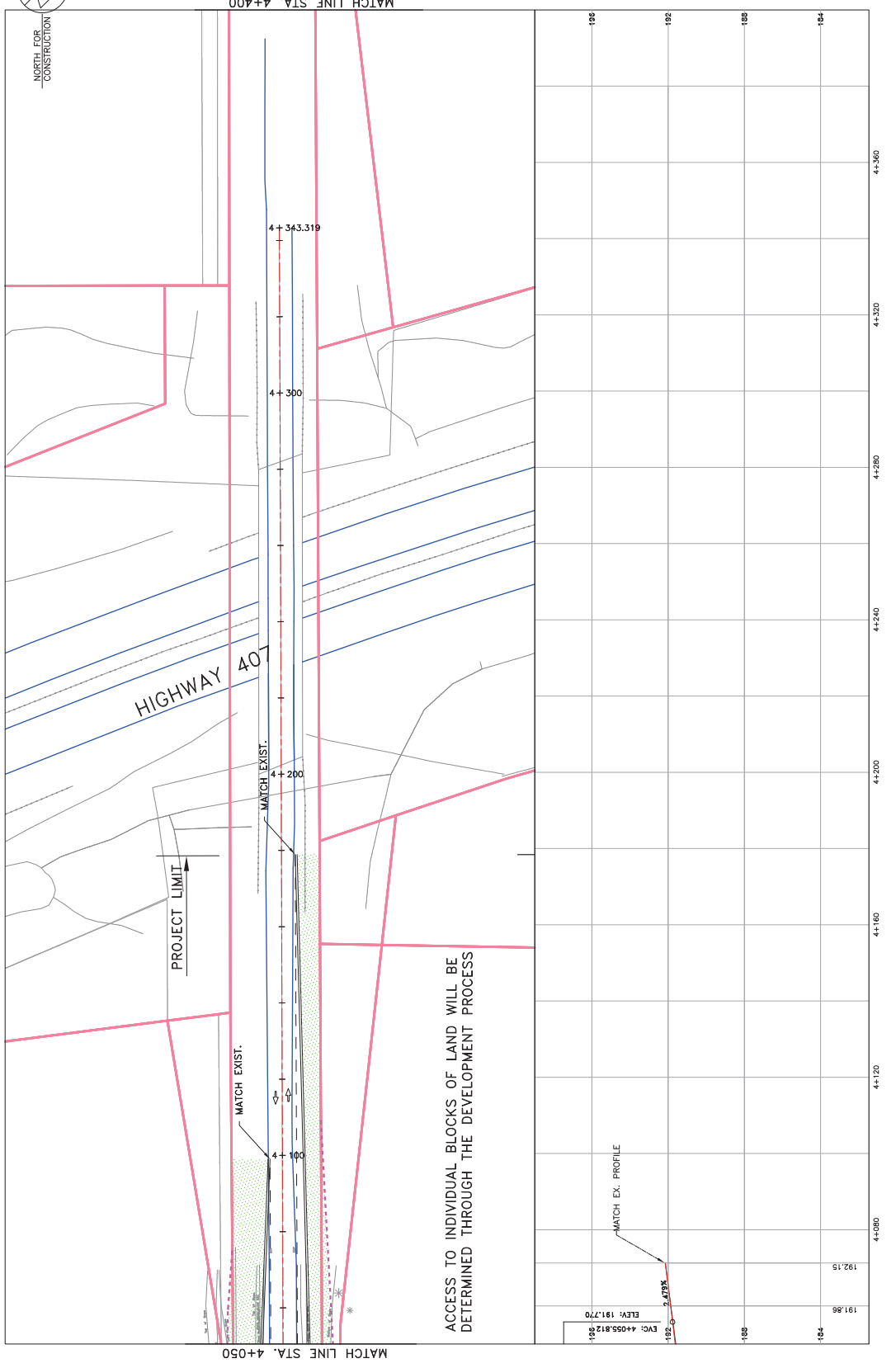
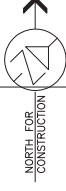
SCALE
 V: 1:500
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- LEGEND**
- EXISTING EDGE OF ADJACENT R.O.W.
 - EXISTING R.O.W.
 - PROPOSED R.O.W.
 - PROPOSED ALIGNMENT
 - LANDSCAPED AREAS
 - NEIGHBOURHOOD CENTRE AREA
 - CULTURAL HERITAGE RESOURCE
 - NATURAL HERITAGE SYSTEM
 - PROVINCIAL SIGNIFICANT WETLANDS



SIXTH LINE CLASS ENVIRONMENTAL ASSESSMENT PRELIMINARY PREFERRED DESIGN	
PROJECT NUMBER EA-067-11	DRAWING NUMBER 9
STA. 3+700 TO STA. 4+050	
ISSUE/REVISION 1	



DRAWING NAME: \\15091\FP\Drawings\New\Construction\10\Sheet Line Plan & Profile.dwg (Sheet 1-500)
DATE: 2014/09/26 10:52 AM

LEGEND

- EXISTING EDGE OF HIGHWAY R.O.W.
- EXISTING R.O.W.
- PROPOSED R.O.W.
- PROPOSED ALIGNMENT
- LANDSCAPED AREAS

- NEIGHBOURHOOD CENTRE AREA
- CULTURAL HERITAGE RESOURCE
- NATURAL HERITAGE SYSTEM
- PROVINCIAL SIGNIFICANT WETLANDS

SCALE
V: 1:500
H: 1:100

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SIXTH LINE CLASS ENVIRONMENTAL ASSESSMENT PRELIMINARY PREFERRED DESIGN		
PROJECT NUMBER EA-067-11	DRAWING NUMBER 10	ISSUE/REVISION 1

LEGEND

- EXISTING EDGE OF HIGHWAY R.O.W.
- EXISTING R.O.W.
- PROPOSED R.O.W.
- PROPOSED ALIGNMENT
- LANDSCAPED AREAS

SIXTH LINE CLASS ENVIRONMENTAL ASSESSMENT PRELIMINARY PREFERRED DESIGN		
PROJECT NUMBER EA-067-11	DRAWING NUMBER 10	ISSUE/REVISION 1



SCALE
V: 1:500
H: 1:100

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LEGEND

- EXISTING EDGE OF HIGHWAY R.O.W.
- EXISTING R.O.W.
- PROPOSED R.O.W.
- PROPOSED ALIGNMENT
- LANDSCAPED AREAS

- NEIGHBOURHOOD CENTRE AREA
- CULTURAL HERITAGE RESOURCE
- NATURAL HERITAGE SYSTEM
- PROVINCIAL SIGNIFICANT WETLANDS

Appendix F

2024 Future Background Conditions Synchro Worksheets

Lanes, Volumes, Timings
1: Neyagawa Boulevard & William Halton Parkway

2024 Future Background AM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	2100	156	382	2100	6	172	507	470	47	192	65
Future Volume (vph)	38	2100	156	382	2100	6	172	507	470	47	192	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.072			0.067			0.606			0.260		
Satd. Flow (perm)	134	3539	1583	125	3539	1583	1129	3539	1583	484	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			87			31			220			67
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		433.0			261.8			285.2			280.3	
Travel Time (s)		31.2			18.8			20.5			20.2	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	46	2561	190	466	2561	7	210	618	573	57	234	79
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	2561	190	466	2561	7	210	618	573	57	234	79
Enter Blocked Intersection	No	No	No	No	No	No	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	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6

Lanes, Volumes, Timings
1: Neyagawa Boulevard & William Halton Parkway

2024 Future Background AM
Neighbourhood 10

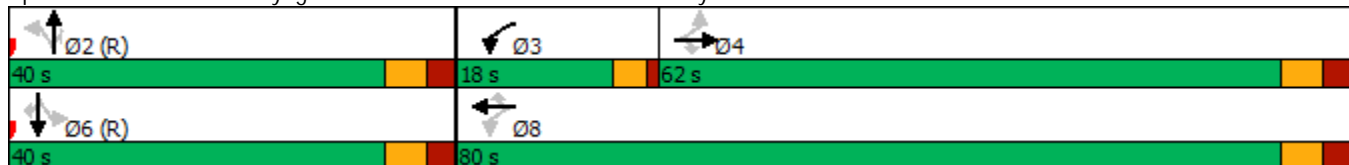


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	3	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	15.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	40.4	40.4	40.4	11.0	40.4	40.4	37.4	37.4	37.4	37.4	37.4	37.4
Total Split (s)	62.0	62.0	62.0	18.0	80.0	80.0	40.0	40.0	40.0	40.0	40.0	40.0
Total Split (%)	51.7%	51.7%	51.7%	15.0%	66.7%	66.7%	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%
Maximum Green (s)	55.6	55.6	55.6	14.0	73.6	73.6	33.6	33.6	33.6	33.6	33.6	33.6
Yellow Time (s)	3.7	3.7	3.7	3.0	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	1.0	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	4.0	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
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	3.0	3.0
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	27.0	27.0	27.0		27.0	27.0	24.0	24.0	24.0	24.0	24.0	24.0
Pedestrian Calls (#/hr)	0	0	0		0	0	0	0	0	0	0	0
Act Effect Green (s)	55.6	55.6	55.6	76.0	73.6	73.6	33.6	33.6	33.6	33.6	33.6	33.6
Actuated g/C Ratio	0.46	0.46	0.46	0.63	0.61	0.61	0.28	0.28	0.28	0.28	0.28	0.28
v/c Ratio	0.74	1.56	0.24	1.72	1.18	0.01	0.66	0.62	0.95	0.42	0.24	0.16
Control Delay	90.3	283.2	11.1	363.6	105.7	0.2	49.9	41.0	53.5	46.8	34.1	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	90.3	283.2	11.1	363.6	105.7	0.2	49.9	41.0	53.5	46.8	34.1	10.8
LOS	F	F	B	F	F	A	D	D	D	D	C	B
Approach Delay		261.5			145.1			47.5			31.1	
Approach LOS		F			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: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.72
 Intersection Signal Delay: 164.4
 Intersection LOS: F
 Intersection Capacity Utilization 125.1%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 1: Neyagawa Boulevard & William Halton Parkway

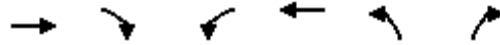


HCM 2010 Signalized Intersection Summary
 1: Neyagawa Boulevard & William Halton Parkway

2024 Future Background AM
 Neighbourhood 10

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	2100	156	382	2100	6	172	507	470	47	192	65
Future Volume (veh/h)	38	2100	156	382	2100	6	172	507	470	47	192	65
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	46	2561	190	466	2561	7	210	618	573	57	234	79
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	1640	734	267	2171	971	303	991	443	120	991	443
Arrive On Green	0.46	0.46	0.46	0.12	0.61	0.61	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	122	3539	1583	1774	3539	1583	1062	3539	1583	468	3539	1583
Grp Volume(v), veh/h	46	2561	190	466	2561	7	210	618	573	57	234	79
Grp Sat Flow(s),veh/h/ln	122	1770	1583	1774	1770	1583	1062	1770	1583	468	1770	1583
Q Serve(g_s), s	0.0	55.6	8.8	14.0	73.6	0.2	22.8	18.3	33.6	14.5	6.1	4.5
Cycle Q Clear(g_c), s	55.6	55.6	8.8	14.0	73.6	0.2	28.9	18.3	33.6	32.8	6.1	4.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	60	1640	734	267	2171	971	303	991	443	120	991	443
V/C Ratio(X)	0.77	1.56	0.26	1.75	1.18	0.01	0.69	0.62	1.29	0.48	0.24	0.18
Avail Cap(c_a), veh/h	60	1640	734	267	2171	971	303	991	443	120	991	443
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.0	32.2	19.6	40.5	23.2	9.0	44.5	37.7	43.2	52.0	33.3	32.7
Incr Delay (d2), s/veh	44.0	255.8	0.2	350.6	86.0	0.0	12.3	3.0	147.6	12.9	0.6	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	85.4	3.9	34.8	61.5	0.1	7.7	9.3	32.8	2.3	3.1	2.1
LnGrp Delay(d),s/veh	104.0	288.0	19.8	391.1	109.2	9.0	56.7	40.6	190.8	64.9	33.9	33.6
LnGrp LOS	F	F	B	F	F	A	E	D	F	E	C	C
Approach Vol, veh/h		2797			3034			1401			370	
Approach Delay, s/veh		266.8			152.3			104.5			38.6	
Approach LOS		F			F			F			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		40.0	18.0	62.0		40.0		80.0				
Change Period (Y+Rc), s		6.4	4.0	6.4		6.4		6.4				
Max Green Setting (Gmax), s		33.6	14.0	55.6		33.6		73.6				
Max Q Clear Time (g_c+I1), s		35.6	16.0	57.6		34.8		75.6				
Green Ext Time (p_c), s		0.0	0.0	0.0		0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			180.1									
HCM 2010 LOS			F									

Lanes, Volumes, Timings
2: Burnhamthorpe Road & William Halton Parkway



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	2100	104	5	2100	208	5
Future Volume (vph)	2100	104	5	2100	208	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		75.0	75.0		0.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			75.0		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted			0.045		0.950	
Satd. Flow (perm)	3539	1583	84	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		79				5
Link Speed (k/h)	50			50	50	
Link Distance (m)	587.8			591.4	185.0	
Travel Time (s)	42.3			42.6	13.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2283	113	5	2283	226	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2283	113	5	2283	226	5
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)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8

Lanes, Volumes, Timings
2: Burnhamthorpe Road & William Halton Parkway

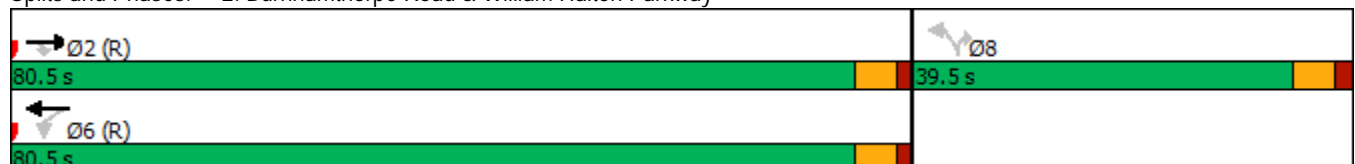


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	33.1	33.1	33.1	33.1	39.5	39.5
Total Split (s)	80.5	80.5	80.5	80.5	39.5	39.5
Total Split (%)	67.1%	67.1%	67.1%	67.1%	32.9%	32.9%
Maximum Green (s)	75.4	75.4	75.4	75.4	34.0	34.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.4	1.4	1.4	1.4	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	27.0	27.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	88.7	88.7	88.7	88.7	20.7	20.7
Actuated g/C Ratio	0.74	0.74	0.74	0.74	0.17	0.17
v/c Ratio	0.87	0.09	0.08	0.87	0.74	0.02
Control Delay	7.5	0.1	9.4	17.6	61.3	21.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.5	0.1	9.4	17.6	61.3	21.8
LOS	A	A	A	B	E	C
Approach Delay	7.1			17.6	60.5	
Approach LOS	A			B	E	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 78.4%
 ICU Level of Service D
 Analysis Period (min) 15

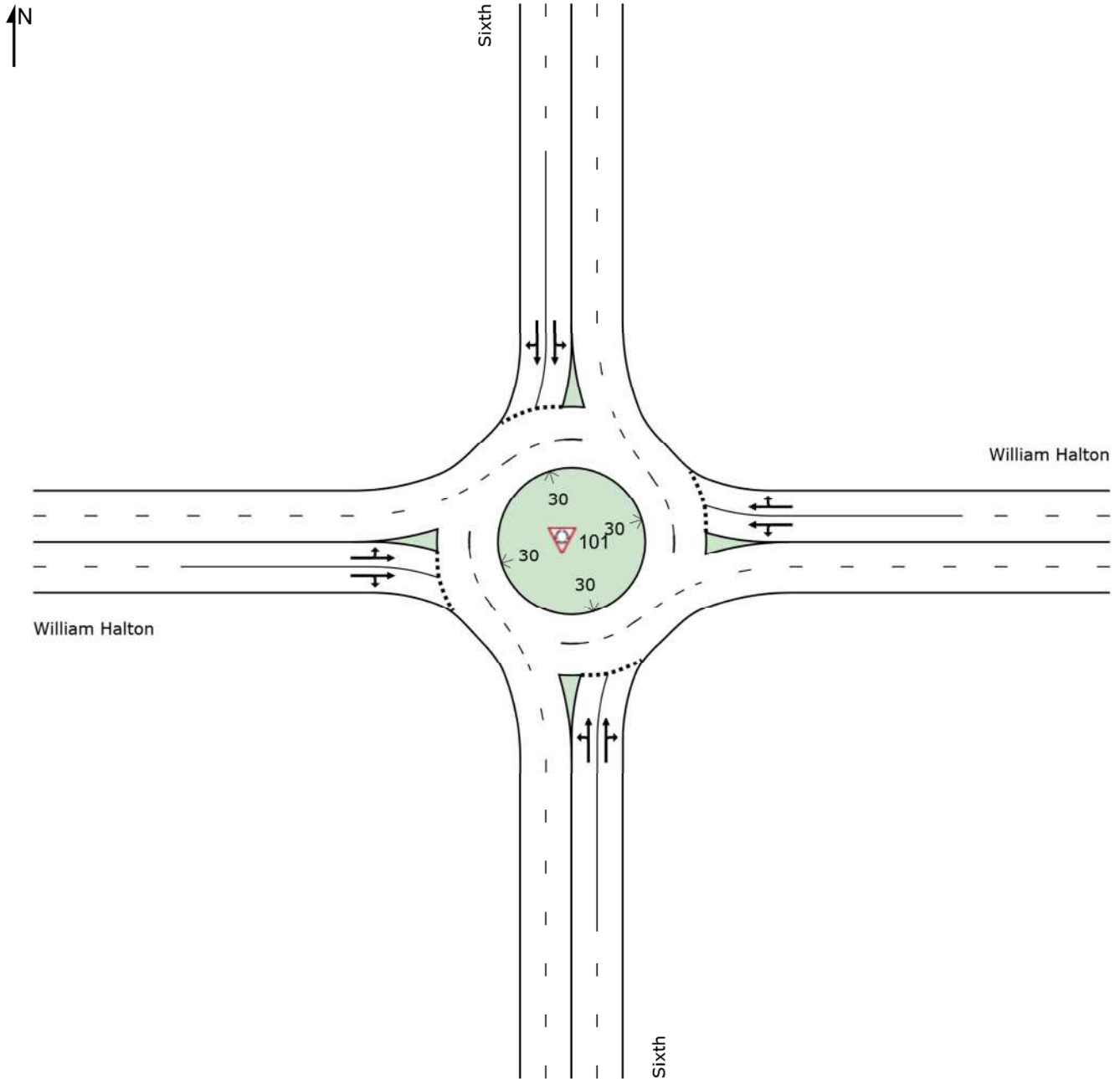
Splits and Phases: 2: Burnhamthorpe Road & William Halton Parkway



SITE LAYOUT

 Site: 101 [WH & 6th - 2024 AM FB]

New Site
Site Category: (None)
Roundabout



MOVEMENT SUMMARY

 Site: 101 [WH & 6th - 2024 AM FB]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Sixth												
1	L2	116	2.0	1.328	320.3	LOS F	84.9	604.3	1.00	4.65	12.72	10.0
2	T1	1057	2.0	1.328	312.6	LOS F	118.0	840.3	1.00	5.30	14.09	10.1
3	R2	9	2.0	1.328	311.6	LOS F	118.0	840.3	1.00	5.65	14.84	10.0
Approach		1182	2.0	1.328	313.3	LOS F	118.0	840.3	1.00	5.24	13.96	10.0
East: William Halton												
4	L2	2	2.0	1.604	558.9	LOS F	255.2	1817.1	1.00	9.21	24.91	6.1
5	T1	2211	2.0	1.604	552.5	LOS F	318.9	2270.5	1.00	9.94	26.23	6.1
6	R2	120	2.0	1.604	552.0	LOS F	318.9	2270.5	1.00	10.58	27.39	6.1
Approach		2333	2.0	1.604	552.5	LOS F	318.9	2270.5	1.00	9.97	26.29	6.1
North: Sixth												
7	L2	156	2.0	1.430	407.3	LOS F	123.0	875.9	1.00	5.92	16.51	8.1
8	T1	1084	2.0	1.430	400.4	LOS F	167.1	1190.1	1.00	6.63	18.00	8.1
9	R2	193	2.0	1.430	399.6	LOS F	167.1	1190.1	1.00	7.13	19.04	8.1
Approach		1433	2.0	1.430	401.0	LOS F	167.1	1190.1	1.00	6.62	17.98	8.1
West: William Halton												
10	L2	180	2.0	1.555	514.2	LOS F	255.1	1816.6	1.00	9.12	23.86	6.6
11	T1	2211	2.0	1.555	507.8	LOS F	311.3	2216.7	1.00	9.81	25.04	6.6
12	R2	33	2.0	1.555	507.4	LOS F	311.3	2216.7	1.00	10.30	25.86	6.6
Approach		2423	2.0	1.555	508.3	LOS F	311.3	2216.7	1.00	9.77	24.97	6.6
All Vehicles		7371	2.0	1.604	470.2	LOS F	318.9	2270.5	1.00	8.49	22.26	7.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Organisation: CGH TRANSPORTATION | Processed: February 22, 2019 10:49:51 AM

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MOVEMENT SUMMARY

 Site: 101 [WH & 6th - 2024 PM FB]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Sixth												
1	L2	73	2.0	1.016	69.1	LOS E	19.2	137.0	1.00	1.92	3.89	30.2
2	T1	912	2.0	1.016	59.6	LOS E	24.3	172.8	1.00	2.00	4.02	31.2
3	R2	3	2.0	1.016	57.4	LOS E	24.3	172.8	1.00	2.05	4.10	31.3
Approach		987	2.0	1.016	60.3	LOS E	24.3	172.8	1.00	2.00	4.01	31.1
East: William Halton												
4	L2	9	2.0	1.606	560.8	LOS F	253.3	1803.6	1.00	8.98	24.02	6.1
5	T1	2211	2.0	1.606	554.4	LOS F	314.6	2240.1	1.00	9.69	25.27	6.1
6	R2	78	2.0	1.606	553.9	LOS F	314.6	2240.1	1.00	10.28	26.32	6.1
Approach		2298	2.0	1.606	554.4	LOS F	314.6	2240.1	1.00	9.70	25.30	6.1
North: Sixth												
7	L2	67	2.0	0.987	54.2	LOS E	15.2	108.0	0.99	1.70	3.20	34.4
8	T1	879	2.0	0.987	44.9	LOS D	18.6	132.6	1.00	1.75	3.25	35.5
9	R2	35	2.0	0.987	42.7	LOS D	18.6	132.6	1.00	1.78	3.28	35.7
Approach		981	2.0	0.987	45.5	LOS D	18.6	132.6	1.00	1.74	3.25	35.4
West: William Halton												
10	L2	34	2.0	1.586	542.8	LOS F	250.3	1782.4	1.00	8.94	23.76	6.3
11	T1	2211	2.0	1.586	536.4	LOS F	309.5	2203.9	1.00	9.63	24.97	6.3
12	R2	67	2.0	1.586	535.9	LOS F	309.5	2203.9	1.00	10.19	25.96	6.3
Approach		2312	2.0	1.586	536.5	LOS F	309.5	2203.9	1.00	9.63	24.98	6.3
All Vehicles		6578	2.0	1.606	398.0	LOS F	314.6	2240.1	1.00	7.33	18.70	8.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Organisation: CGH TRANSPORTATION | Processed: February 22, 2019 10:49:52 AM

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Lanes, Volumes, Timings
6: Trafalgar Road & William Halton Parkway

2024 Future Background AM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	2142	90	10	2114	10	101	1569	10	10	1672	81
Future Volume (vph)	52	2142	90	10	2114	10	101	1569	10	10	1672	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	180.0		0.0	180.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	75.0			75.0			75.0			75.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.994			0.999			0.999			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3518	0	1770	3536	0	1770	3536	0	1770	3514	0
Flt Permitted	0.081			0.081			0.067			0.067		
Satd. Flow (perm)	151	3518	0	151	3536	0	125	3536	0	125	3514	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4										
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		410.5			491.4			229.1			561.1	
Travel Time (s)		29.6			35.4			16.5			40.4	
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)	57	2328	98	11	2298	11	110	1705	11	11	1817	88
Shared Lane Traffic (%)												
Lane Group Flow (vph)	57	2426	0	11	2309	0	110	1716	0	11	1905	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		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings
6: Trafalgar Road & William Halton Parkway

2024 Future Background AM
Neighbourhood 10

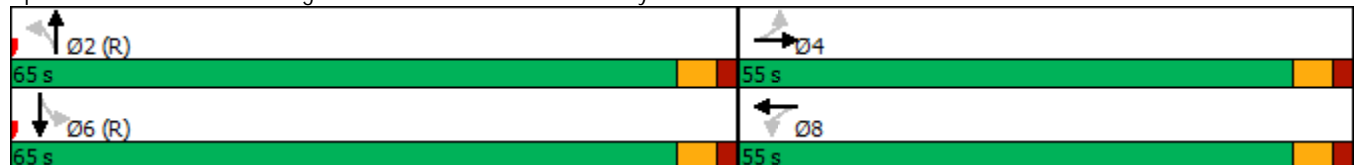


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	39.6	39.6		39.6	39.6		39.6	39.6		39.6	39.6	
Total Split (s)	55.0	55.0		55.0	55.0		65.0	65.0		65.0	65.0	
Total Split (%)	45.8%	45.8%		45.8%	45.8%		54.2%	54.2%		54.2%	54.2%	
Maximum Green (s)	49.4	49.4		49.4	49.4		59.4	59.4		59.4	59.4	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.7	3.7		3.7	3.7	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.9	1.9		1.9	1.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6		5.6	5.6		5.6	5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	27.0	27.0		27.0	27.0		27.0	27.0		27.0	27.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	49.4	49.4		49.4	49.4		59.4	59.4		59.4	59.4	
Actuated g/C Ratio	0.41	0.41		0.41	0.41		0.50	0.50		0.50	0.50	
v/c Ratio	0.92	1.67		0.18	1.59		1.80	0.98		0.18	1.10	
Control Delay	132.2	332.9		31.3	295.4		443.1	47.5		25.8	82.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	132.2	332.9		31.3	295.4		443.1	47.5		25.8	82.7	
LOS	F	F		C	F		F	D		C	F	
Approach Delay		328.3			294.2			71.3			82.4	
Approach LOS		F			F			E			F	

Intersection Summary

























Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.80
 Intersection Signal Delay: 209.0
 Intersection LOS: F
 Intersection Capacity Utilization 141.5%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 6: Trafalgar Road & William Halton Parkway



HCM 2010 Signalized Intersection Summary
6: Trafalgar Road & William Halton Parkway

2024 Future Background AM
Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (veh/h)	52	2142	90	10	2114	10	101	1569	10	10	1672	81
Future Volume (veh/h)	52	2142	90	10	2114	10	101	1569	10	10	1672	81
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	57	2328	98	11	2298	11	110	1705	11	11	1817	88
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	1425	60	60	1487	7	60	1784	12	72	1702	82
Arrive On Green	0.41	0.41	0.41	0.41	0.41	0.41	0.50	0.50	0.50	0.50	0.50	0.50
Sat Flow, veh/h	158	3462	145	141	3612	17	235	3605	23	283	3438	165
Grp Volume(v), veh/h	57	1182	1244	11	1125	1184	110	836	880	11	929	976
Grp Sat Flow(s),veh/h/ln	158	1770	1837	141	1770	1860	235	1770	1859	283	1770	1834
Q Serve(g_s), s	0.0	49.4	49.4	0.0	49.4	49.4	0.0	54.3	54.4	4.7	59.4	59.4
Cycle Q Clear(g_c), s	49.4	49.4	49.4	49.4	49.4	49.4	59.4	54.3	54.4	59.1	59.4	59.4
Prop In Lane	1.00		0.08	1.00		0.01	1.00		0.01	1.00		0.09
Lane Grp Cap(c), veh/h	60	728	756	60	728	766	60	876	920	72	876	908
V/C Ratio(X)	0.95	1.62	1.64	0.18	1.54	1.55	1.83	0.95	0.96	0.15	1.06	1.08
Avail Cap(c_a), veh/h	60	728	756	60	728	766	60	876	920	72	876	908
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.0	35.3	35.3	60.0	35.3	35.3	60.0	29.0	29.0	57.4	30.3	30.3
Incr Delay (d2), s/veh	98.0	286.4	296.2	1.4	251.7	252.5	432.3	21.2	20.8	4.5	47.7	52.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	82.0	87.2	0.4	75.0	79.0	9.2	31.7	33.2	0.5	40.6	43.2
LnGrp Delay(d),s/veh	158.0	321.7	331.5	61.4	287.0	287.8	492.3	50.3	49.8	61.9	78.0	82.7
LnGrp LOS	F	F	F	E	F	F	F	D	D	E	F	F
Approach Vol, veh/h		2483			2320			1826			1916	
Approach Delay, s/veh		322.8			286.3			76.7			80.3	
Approach LOS		F			F			E			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		65.0		55.0		65.0		55.0				
Change Period (Y+Rc), s		* 5.6		* 5.6		* 5.6		* 5.6				
Max Green Setting (Gmax), s		* 59		* 49		* 59		* 49				
Max Q Clear Time (g_c+I1), s		61.4		51.4		61.4		51.4				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			205.9									
HCM 2010 LOS			F									
Notes												

Lanes, Volumes, Timings
10: Sixth Line & Burnhamthorpe Road

2024 Future Background AM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	49	6	153	95	201	39	713	309	252	582	41
Future Volume (vph)	23	49	6	153	95	201	39	713	309	252	582	41
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	75.0		0.0	75.0		0.0	75.0		0.0	75.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	75.0			75.0			75.0			75.0		
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		0.984			0.898			0.955			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1833	0	1770	1673	0	1770	3380	0	1770	3504	0
Flt Permitted	0.222			0.719			0.400			0.161		
Satd. Flow (perm)	414	1833	0	1339	1673	0	745	3380	0	300	3504	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			116			75			12	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		1521.4			371.3			436.2			1085.8	
Travel Time (s)		109.5			26.7			31.4			78.2	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	24	52	6	163	101	214	41	759	329	268	619	44
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	58	0	163	315	0	41	1088	0	268	663	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	
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings
10: Sixth Line & Burnhamthorpe Road

2024 Future Background AM
Neighbourhood 10

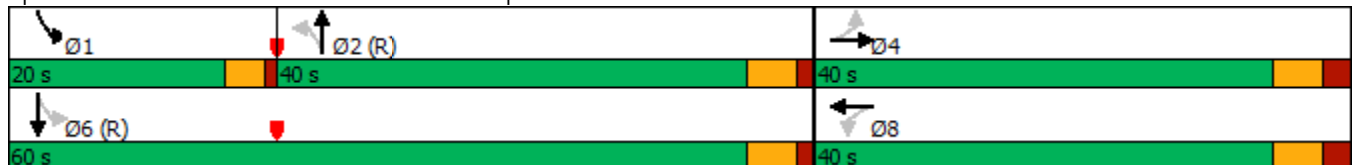


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		33.1	33.1		9.7	33.1	
Total Split (s)	40.0	40.0		40.0	40.0		40.0	40.0		20.0	60.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		40.0%	40.0%		20.0%	60.0%	
Maximum Green (s)	34.0	34.0		34.0	34.0		34.9	34.9		16.0	54.9	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.7	3.7		3.0	3.7	
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		5.1	5.1		4.0	5.1	
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		C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	27.0	27.0		27.0	27.0		21.0	21.0			21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effect Green (s)	18.5	18.5		18.5	18.5		51.6	51.6		71.5	70.4	
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.52	0.52		0.72	0.70	
v/c Ratio	0.32	0.17		0.66	0.78		0.11	0.61		0.62	0.27	
Control Delay	43.4	29.7		49.4	37.1		18.6	20.4		14.9	6.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	43.4	29.7		49.4	37.1		18.6	20.4		14.9	6.4	
LOS	D	C		D	D		B	C		B	A	
Approach Delay		33.7			41.3			20.3			8.8	
Approach LOS		C			D			C			A	

Intersection Summary






















Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 20.5
 Intersection LOS: C
 Intersection Capacity Utilization 75.3%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 10: Sixth Line & Burnhamthorpe Road



















HCM 2010 Signalized Intersection Summary
 10: Sixth Line & Burnhamthorpe Road

2024 Future Background AM
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	49	6	153	95	201	39	713	309	252	582	41
Future Volume (veh/h)	23	49	6	153	95	201	39	713	309	252	582	41
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	24	52	6	163	101	214	41	759	329	268	619	44
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	121	373	43	342	121	257	481	1279	554	395	2219	158
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.53	0.53	0.53	0.09	0.66	0.66
Sat Flow, veh/h	1060	1640	189	1340	533	1130	769	2406	1042	1774	3352	238
Grp Volume(v), veh/h	24	0	58	163	0	315	41	558	530	268	326	337
Grp Sat Flow(s),veh/h/ln	1060	0	1829	1340	0	1663	769	1770	1679	1774	1770	1821
Q Serve(g_s), s	2.2	0.0	2.5	11.1	0.0	18.1	2.6	21.6	21.6	6.4	7.6	7.7
Cycle Q Clear(g_c), s	20.3	0.0	2.5	13.6	0.0	18.1	2.6	21.6	21.6	6.4	7.6	7.7
Prop In Lane	1.00		0.10	1.00		0.68	1.00		0.62	1.00		0.13
Lane Grp Cap(c), veh/h	121	0	416	342	0	378	481	940	892	395	1171	1205
V/C Ratio(X)	0.20	0.00	0.14	0.48	0.00	0.83	0.09	0.59	0.59	0.68	0.28	0.28
Avail Cap(c_a), veh/h	241	0	622	494	0	566	481	940	892	519	1171	1205
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.5	0.0	30.8	36.3	0.0	36.8	11.6	16.0	16.0	13.4	7.0	7.0
Incr Delay (d2), s/veh	0.8	0.0	0.2	1.0	0.0	6.7	0.3	2.8	2.9	2.3	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	1.3	4.2	0.0	9.0	0.6	11.3	10.7	3.8	3.9	4.0
LnGrp Delay(d),s/veh	47.3	0.0	31.0	37.3	0.0	43.5	11.9	18.8	19.0	15.6	7.6	7.6
LnGrp LOS	D		C	D		D	B	B	B	B	A	A
Approach Vol, veh/h		82			478			1129			931	
Approach Delay, s/veh		35.8			41.4			18.6			9.9	
Approach LOS		D			D			B			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	13.1	58.2		28.7		71.3		28.7				
Change Period (Y+Rc), s	4.0	* 5.1		6.0		* 5.1		6.0				
Max Green Setting (Gmax), s	16.0	* 35		34.0		* 55		34.0				
Max Q Clear Time (g_c+I1), s	8.4	23.6		22.3		9.7		20.1				
Green Ext Time (p_c), s	0.7	6.4		0.3		5.8		2.7				
Intersection Summary												
HCM 2010 Ctrl Delay			20.2									
HCM 2010 LOS			C									
Notes												

Lanes, Volumes, Timings
12: Post Road & Burnhamthorpe Road

2024 Future Background AM
Neighbourhood 10

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	683	3	12	490	5	8	5	36	15	5	6
Future Volume (vph)	2	683	3	12	490	5	8	5	36	15	5	6
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		0.999			0.999			0.901			0.966	
Flt Protected					0.999			0.992			0.972	
Satd. Flow (prot)	0	1861	0	0	1859	0	0	1665	0	0	1749	0
Flt Permitted					0.999			0.992			0.972	
Satd. Flow (perm)	0	1861	0	0	1859	0	0	1665	0	0	1749	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		371.3			874.7			135.5			130.1	
Travel Time (s)		26.7			63.0			9.8			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)	2	742	3	13	533	5	9	5	39	16	5	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	747	0	0	551	0	0	53	0	0	28	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			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	47.7%						ICU Level of Service A					
Analysis Period (min)	15											

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	683	3	12	490	5	8	5	36	15	5	6
Future Vol, veh/h	2	683	3	12	490	5	8	5	36	15	5	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	742	3	13	533	5	9	5	39	16	5	7

Major/Minor	Major1		Major2		Minor1			Minor2				
Conflicting Flow All	538	0	0	745	0	0	1316	1312	744	1332	1311	536
Stage 1	-	-	-	-	-	-	748	748	-	562	562	-
Stage 2	-	-	-	-	-	-	568	564	-	770	749	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1030	-	-	863	-	-	135	159	415	131	159	545
Stage 1	-	-	-	-	-	-	404	420	-	512	510	-
Stage 2	-	-	-	-	-	-	508	508	-	393	419	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1030	-	-	863	-	-	127	155	415	113	155	545
Mov Cap-2 Maneuver	-	-	-	-	-	-	127	155	-	113	155	-
Stage 1	-	-	-	-	-	-	403	419	-	510	499	-
Stage 2	-	-	-	-	-	-	486	497	-	350	418	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0		0.2		21.7		35	
HCM LOS					C		E	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	269	1030	-	-	863	-	-	148
HCM Lane V/C Ratio	0.198	0.002	-	-	0.015	-	-	0.191
HCM Control Delay (s)	21.7	8.5	0	-	9.2	0	-	35
HCM Lane LOS	C	A	A	-	A	A	-	E
HCM 95th %tile Q(veh)	0.7	0	-	-	0	-	-	0.7

Lanes, Volumes, Timings
13: Trafalgar Road & Burnhamthorpe Road

2024 Future Background AM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	454	162	65	242	97	135	1434	129	280	1287	109
Future Volume (vph)	84	454	162	65	242	97	135	1434	129	280	1287	109
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	180.0		0.0	180.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	70.0			45.0			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		0.961			0.957			0.988			0.988	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1790	0	1770	1783	0	1770	3497	0	1770	3497	0
Flt Permitted	0.335			0.117			0.146			0.069		
Satd. Flow (perm)	624	1790	0	218	1783	0	272	3497	0	129	3497	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			18			11			14	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		874.7			414.4			579.3			229.1	
Travel Time (s)		63.0			29.8			41.7			16.5	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	86	463	165	66	247	99	138	1463	132	286	1313	111
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	628	0	66	346	0	138	1595	0	286	1424	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)	40.0	40.0		39.8	39.8		34.0	34.0		11.5	34.0	
Total Split (s)	40.0	40.0		39.8	39.8		60.0	60.0		15.0	75.0	
Total Split (%)	34.8%	34.8%		34.6%	34.6%		52.2%	52.2%		13.0%	65.2%	
Maximum Green (s)	34.0	34.0		34.0	34.0		54.0	54.0		11.0	69.0	
Yellow Time (s)	3.7	3.7		3.5	3.5		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		5.8	5.8		6.0	6.0		4.0	6.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Act Effect Green (s)	34.0	34.0		34.2	34.2		54.0	54.0		71.0	69.0	
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.47	0.47		0.62	0.60	
v/c Ratio	0.47	1.16		1.03	0.64		1.09	0.97		1.21	0.68	
Control Delay	43.1	128.7		164.7	39.4		137.6	45.8		156.7	17.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	43.1	128.7		164.7	39.4		137.6	45.8		156.7	17.4	

Lanes, Volumes, Timings
 13: Trafalgar Road & Burnhamthorpe Road

2024 Future Background AM
 Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	D	F		F	D		F	D		F	B	
Approach Delay		118.4			59.5			53.1			40.7	
Approach LOS		F			E			D			D	

Intersection Summary	
Area Type:	Other
Cycle Length:	115
Actuated Cycle Length:	115
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	120
Control Type:	Pretimed
Maximum v/c Ratio:	1.21
Intersection Signal Delay:	59.2
Intersection LOS:	E
Intersection Capacity Utilization	119.5%
ICU Level of Service	H
Analysis Period (min)	15












Splits and Phases: 13: Trafalgar Road & Burnhamthorpe Road



HCM 2010 Signalized Intersection Summary
 13: Trafalgar Road & Burnhamthorpe Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	454	162	65	242	97	135	1434	129	280	1287	109
Future Volume (veh/h)	84	454	162	65	242	97	135	1434	129	280	1287	109
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	86	463	165	66	247	99	138	1463	132	286	1313	111
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	191	388	138	63	374	150	188	1543	138	245	1983	167
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.47	0.47	0.47	0.10	0.60	0.60
Sat Flow, veh/h	1031	1312	468	795	1266	507	375	3286	295	1774	3305	279
Grp Volume(v), veh/h	86	0	628	66	0	346	138	784	811	286	701	723
Grp Sat Flow(s),veh/h/ln	1031	0	1780	795	0	1773	375	1770	1811	1774	1770	1814
Q Serve(g_s), s	9.2	0.0	34.0	0.0	0.0	19.6	38.5	48.5	49.5	11.0	30.2	30.5
Cycle Q Clear(g_c), s	28.8	0.0	34.0	34.0	0.0	19.6	54.0	48.5	49.5	11.0	30.2	30.5
Prop In Lane	1.00		0.26	1.00		0.29	1.00		0.16	1.00		0.15
Lane Grp Cap(c), veh/h	191	0	526	63	0	524	188	831	850	245	1062	1088
V/C Ratio(X)	0.45	0.00	1.19	1.05	0.00	0.66	0.73	0.94	0.95	1.17	0.66	0.66
Avail Cap(c_a), veh/h	191	0	526	63	0	524	188	831	850	245	1062	1088
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.0	0.0	40.5	57.5	0.0	35.4	40.0	29.0	29.3	35.5	15.2	15.3
Incr Delay (d2), s/veh	7.5	0.0	104.5	129.6	0.0	6.4	22.2	20.1	21.5	110.8	3.2	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	31.9	4.2	0.0	10.5	5.5	28.2	29.7	15.3	15.6	16.0
LnGrp Delay(d),s/veh	55.5	0.0	145.0	188.5	0.0	41.8	62.2	49.2	50.8	146.3	18.5	18.5
LnGrp LOS	E		F	F		D	E	D	D	F	B	B
Approach Vol, veh/h		714			412			1733			1710	
Approach Delay, s/veh		134.2			65.3			51.0			39.9	
Approach LOS		F			E			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	15.0	60.0		40.0		75.0		40.0				
Change Period (Y+Rc), s	4.0	* 6		6.0		* 6		* 6				
Max Green Setting (Gmax), s	11.0	* 54		34.0		* 69		* 34				
Max Q Clear Time (g_c+I1), s	13.0	56.0		36.0		32.5		36.0				
Green Ext Time (p_c), s	0.0	0.0		0.0		16.7		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				61.1								
HCM 2010 LOS				E								
Notes												

Lanes, Volumes, Timings
14: Sixth Line & Settlers Road

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	80	20	929	27	7	703
Future Volume (vph)	80	20	929	27	7	703
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	75.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				75.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.996			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3525	0	1770	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3525	0	1770	3539
Link Speed (k/h)	50		50			50
Link Distance (m)	124.5		437.1			436.2
Travel Time (s)	9.0		31.5			31.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	22	1010	29	8	764
Shared Lane Traffic (%)						
Lane Group Flow (vph)	87	22	1039	0	8	764
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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		15	25	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	37.6%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	3.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↗	↕↔		↙	↕↕
Traffic Vol, veh/h	80	20	929	27	7	703
Future Vol, veh/h	80	20	929	27	7	703
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	750	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	87	22	1010	29	8	764

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1423	520	0	0	1039
Stage 1	1025	-	-	-	-
Stage 2	398	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	127	501	-	-	665
Stage 1	307	-	-	-	-
Stage 2	647	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	125	501	-	-	665
Mov Cap-2 Maneuver	125	-	-	-	-
Stage 1	303	-	-	-	-
Stage 2	647	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	68.4	0	0.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	125	501	665	-
HCM Lane V/C Ratio	-	-	0.696	0.043	0.011	-
HCM Control Delay (s)	-	-	82.4	12.5	10.5	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	3.8	0.1	0	-



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	131	45	906	44	16	836
Future Volume (vph)	131	45	906	44	16	836
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	75.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				75.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.993			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3514	0	1770	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3514	0	1770	3539
Link Speed (k/h)	50		50			50
Link Distance (m)	174.1		230.0			437.1
Travel Time (s)	12.5		16.6			31.5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	142	49	985	48	17	909
Shared Lane Traffic (%)						
Lane Group Flow (vph)	142	49	1033	0	17	909
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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		15	25	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	40.4%
Analysis Period (min)	15
	ICU Level of Service A

Intersection						
Int Delay, s/veh	17.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↗	↕↔		↙	↕↔
Traffic Vol, veh/h	131	45	906	44	16	836
Future Vol, veh/h	131	45	906	44	16	836
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	750	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	142	49	985	48	17	909












Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1498	517	0	0	1033
Stage 1	1009	-	-	-	-
Stage 2	489	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	~ 113	503	-	-	668
Stage 1	313	-	-	-	-
Stage 2	582	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	~ 110	503	-	-	668
Mov Cap-2 Maneuver	~ 110	-	-	-	-
Stage 1	305	-	-	-	-
Stage 2	582	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	194.7	0	0.2
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	110	503	668	-
HCM Lane V/C Ratio	-	-	1.294	0.097	0.026	-
HCM Control Delay (s)	-	-	257.1	12.9	10.5	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	9.6	0.3	0.1	-

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lanes, Volumes, Timings
16: Sixth Line & Carnegie Drive

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	2	2	950	1	1	967
Future Volume (vph)	2	2	950	1	1	967
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	75.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				75.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3539	0	1770	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3539	0	1770	3539
Link Speed (k/h)	50		50			50
Link Distance (m)	228.0		270.2			230.0
Travel Time (s)	16.4		19.5			16.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	2	1033	1	1	1051
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	2	1034	0	1	1051
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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		15	25	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	36.7%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↵	↵	↕↕		↵	↕↕
Traffic Vol, veh/h	2	2	950	1	1	967
Future Vol, veh/h	2	2	950	1	1	967
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	750	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	2	1033	1	1	1051
























Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1562	517	0	0	1034
Stage 1	1034	-	-	-	-
Stage 2	528	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	103	503	-	-	668
Stage 1	304	-	-	-	-
Stage 2	556	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	103	503	-	-	668
Mov Cap-2 Maneuver	103	-	-	-	-
Stage 1	304	-	-	-	-
Stage 2	556	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	26.5	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	103	503	668	-
HCM Lane V/C Ratio	-	-	0.021	0.004	0.002	-
HCM Control Delay (s)	-	-	40.7	12.2	10.4	-
HCM Lane LOS	-	-	E	B	B	-
HCM 95th %tile Q(veh)	-	-	0.1	0	0	-

Lanes, Volumes, Timings
17: Sixth Line & Dundas Street

2024 Future Background AM
Neighbourhood 10

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	2040	201	151	946	199	160	128	300	500	168	124
Future Volume (vph)	69	2040	201	151	946	199	160	128	300	500	168	124
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		80.0	35.0		0.0	80.0		0.0	45.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	100.0			75.0			100.0			45.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95
Frt			0.850		0.974				0.850		0.936	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3447	0	1770	1863	1583	1770	3313	0
Flt Permitted	0.166			0.054			0.522			0.651		
Satd. Flow (perm)	309	3539	1583	101	3447	0	972	1863	1583	1213	3313	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			127		30				108		128	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		409.7			323.7			341.1			111.8	
Travel Time (s)		29.5			23.3			24.6			8.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	71	2103	207	156	975	205	165	132	309	515	173	128
Shared Lane Traffic (%)												
Lane Group Flow (vph)	71	2103	207	156	1180	0	165	132	309	515	301	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	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8				4
Permitted Phases	2		2	6			8		8	4		

Lanes, Volumes, Timings
17: Sixth Line & Dundas Street

2024 Future Background AM
Neighbourhood 10

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	11.5	37.2	37.2	11.5	34.2		40.5	40.5	40.5	40.5	40.5	
Total Split (s)	11.5	78.0	78.0	11.5	78.0		40.5	40.5	40.5	40.5	40.5	
Total Split (%)	8.8%	60.0%	60.0%	8.8%	60.0%		31.2%	31.2%	31.2%	31.2%	31.2%	
Maximum Green (s)	7.5	71.8	71.8	7.5	71.8		34.0	34.0	34.0	34.0	34.0	
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5		2.8	2.8	2.8	2.8	2.8	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.2	6.2	4.0	6.2		6.5	6.5	6.5	6.5	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	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	C-Max	C-Max	None	C-Max		Max	Max	Max	Max	Max	
Walk Time (s)		7.0	7.0		7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		24.0	24.0		21.0		27.0	27.0	27.0	27.0	27.0	
Pedestrian Calls (#/hr)		0	0		0		0	0	0	0	0	
Act Effct Green (s)	81.3	71.8	71.8	82.4	74.2		34.0	34.0	34.0	34.0	34.0	
Actuated g/C Ratio	0.63	0.55	0.55	0.63	0.57		0.26	0.26	0.26	0.26	0.26	
v/c Ratio	0.26	1.08	0.22	0.97	0.60		0.65	0.27	0.63	1.62	0.31	
Control Delay	10.4	73.4	6.3	96.3	19.7		56.2	40.0	33.4	327.5	22.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	10.4	73.4	6.3	96.3	19.7		56.2	40.0	33.4	327.5	22.7	
LOS	B	E	A	F	B		E	D	C	F	C	
Approach Delay		65.7			28.6			41.1			215.1	
Approach LOS		E			C			D			F	

Intersection Summary
























Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.62
 Intersection Signal Delay: 76.9
 Intersection LOS: E
 Intersection Capacity Utilization 120.1%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 17: Sixth Line & Dundas Street



HCM 2010 Signalized Intersection Summary
 17: Sixth Line & Dundas Street

2024 Future Background AM
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	2040	201	151	946	199	160	128	300	500	168	124
Future Volume (veh/h)	69	2040	201	151	946	199	160	128	300	500	168	124
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	71	2103	207	156	975	205	165	132	309	515	173	128
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	2	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	304	1955	874	158	1632	343	256	487	414	249	521	364
Arrive On Green	0.05	0.55	0.55	0.06	0.56	0.56	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1774	3539	1583	1774	2913	611	1074	1863	1583	944	1994	1393
Grp Volume(v), veh/h	71	2103	207	156	592	588	165	132	309	515	152	149
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1755	1074	1863	1583	944	1770	1617
Q Serve(g_s), s	2.2	71.8	8.8	7.4	28.7	28.8	19.2	7.3	23.3	26.7	9.0	9.7
Cycle Q Clear(g_c), s	2.2	71.8	8.8	7.4	28.7	28.8	28.9	7.3	23.3	34.0	9.0	9.7
Prop In Lane	1.00		1.00	1.00		0.35	1.00		1.00	1.00		0.86
Lane Grp Cap(c), veh/h	304	1955	874	158	992	983	256	487	414	249	463	423
V/C Ratio(X)	0.23	1.08	0.24	0.99	0.60	0.60	0.64	0.27	0.75	2.07	0.33	0.35
Avail Cap(c_a), veh/h	318	1955	874	158	992	983	256	487	414	249	463	423
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.2	29.1	15.0	41.9	18.9	18.9	50.8	38.1	44.0	54.6	38.8	39.0
Incr Delay (d2), s/veh	0.4	44.2	0.6	68.2	2.6	2.7	11.9	1.4	11.6	493.6	1.9	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	46.8	3.9	8.6	14.7	14.6	6.5	4.0	11.5	43.1	4.6	4.6
LnGrp Delay(d),s/veh	14.6	73.3	15.6	110.1	21.5	21.6	62.7	39.5	55.6	548.2	40.7	41.3
LnGrp LOS	B	F	B	F	C	C	E	D	E	F	D	D
Approach Vol, veh/h		2381			1336			606			816	
Approach Delay, s/veh		66.5			31.9			54.0			361.1	
Approach LOS		E			C			D			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.5	78.0		40.5	10.5	79.0		40.5				
Change Period (Y+Rc), s	4.0	* 6.2		6.5	4.0	* 6.2		6.5				
Max Green Setting (Gmax), s	7.5	* 72		34.0	7.5	* 72		34.0				
Max Q Clear Time (g_c+I1), s	9.4	73.8		36.0	4.2	30.8		30.9				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	13.1		1.1				
Intersection Summary												
HCM 2010 Ctrl Delay	102.8											
HCM 2010 LOS	F											
Notes												

Lanes, Volumes, Timings
 19: Sixth Line & Threshing Mill Boulevard



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	9	7	900	3	2	984
Future Volume (vph)	9	7	900	3	2	984
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	75.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				75.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3539	0	1770	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3539	0	1770	3539
Link Speed (k/h)	50		50			50
Link Distance (m)	256.7		644.0			270.2
Travel Time (s)	18.5		46.4			19.5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	8	978	3	2	1070
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	8	981	0	2	1070
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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		15	25	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	37.2%
Analysis Period (min)	15
	ICU Level of Service A

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↵	↶	↕↔		↵	↕↕
Traffic Vol, veh/h	9	7	900	3	2	984
Future Vol, veh/h	9	7	900	3	2	984
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	750	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	8	978	3	2	1070

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1519	491	0	0	981	0
Stage 1	980	-	-	-	-	-
Stage 2	539	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	110	523	-	-	699	-
Stage 1	324	-	-	-	-	-
Stage 2	549	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	110	523	-	-	699	-
Mov Cap-2 Maneuver	110	-	-	-	-	-
Stage 1	323	-	-	-	-	-
Stage 2	549	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	28.3	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	110	523	699	-
HCM Lane V/C Ratio	-	-	0.089	0.015	0.003	-
HCM Control Delay (s)	-	-	40.9	12	10.2	-
HCM Lane LOS	-	-	E	B	B	-
HCM 95th %tile Q(veh)	-	-	0.3	0	0	-

Lanes, Volumes, Timings
1: Neyagawa Boulevard & William Halton Parkway

2024 Future Background AM (Mitigation)

Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	2100	156	382	2100	6	172	507	470	47	192	65
Future Volume (vph)	38	2100	156	382	2100	6	172	507	470	47	192	65
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	3433	5085	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.061			0.950			0.589			0.210		
Satd. Flow (perm)	114	5085	1583	3433	5085	1583	1097	3539	1583	391	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			124			29			29			62
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		433.0			261.8			285.2			280.3	
Travel Time (s)		31.2			18.8			20.5			20.2	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	46	2561	190	466	2561	7	210	618	573	57	234	79
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	2561	190	466	2561	7	210	618	573	57	234	79
Enter Blocked Intersection	No	No	No	No	No	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	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	Perm	NA	Perm	Prot	NA	Perm	Perm	NA	pm+ov	Perm	NA	Perm
Protected Phases		2		1	6			8	1		4	
Permitted Phases	2		2			6	8		8	4		4

Lanes, Volumes, Timings
1: Neyagawa Boulevard & William Halton Parkway

2024 Future Background AM (Mitigation)
Neighbourhood 10

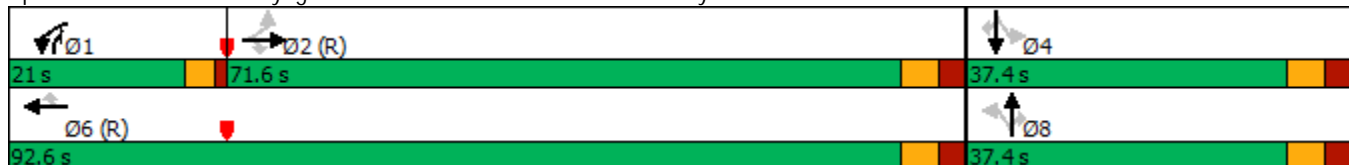


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2	2	1	6	6	8	8	1	4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	15.0	15.0	7.0	15.0	15.0	15.0
Minimum Split (s)	40.4	40.4	40.4	11.0	40.4	40.4	37.4	37.4	11.0	37.4	37.4	37.4
Total Split (s)	71.6	71.6	71.6	21.0	92.6	92.6	37.4	37.4	21.0	37.4	37.4	37.4
Total Split (%)	55.1%	55.1%	55.1%	16.2%	71.2%	71.2%	28.8%	28.8%	16.2%	28.8%	28.8%	28.8%
Maximum Green (s)	65.2	65.2	65.2	17.0	86.2	86.2	31.0	31.0	17.0	31.0	31.0	31.0
Yellow Time (s)	3.7	3.7	3.7	3.0	3.7	3.7	3.7	3.7	3.0	3.7	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	1.0	2.7	2.7	2.7	2.7	1.0	2.7	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	4.0	6.4	6.4	6.4	6.4	4.0	6.4	6.4	6.4
Lead/Lag	Lag	Lag	Lag	Lead						Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	None	C-Max	C-Max	Max	Max	None	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	27.0	27.0	27.0		27.0	27.0	24.0	24.0		24.0	24.0	24.0
Pedestrian Calls (#/hr)	0	0	0		0	0	0	0		0	0	0
Act Effect Green (s)	65.2	65.2	65.2	17.0	86.2	86.2	31.0	31.0	54.4	31.0	31.0	31.0
Actuated g/C Ratio	0.50	0.50	0.50	0.13	0.66	0.66	0.24	0.24	0.42	0.24	0.24	0.24
v/c Ratio	0.81	1.00	0.22	1.04	0.76	0.01	0.80	0.73	0.84	0.61	0.28	0.19
Control Delay	107.3	51.3	7.2	107.6	16.8	0.0	70.2	51.7	45.2	73.6	41.4	14.5
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	107.3	51.3	7.2	107.6	16.8	0.0	70.2	51.7	45.2	73.6	41.4	14.5
LOS	F	D	A	F	B	A	E	D	D	E	D	B
Approach Delay		49.2			30.7			51.8			40.6	
Approach LOS		D			C			D			D	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 130
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.04
 Intersection Signal Delay: 41.9
 Intersection LOS: D
 Intersection Capacity Utilization 97.3%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 1: Neyagawa Boulevard & William Halton Parkway



HCM 2010 Signalized Intersection Summary
 1: Neyagawa Boulevard & William Halton Parkway

2024 Future Background AM (Mitigation)
 Neighbourhood 10

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	2100	156	382	2100	6	172	507	470	47	192	65
Future Volume (veh/h)	38	2100	156	382	2100	6	172	507	470	47	192	65
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	46	2561	190	466	2561	7	210	618	573	57	234	79
Adj No. of Lanes	1	3	1	2	3	1	1	2	1	1	2	1
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	95	2550	794	450	3372	1050	251	844	585	92	844	378
Arrive On Green	0.50	0.50	0.50	0.13	0.66	0.66	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	122	5085	1583	3442	5085	1583	1062	3539	1583	468	3539	1583
Grp Volume(v), veh/h	46	2561	190	466	2561	7	210	618	573	57	234	79
Grp Sat Flow(s),veh/h/ln	122	1695	1583	1721	1695	1583	1062	1770	1583	468	1770	1583
Q Serve(g_s), s	41.8	65.2	8.8	17.0	44.4	0.2	24.0	20.9	31.0	10.1	7.0	5.2
Cycle Q Clear(g_c), s	65.2	65.2	8.8	17.0	44.4	0.2	31.0	20.9	31.0	31.0	7.0	5.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	95	2550	794	450	3372	1050	251	844	585	92	844	378
V/C Ratio(X)	0.49	1.00	0.24	1.04	0.76	0.01	0.84	0.73	0.98	0.62	0.28	0.21
Avail Cap(c_a), veh/h	95	2550	794	450	3372	1050	251	844	585	92	844	378
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.2	32.4	18.4	56.5	14.9	7.4	53.8	45.7	40.5	61.8	40.4	39.7
Incr Delay (d2), s/veh	16.8	18.8	0.7	51.9	1.7	0.0	26.7	5.6	32.7	27.8	0.8	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	34.7	4.0	11.3	21.1	0.1	9.4	10.9	25.5	2.8	3.5	2.4
LnGrp Delay(d),s/veh	64.0	51.2	19.1	108.4	16.5	7.4	80.5	51.2	73.2	89.6	41.2	40.9
LnGrp LOS	E	F	B	F	B	A	F	D	E	F	D	D
Approach Vol, veh/h		2797			3034			1401			370	
Approach Delay, s/veh		49.2			30.6			64.6			48.6	
Approach LOS		D			C			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	21.0	71.6		37.4		92.6		37.4				
Change Period (Y+Rc), s	4.0	6.4		6.4		6.4		6.4				
Max Green Setting (Gmax), s	17.0	65.2		31.0		86.2		31.0				
Max Q Clear Time (g_c+I1), s	19.0	67.2		33.0		46.4		33.0				
Green Ext Time (p_c), s	0.0	0.0		0.0		34.2		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				44.6								
HCM 2010 LOS				D								

Lanes, Volumes, Timings
6: Trafalgar Road & William Halton Parkway

2024 Future Background AM (Mitigation)
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	2142	90	10	2114	10	101	1569	10	10	1672	81
Future Volume (vph)	52	2142	90	10	2114	10	101	1569	10	10	1672	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	180.0		0.0	180.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	75.0			75.0			75.0			75.0		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.994			0.999			0.999			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5055	0	1770	5080	0	1770	3536	0	1770	3514	0
Flt Permitted	0.076			0.076			0.066			0.071		
Satd. Flow (perm)	142	5055	0	142	5080	0	123	3536	0	132	3514	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			1							5
Link Speed (k/h)		50			50			50				50
Link Distance (m)		410.5			491.4			229.1				561.1
Travel Time (s)		29.6			35.4			16.5				40.4
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)	57	2328	98	11	2298	11	110	1705	11	11	1817	88
Shared Lane Traffic (%)												
Lane Group Flow (vph)	57	2426	0	11	2309	0	110	1716	0	11	1905	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		pm+pt	NA		Perm	NA	
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6			8			4		

Lanes, Volumes, Timings
6: Trafalgar Road & William Halton Parkway

2024 Future Background AM (Mitigation)

Neighbourhood 10

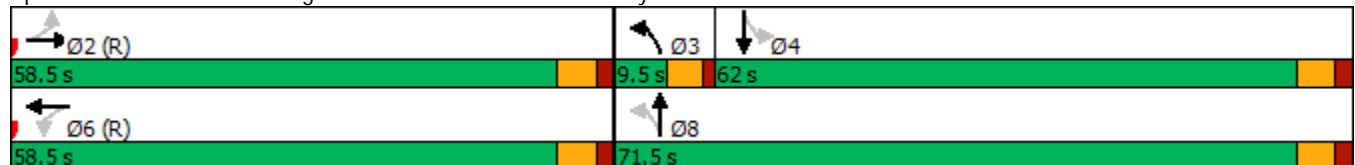


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2		6	6		3	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	20.0		20.0	20.0	
Minimum Split (s)	39.6	39.6		39.6	39.6		9.5	39.6		39.6	39.6	
Total Split (s)	58.5	58.5		58.5	58.5		9.5	71.5		62.0	62.0	
Total Split (%)	45.0%	45.0%		45.0%	45.0%		7.3%	55.0%		47.7%	47.7%	
Maximum Green (s)	52.9	52.9		52.9	52.9		5.0	65.9		56.4	56.4	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.5	3.7		3.7	3.7	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.0	1.9		1.9	1.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6		4.5	5.6		5.6	5.6	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	27.0	27.0		27.0	27.0			27.0		27.0	27.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effect Green (s)	52.9	52.9		52.9	52.9		67.0	65.9		56.4	56.4	
Actuated g/C Ratio	0.41	0.41		0.41	0.41		0.52	0.51		0.43	0.43	
v/c Ratio	1.00	1.18		0.19	1.12		0.87	0.96		0.19	1.25	
Control Delay	161.7	120.8		35.2	96.4		73.8	44.4		33.1	150.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	161.7	120.8		35.2	96.4		73.8	44.4		33.1	150.1	
LOS	F	F		D	F		E	D		C	F	
Approach Delay		121.7			96.2			46.2			149.5	
Approach LOS		F			F			D			F	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.25
 Intersection Signal Delay: 104.8
 Intersection LOS: F
 Intersection Capacity Utilization 117.7%
 ICU Level of Service H
 Analysis Period (min) 15

























Splits and Phases: 6: Trafalgar Road & William Halton Parkway



Lanes, Volumes, Timings
13: Trafalgar Road & Burnhamthorpe Road

2024 Future Background AM (Mitigation)

Neighbourhood 10

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	454	162	65	242	97	135	1434	129	280	1287	109
Future Volume (vph)	84	454	162	65	242	97	135	1434	129	280	1287	109
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		75.0	15.0		0.0	180.0		0.0	180.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	70.0			45.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850			0.850			0.850		0.988	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3497	0
Flt Permitted	0.606			0.113			0.081			0.074		
Satd. Flow (perm)	1129	1863	1583	210	1863	1583	151	3539	1583	138	3497	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			146			105			145		10	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		874.7			414.4			579.3			229.1	
Travel Time (s)		63.0			29.8			41.7			16.5	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	86	463	165	66	247	99	138	1463	132	286	1313	111
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	463	165	66	247	99	138	1463	132	286	1424	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	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
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	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		

Lanes, Volumes, Timings
13: Trafalgar Road & Burnhamthorpe Road

2024 Future Background AM (Mitigation)

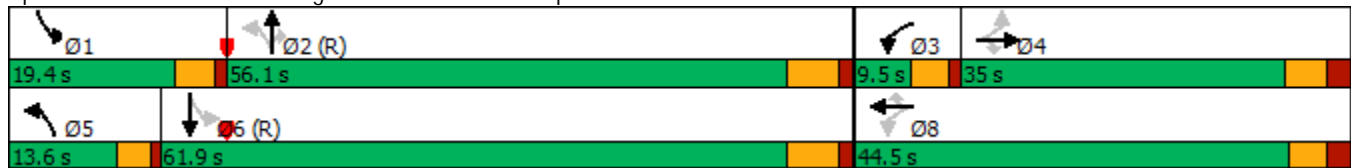
Neighbourhood 10

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	10.0	5.0	20.0	20.0	5.0	20.0	
Minimum Split (s)	24.0	24.0	24.0	9.5	23.8	23.8	9.5	26.0	26.0	9.5	26.0	
Total Split (s)	35.0	35.0	35.0	9.5	44.5	44.5	13.6	56.1	56.1	19.4	61.9	
Total Split (%)	29.2%	29.2%	29.2%	7.9%	37.1%	37.1%	11.3%	46.8%	46.8%	16.2%	51.6%	
Maximum Green (s)	29.0	29.0	29.0	5.0	38.7	38.7	9.6	50.1	50.1	14.9	55.9	
Yellow Time (s)	3.7	3.7	3.7	3.5	3.5	3.5	3.0	4.6	4.6	3.5	4.6	
All-Red Time (s)	2.3	2.3	2.3	1.0	2.3	2.3	1.0	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	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	4.5	5.8	5.8	4.0	6.0	6.0	4.5	6.0	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Act Effect Green (s)	30.8	30.8	30.8	39.9	38.6	38.6	61.1	50.1	50.1	71.1	56.6	
Actuated g/C Ratio	0.26	0.26	0.26	0.33	0.32	0.32	0.51	0.42	0.42	0.59	0.47	
v/c Ratio	0.30	0.97	0.32	0.49	0.41	0.17	0.70	0.99	0.18	1.00	0.86	
Control Delay	40.5	79.1	9.8	40.6	34.4	5.7	40.8	56.3	3.3	87.8	34.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	40.5	79.1	9.8	40.6	34.4	5.7	40.8	56.3	3.3	87.8	34.8	
LOS	D	E	A	D	C	A	D	E	A	F	C	
Approach Delay		58.5			28.5			51.0			43.6	
Approach LOS		E			C			D			D	

Intersection Summary

























Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	105 (88%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	130
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.00
Intersection Signal Delay:	47.4
Intersection LOS:	D
Intersection Capacity Utilization:	100.7%
ICU Level of Service:	G
Analysis Period (min):	15

Splits and Phases: 13: Trafalgar Road & Burnhamthorpe Road



HCM 2010 Signalized Intersection Summary
13: Trafalgar Road & Burnhamthorpe Road












2024 Future Background AM (Mitigation)
Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	454	162	65	242	97	135	1434	129	280	1287	109
Future Volume (veh/h)	84	454	162	65	242	97	135	1434	129	280	1287	109
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	86	463	165	66	247	99	138	1463	132	286	1313	111
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	280	450	383	129	593	504	223	1487	665	284	1612	136
Arrive On Green	0.24	0.24	0.24	0.04	0.32	0.32	0.06	0.42	0.42	0.12	0.49	0.49
Sat Flow, veh/h	1031	1863	1583	1774	1863	1583	1774	3539	1583	1774	3305	279
Grp Volume(v), veh/h	86	463	165	66	247	99	138	1463	132	286	701	723
Grp Sat Flow(s),veh/h/ln	1031	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1814
Q Serve(g_s), s	8.6	29.0	10.6	3.3	12.5	5.5	5.3	49.0	6.3	14.9	40.3	40.7
Cycle Q Clear(g_c), s	11.9	29.0	10.6	3.3	12.5	5.5	5.3	49.0	6.3	14.9	40.3	40.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	280	450	383	129	593	504	223	1487	665	284	863	885
V/C Ratio(X)	0.31	1.03	0.43	0.51	0.42	0.20	0.62	0.98	0.20	1.01	0.81	0.82
Avail Cap(c_a), veh/h	280	450	383	134	601	511	258	1487	665	284	863	885
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.5	45.5	38.5	34.8	32.2	29.8	24.5	34.4	22.0	39.1	26.1	26.2
Incr Delay (d2), s/veh	0.6	49.9	0.8	3.1	0.5	0.2	3.5	19.8	0.7	55.2	8.2	8.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	21.1	4.7	1.7	6.5	2.4	2.7	27.9	2.9	13.7	21.6	22.3
LnGrp Delay(d),s/veh	41.1	95.4	39.3	37.9	32.6	29.9	28.0	54.2	22.7	94.3	34.3	34.4
LnGrp LOS	D	F	D	D	C	C	C	D	C	F	C	C
Approach Vol, veh/h		714			412			1733			1710	
Approach Delay, s/veh		75.9			32.8			49.7			44.4	
Approach LOS		E			C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	19.4	56.4	9.2	35.0	11.3	64.5		44.2				
Change Period (Y+Rc), s	4.5	* 6	4.5	6.0	4.0	* 6		* 6				
Max Green Setting (Gmax), s	14.9	* 50	5.0	29.0	9.6	* 56		* 39				
Max Q Clear Time (g_c+I1), s	16.9	51.0	5.3	31.0	7.3	42.7		14.5				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.1	8.9		2.2				
Intersection Summary												
HCM 2010 Ctrl Delay			50.3									
HCM 2010 LOS			D									
Notes												

Lanes, Volumes, Timings
15: Sixth Line & Marvin Avenue

2024 Future Background AM (Mitigation)

Neighbourhood 10

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	131	45	906	44	16	836
Future Volume (vph)	131	45	906	44	16	836
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	75.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				75.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.993			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3514	0	1770	3539
Flt Permitted	0.950				0.257	
Satd. Flow (perm)	1770	1583	3514	0	479	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		49	8			
Link Speed (k/h)	50		50			50
Link Distance (m)	174.1		227.7			437.1
Travel Time (s)	12.5		16.4			31.5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	142	49	985	48	17	909
Shared Lane Traffic (%)						
Lane Group Flow (vph)	142	49	1033	0	17	909
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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		15	25	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	

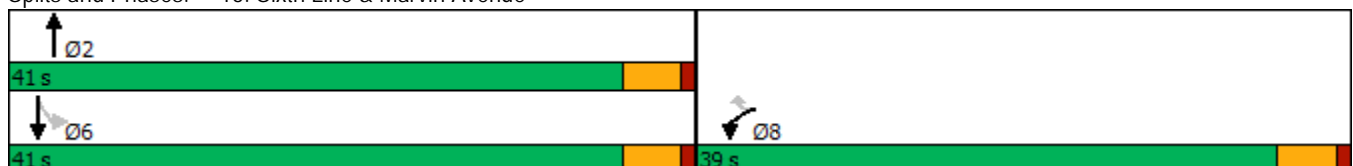













Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	38.5	38.5	38.5		38.5	38.5
Total Split (s)	39.0	39.0	41.0		41.0	41.0
Total Split (%)	48.8%	48.8%	51.3%		51.3%	51.3%
Maximum Green (s)	34.5	34.5	36.5		36.5	36.5
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		Max	Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	27.0	27.0	21.0		21.0	21.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effect Green (s)	9.9	9.9	42.5		42.5	42.5
Actuated g/C Ratio	0.17	0.17	0.73		0.73	0.73
v/c Ratio	0.47	0.16	0.40		0.05	0.35
Control Delay	26.5	8.0	4.9		4.4	4.6
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	26.5	8.0	4.9		4.4	4.6
LOS	C	A	A		A	A
Approach Delay	21.8		4.9			4.6
Approach LOS	C		A			A

Intersection Summary

Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	58.1
Natural Cycle:	80
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.47
Intersection Signal Delay:	6.3
Intersection LOS:	A
Intersection Capacity Utilization:	41.2%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 15: Sixth Line & Marvin Avenue


























								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Traffic Volume (veh/h)	131	45	906	44	16	836		
Future Volume (veh/h)	131	45	906	44	16	836		
Number	3	18	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863		
Adj Flow Rate, veh/h	142	49	985	48	17	909		
Adj No. of Lanes	1	1	2	0	1	2		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	217	194	2418	118	457	2491		
Arrive On Green	0.12	0.12	0.70	0.70	0.70	0.70		
Sat Flow, veh/h	1774	1583	3529	167	544	3632		
Grp Volume(v), veh/h	142	49	507	526	17	909		
Grp Sat Flow(s),veh/h/ln	1774	1583	1770	1833	544	1770		
Q Serve(g_s), s	4.0	1.5	6.2	6.2	0.7	5.3		
Cycle Q Clear(g_c), s	4.0	1.5	6.2	6.2	6.9	5.3		
Prop In Lane	1.00	1.00		0.09	1.00			
Lane Grp Cap(c), veh/h	217	194	1246	1290	457	2491		
V/C Ratio(X)	0.65	0.25	0.41	0.41	0.04	0.36		
Avail Cap(c_a), veh/h	1180	1053	1246	1290	457	2491		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	21.7	20.6	3.2	3.2	4.6	3.1		
Incr Delay (d2), s/veh	3.3	0.7	1.0	1.0	0.2	0.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.1	0.7	3.3	3.4	0.1	2.7		
LnGrp Delay(d),s/veh	25.0	21.3	4.2	4.1	4.8	3.5		
LnGrp LOS	C	C	A	A	A	A		
Approach Vol, veh/h	191		1033			926		
Approach Delay, s/veh	24.0		4.2			3.5		
Approach LOS	C		A			A		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		41.0				41.0		10.9
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		36.5				36.5		34.5
Max Q Clear Time (g_c+I1), s		8.2				8.9		6.0
Green Ext Time (p_c), s		9.5				9.0		0.8
Intersection Summary								
HCM 2010 Ctrl Delay			5.6					
HCM 2010 LOS			A					

Lanes, Volumes, Timings
17: Sixth Line & Dundas Street

2024 Future Background AM (Mitigation)

Neighbourhood 10

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	2040	201	151	946	199	160	128	300	500	168	124
Future Volume (vph)	69	2040	201	151	946	199	160	128	300	500	168	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		80.0	35.0		0.0	80.0		0.0	45.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	100.0			75.0			100.0			45.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95
Frt			0.850		0.974				0.850		0.936	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3447	0	1770	1863	1583	1770	3313	0
Flt Permitted	0.166			0.054			0.522			0.651		
Satd. Flow (perm)	309	3539	1583	101	3447	0	972	1863	1583	1213	3313	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			127		30				108		128	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		409.7			323.7			341.1			111.8	
Travel Time (s)		29.5			23.3			24.6			8.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	71	2103	207	156	975	205	165	132	309	515	173	128
Shared Lane Traffic (%)												
Lane Group Flow (vph)	71	2103	207	156	1180	0	165	132	309	515	301	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	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8				4
Permitted Phases	2		2	6			8		8	4		

Lanes, Volumes, Timings
17: Sixth Line & Dundas Street

2024 Future Background AM (Mitigation)
Neighbourhood 10

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	11.5	37.2	37.2	11.5	34.2		40.5	40.5	40.5	40.5	40.5	
Total Split (s)	11.5	78.0	78.0	11.5	78.0		40.5	40.5	40.5	40.5	40.5	
Total Split (%)	8.8%	60.0%	60.0%	8.8%	60.0%		31.2%	31.2%	31.2%	31.2%	31.2%	
Maximum Green (s)	7.5	71.8	71.8	7.5	71.8		34.0	34.0	34.0	34.0	34.0	
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5		2.8	2.8	2.8	2.8	2.8	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.2	6.2	4.0	6.2		6.5	6.5	6.5	6.5	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	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	C-Max	C-Max	None	C-Max		Max	Max	Max	Max	Max	
Walk Time (s)		7.0	7.0		7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		24.0	24.0		21.0		27.0	27.0	27.0	27.0	27.0	
Pedestrian Calls (#/hr)		0	0		0		0	0	0	0	0	
Act Effect Green (s)	81.3	71.8	71.8	82.4	74.2		34.0	34.0	34.0	34.0	34.0	
Actuated g/C Ratio	0.63	0.55	0.55	0.63	0.57		0.26	0.26	0.26	0.26	0.26	
v/c Ratio	0.26	1.08	0.22	0.97	0.60		0.65	0.27	0.63	1.62	0.31	
Control Delay	10.4	73.4	6.3	96.3	19.7		56.2	40.0	33.4	327.5	22.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	10.4	73.4	6.3	96.3	19.7		56.2	40.0	33.4	327.5	22.7	
LOS	B	E	A	F	B		E	D	C	F	C	
Approach Delay		65.7			28.6			41.1			215.1	
Approach LOS		E			C			D			F	

Intersection Summary
























Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.62
 Intersection Signal Delay: 76.9
 Intersection LOS: E
 Intersection Capacity Utilization 120.1%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 17: Sixth Line & Dundas Street



HCM 2010 Signalized Intersection Summary
 17: Sixth Line & Dundas Street

2024 Future Background AM (Mitigation)
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	2040	201	151	946	199	160	128	300	500	168	124
Future Volume (veh/h)	69	2040	201	151	946	199	160	128	300	500	168	124
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	71	2103	207	156	975	205	165	132	309	515	173	128
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	2	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	304	1955	874	158	1632	343	256	487	414	249	521	364
Arrive On Green	0.05	0.55	0.55	0.06	0.56	0.56	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1774	3539	1583	1774	2913	611	1074	1863	1583	944	1994	1393
Grp Volume(v), veh/h	71	2103	207	156	592	588	165	132	309	515	152	149
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1755	1074	1863	1583	944	1770	1617
Q Serve(g_s), s	2.2	71.8	8.8	7.4	28.7	28.8	19.2	7.3	23.3	26.7	9.0	9.7
Cycle Q Clear(g_c), s	2.2	71.8	8.8	7.4	28.7	28.8	28.9	7.3	23.3	34.0	9.0	9.7
Prop In Lane	1.00		1.00	1.00		0.35	1.00		1.00	1.00		0.86
Lane Grp Cap(c), veh/h	304	1955	874	158	992	983	256	487	414	249	463	423
V/C Ratio(X)	0.23	1.08	0.24	0.99	0.60	0.60	0.64	0.27	0.75	2.07	0.33	0.35
Avail Cap(c_a), veh/h	318	1955	874	158	992	983	256	487	414	249	463	423
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.2	29.1	15.0	41.9	18.9	18.9	50.8	38.1	44.0	54.6	38.8	39.0
Incr Delay (d2), s/veh	0.4	44.2	0.6	68.2	2.6	2.7	11.9	1.4	11.6	493.6	1.9	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	46.8	3.9	8.6	14.7	14.6	6.5	4.0	11.5	43.1	4.6	4.6
LnGrp Delay(d),s/veh	14.6	73.3	15.6	110.1	21.5	21.6	62.7	39.5	55.6	548.2	40.7	41.3
LnGrp LOS	B	F	B	F	C	C	E	D	E	F	D	D
Approach Vol, veh/h		2381			1336			606			816	
Approach Delay, s/veh		66.5			31.9			54.0			361.1	
Approach LOS		E			C			D			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.5	78.0		40.5	10.5	79.0		40.5				
Change Period (Y+Rc), s	4.0	* 6.2		6.5	4.0	* 6.2		6.5				
Max Green Setting (Gmax), s	7.5	* 72		34.0	7.5	* 72		34.0				
Max Q Clear Time (g_c+I1), s	9.4	73.8		36.0	4.2	30.8		30.9				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	13.1		1.1				
Intersection Summary												
HCM 2010 Ctrl Delay	102.8											
HCM 2010 LOS	F											
Notes												

Lanes, Volumes, Timings
1: Neyagawa Boulevard & William Halton Parkway

2024 Future Background PM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	2100	59	456	2100	34	29	203	288	25	502	28
Future Volume (vph)	28	2100	59	456	2100	34	29	203	288	25	502	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.082			0.076			0.324			0.617		
Satd. Flow (perm)	153	3539	1583	142	3539	1583	604	3539	1583	1149	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			67			31			31			67
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		433.0			261.8			285.2			280.3	
Travel Time (s)		31.2			18.8			20.5			20.2	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	30	2234	63	485	2234	36	31	216	306	27	534	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	2234	63	485	2234	36	31	216	306	27	534	30
Enter Blocked Intersection	No	No	No	No	No	No	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	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	pm+ov	Perm	NA	Perm
Protected Phases		4		3	8			2	3		6	
Permitted Phases	4		4	8		8	2		2	6		6

Lanes, Volumes, Timings
1: Neyagawa Boulevard & William Halton Parkway

2024 Future Background PM
Neighbourhood 10

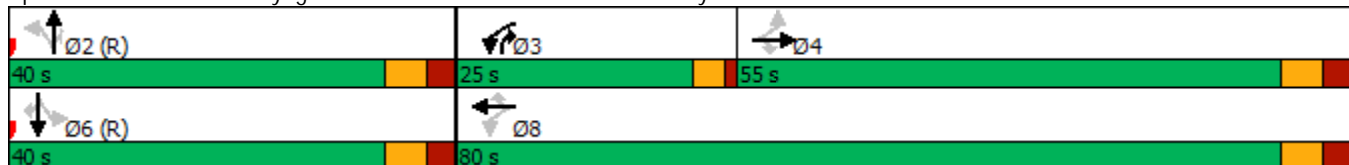


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	3	8	8	2	2	3	6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	15.0	15.0	7.0	15.0	15.0	15.0
Minimum Split (s)	40.4	40.4	40.4	11.0	40.4	40.4	37.4	37.4	11.0	37.4	37.4	37.4
Total Split (s)	55.0	55.0	55.0	25.0	80.0	80.0	40.0	40.0	25.0	40.0	40.0	40.0
Total Split (%)	45.8%	45.8%	45.8%	20.8%	66.7%	66.7%	33.3%	33.3%	20.8%	33.3%	33.3%	33.3%
Maximum Green (s)	48.6	48.6	48.6	21.0	73.6	73.6	33.6	33.6	21.0	33.6	33.6	33.6
Yellow Time (s)	3.7	3.7	3.7	3.0	3.7	3.7	3.7	3.7	3.0	3.7	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	1.0	2.7	2.7	2.7	2.7	1.0	2.7	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	4.0	6.4	6.4	6.4	6.4	4.0	6.4	6.4	6.4
Lead/Lag	Lag	Lag	Lag	Lead						Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	27.0	27.0	27.0		27.0	27.0	24.0	24.0		24.0	24.0	24.0
Pedestrian Calls (#/hr)	0	0	0		0	0	0	0		0	0	0
Act Effect Green (s)	48.6	48.6	48.6	76.0	73.6	73.6	33.6	33.6	61.0	33.6	33.6	33.6
Actuated g/C Ratio	0.40	0.40	0.40	0.63	0.61	0.61	0.28	0.28	0.51	0.28	0.28	0.28
v/c Ratio	0.49	1.56	0.09	1.30	1.03	0.04	0.18	0.22	0.37	0.08	0.54	0.06
Control Delay	57.9	283.5	5.2	181.2	41.4	4.1	36.4	33.9	17.5	32.9	39.0	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.9	283.5	5.2	181.2	41.4	4.1	36.4	33.9	17.5	32.9	39.0	0.4
LOS	E	F	A	F	D	A	D	C	B	C	D	A
Approach Delay		273.0			65.5			25.0			36.8	
Approach LOS		F			E			C			D	

Intersection Summary

























Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.56
 Intersection Signal Delay: 136.8
 Intersection LOS: F
 Intersection Capacity Utilization 121.4%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 1: Neyagawa Boulevard & William Halton Parkway

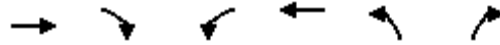


HCM 2010 Signalized Intersection Summary
 1: Neyagawa Boulevard & William Halton Parkway

2024 Future Background PM
 Neighbourhood 10

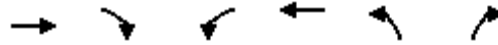
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	2100	59	456	2100	34	29	203	288	25	502	28
Future Volume (veh/h)	28	2100	59	456	2100	34	29	203	288	25	502	28
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	30	2234	63	485	2234	36	31	216	306	27	534	30
Adj No. of Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	1433	641	370	2171	971	188	991	720	264	991	443
Arrive On Green	0.41	0.41	0.41	0.17	0.61	0.61	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	164	3539	1583	1774	3539	1583	843	3539	1583	876	3539	1583
Grp Volume(v), veh/h	30	2234	63	485	2234	36	31	216	306	27	534	30
Grp Sat Flow(s),veh/h/ln	164	1770	1583	1774	1770	1583	843	1770	1583	876	1770	1583
Q Serve(g_s), s	0.0	48.6	3.0	21.0	73.6	1.1	3.9	5.6	15.7	2.9	15.4	1.7
Cycle Q Clear(g_c), s	48.6	48.6	3.0	21.0	73.6	1.1	19.2	5.6	15.7	8.5	15.4	1.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	60	1433	641	370	2171	971	188	991	720	264	991	443
V/C Ratio(X)	0.50	1.56	0.10	1.31	1.03	0.04	0.16	0.22	0.42	0.10	0.54	0.07
Avail Cap(c_a), veh/h	60	1433	641	370	2171	971	188	991	720	264	991	443
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.0	35.7	22.1	40.0	23.2	9.2	44.8	33.1	22.1	36.4	36.6	31.7
Incr Delay (d2), s/veh	6.3	254.8	0.1	157.3	27.2	0.0	1.9	0.5	1.8	0.8	2.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	74.4	1.3	28.4	43.8	0.5	1.0	2.8	7.2	0.8	7.8	0.8
LnGrp Delay(d),s/veh	66.3	290.5	22.2	197.3	50.4	9.2	46.7	33.6	23.9	37.2	38.7	32.0
LnGrp LOS	E	F	C	F	F	A	D	C	C	D	D	C
Approach Vol, veh/h		2327			2755			553			591	
Approach Delay, s/veh		280.3			75.7			29.0			38.3	
Approach LOS		F			E			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		40.0	25.0	55.0		40.0		80.0				
Change Period (Y+Rc), s		6.4	4.0	6.4		6.4		6.4				
Max Green Setting (Gmax), s		33.6	21.0	48.6		33.6		73.6				
Max Q Clear Time (g_c+I1), s		21.2	23.0	50.6		17.4		75.6				
Green Ext Time (p_c), s		2.8	0.0	0.0		4.1		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			144.5									
HCM 2010 LOS			F									

Lanes, Volumes, Timings
2: Burnhamthorpe Road & William Halton Parkway



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	2100	51	5	2100	253	5
Future Volume (vph)	2100	51	5	2100	253	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		75.0	75.0		0.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			75.0		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted			0.047		0.950	
Satd. Flow (perm)	3539	1583	88	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		38				5
Link Speed (k/h)	50			50	50	
Link Distance (m)	240.6			670.8	184.2	
Travel Time (s)	17.3			48.3	13.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2283	55	5	2283	275	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2283	55	5	2283	275	5
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)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8

Lanes, Volumes, Timings
2: Burnhamthorpe Road & William Halton Parkway

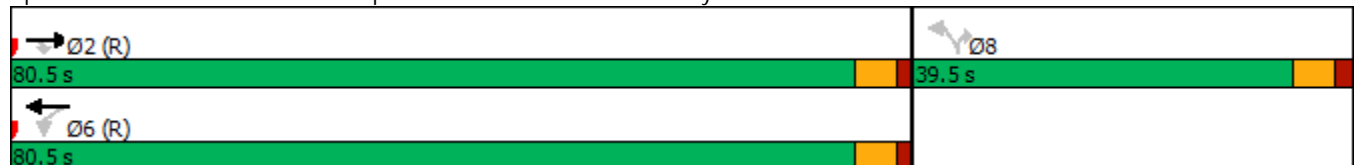


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	33.1	33.1	33.1	33.1	39.5	39.5
Total Split (s)	80.5	80.5	80.5	80.5	39.5	39.5
Total Split (%)	67.1%	67.1%	67.1%	67.1%	32.9%	32.9%
Maximum Green (s)	75.4	75.4	75.4	75.4	34.0	34.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.4	1.4	1.4	1.4	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	27.0	27.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	85.5	85.5	85.5	85.5	23.9	23.9
Actuated g/C Ratio	0.71	0.71	0.71	0.71	0.20	0.20
v/c Ratio	0.91	0.05	0.08	0.91	0.78	0.02
Control Delay	13.3	0.0	10.8	21.8	60.4	20.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.3	0.0	10.8	21.8	60.4	20.2
LOS	B	A	B	C	E	C
Approach Delay	13.0			21.8	59.7	
Approach LOS	B			C	E	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 19.8
 Intersection LOS: B
 Intersection Capacity Utilization 80.9%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 2: Burnhamthorpe Road & William Halton Parkway



Lanes, Volumes, Timings
6: Trafalgar Road & William Halton Parkway

2024 Future Background PM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	2128	55	10	2143	10	81	1910	10	10	1464	59
Future Volume (vph)	53	2128	55	10	2143	10	81	1910	10	10	1464	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	75.0		0.0	75.0		0.0	75.0		0.0	75.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	75.0			75.0			75.0			75.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.996			0.999			0.999			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3525	0	1770	3536	0	1770	3536	0	1770	3518	0
Flt Permitted	0.071			0.071			0.076			0.076		
Satd. Flow (perm)	132	3525	0	132	3536	0	142	3536	0	142	3518	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			1			1			1	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		411.7			267.6			229.4			560.6	
Travel Time (s)		29.6			19.3			16.5			40.4	
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)	58	2313	60	11	2329	11	88	2076	11	11	1591	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	58	2373	0	11	2340	0	88	2087	0	11	1655	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		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings
6: Trafalgar Road & William Halton Parkway

2024 Future Background PM

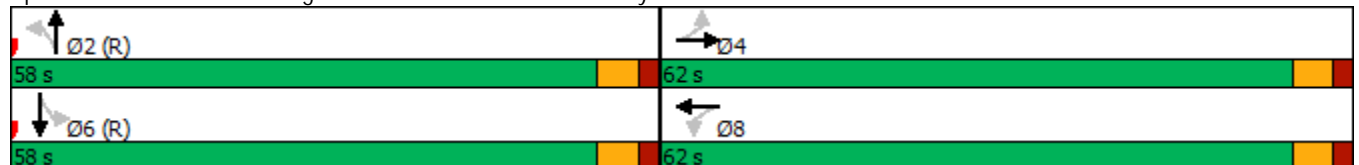
Neighbourhood 10

	↖		→		↗		↖		↗		↘	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	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)	39.6	39.6		39.6	39.6		39.6	39.6		39.6	39.6	
Total Split (s)	62.0	62.0		62.0	62.0		58.0	58.0		58.0	58.0	
Total Split (%)	51.7%	51.7%		51.7%	51.7%		48.3%	48.3%		48.3%	48.3%	
Maximum Green (s)	56.4	56.4		56.4	56.4		52.4	52.4		52.4	52.4	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.7	3.7		3.7	3.7	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.9	1.9		1.9	1.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6		5.6	5.6		5.6	5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	27.0	27.0		27.0	27.0		27.0	27.0		27.0	27.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	56.4	56.4		56.4	56.4		52.4	52.4		52.4	52.4	
Actuated g/C Ratio	0.47	0.47		0.47	0.47		0.44	0.44		0.44	0.44	
v/c Ratio	0.94	1.43		0.18	1.41		1.42	1.35		0.18	1.08	
Control Delay	133.6	225.7		27.2	215.6		290.6	192.6		29.5	80.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	133.6	225.7		27.2	215.6		290.6	192.6		29.5	80.1	
LOS	F	F		C	F		F	F		C	F	
Approach Delay		223.5			214.7			196.6			79.8	
Approach LOS		F			F			F			E	





















Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.43
 Intersection Signal Delay: 186.6
 Intersection LOS: F
 Intersection Capacity Utilization 131.9%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 6: Trafalgar Road & William Halton Parkway



HCM 2010 Signalized Intersection Summary
6: Trafalgar Road & William Halton Parkway

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	2128	55	10	2143	10	81	1910	10	10	1464	59
Future Volume (veh/h)	53	2128	55	10	2143	10	81	1910	10	10	1464	59
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	58	2313	60	11	2329	11	88	2076	11	11	1591	64
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	1657	43	60	1698	8	60	1576	8	60	1515	61
Arrive On Green	0.47	0.47	0.47	0.47	0.47	0.47	0.44	0.44	0.44	0.44	0.44	0.44
Sat Flow, veh/h	153	3525	91	148	3612	17	300	3610	19	197	3469	139
Grp Volume(v), veh/h	58	1156	1217	11	1140	1200	88	1017	1070	11	809	846
Grp Sat Flow(s),veh/h/ln	153	1770	1847	148	1770	1860	300	1770	1859	197	1770	1838
Q Serve(g_s), s	0.0	56.4	56.4	0.0	56.4	56.4	0.0	52.4	52.4	0.0	52.4	52.4
Cycle Q Clear(g_c), s	56.4	56.4	56.4	56.4	56.4	56.4	52.4	52.4	52.4	52.4	52.4	52.4
Prop In Lane	1.00		0.05	1.00		0.01	1.00		0.01	1.00		0.08
Lane Grp Cap(c), veh/h	60	832	868	60	832	874	60	773	812	60	773	803
V/C Ratio(X)	0.97	1.39	1.40	0.18	1.37	1.37	1.47	1.32	1.32	0.18	1.05	1.05
Avail Cap(c_a), veh/h	60	832	868	60	832	874	60	773	812	60	773	803
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.0	31.8	31.8	60.0	31.8	31.8	60.0	33.8	33.8	60.0	33.8	33.8
Incr Delay (d2), s/veh	104.0	182.9	187.9	1.4	174.4	175.1	280.6	151.2	151.8	6.6	45.4	46.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	69.7	74.0	0.4	67.8	71.4	6.7	58.0	61.1	0.5	35.3	37.0
LnGrp Delay(d),s/veh	164.0	214.7	219.7	61.4	206.2	206.9	340.6	185.0	185.6	66.6	79.2	80.7
LnGrp LOS	F	F	F	E	F	F	F	F	F	E	F	F
Approach Vol, veh/h		2431			2351			2175			1666	
Approach Delay, s/veh		216.0			205.9			191.6			79.9	
Approach LOS		F			F			F			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		58.0		62.0		58.0		62.0				
Change Period (Y+Rc), s		* 5.6		* 5.6		* 5.6		* 5.6				
Max Green Setting (Gmax), s		* 52		* 56		* 52		* 56				
Max Q Clear Time (g_c+I1), s		54.4		58.4		54.4		58.4				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				180.8								
HCM 2010 LOS				F								
Notes												

Lanes, Volumes, Timings
10: Sixth Line & Burnhamthorpe Road

2024 Future Background PM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	25	13	270	170	127	53	766	152	118	721	21
Future Volume (vph)	2	25	13	270	170	127	53	766	152	118	721	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	75.0		0.0	75.0		0.0	75.0		0.0	75.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	75.0			75.0			75.0			75.0		
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		0.949			0.936			0.975			0.996	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1768	0	1770	1744	0	1770	3451	0	1770	3525	0
Flt Permitted	0.373			0.730			0.316			0.244		
Satd. Flow (perm)	695	1768	0	1360	1744	0	589	3451	0	455	3525	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			49			30			4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		1521.4			370.4			443.3			1085.8	
Travel Time (s)		109.5			26.7			31.9			78.2	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	2	27	14	287	181	135	56	815	162	126	767	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	41	0	287	316	0	56	977	0	126	789	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		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings
10: Sixth Line & Burnhamthorpe Road

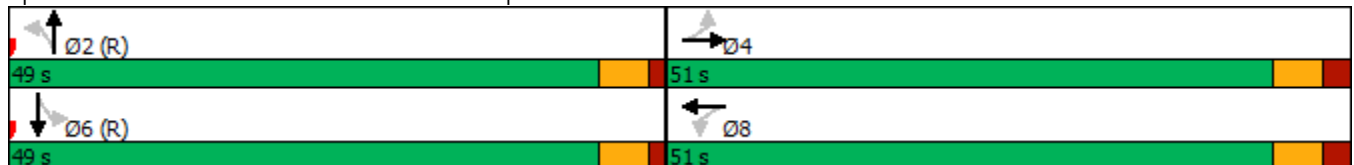


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		33.1	33.1		33.1	33.1	
Total Split (s)	51.0	51.0		51.0	51.0		49.0	49.0		49.0	49.0	
Total Split (%)	51.0%	51.0%		51.0%	51.0%		49.0%	49.0%		49.0%	49.0%	
Maximum Green (s)	45.0	45.0		45.0	45.0		43.9	43.9		43.9	43.9	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.7	3.7		3.7	3.7	
All-Red Time (s)	2.3	2.3		2.3	2.3		1.4	1.4		1.4	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		5.1	5.1		5.1	5.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	27.0	27.0		27.0	27.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	27.5	27.5		27.5	27.5		61.4	61.4		61.4	61.4	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.61	0.61		0.61	0.61	
v/c Ratio	0.01	0.08		0.77	0.61		0.16	0.46		0.45	0.36	
Control Delay	21.5	17.2		46.3	30.6		12.3	12.1		19.8	11.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.5	17.2		46.3	30.6		12.3	12.1		19.8	11.3	
LOS	C	B		D	C		B	B		B	B	
Approach Delay		17.4			38.1			12.1			12.5	
Approach LOS		B			D			B			B	

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	80
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.77
Intersection Signal Delay:	18.3
Intersection LOS:	B
Intersection Capacity Utilization:	67.7%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 10: Sixth Line & Burnhamthorpe Road



HCM 2010 Signalized Intersection Capacity Analysis
 10: Sixth Line & Burnhamthorpe Road

2024 Future Background PM
 Neighbourhood 10

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	25	13	270	170	127	53	766	152	118	721	21
Future Volume (veh/h)	2	25	13	270	170	127	53	766	152	118	721	21
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	2	27	14	287	181	135	56	815	162	126	767	22
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	190	317	164	421	271	202	419	1812	360	340	2162	62
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.62	0.62	0.62	0.62	0.62	0.62
Ln Grp Delay, s/veh	39.6	0.0	27.1	37.0	0.0	33.9	13.8	11.6	11.6	21.2	10.4	10.3
Ln Grp LOS	D		C	D		C	B	B	B	C	B	B
Approach Vol, veh/h		43			603			1033			915	
Approach Delay, s/veh		27.7			35.4			11.7			11.8	
Approach LOS		C			D			B			B	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs			2		4		6		8			
Case No			6.0		6.0		6.0		6.0			
Phs Duration (G+Y+Rc), s			66.6		33.4		66.6		33.4			
Change Period (Y+Rc), s			* 5.1		6.0		* 5.1		6.0			
Max Green (Gmax), s			* 44		45.0		* 44		45.0			
Max Allow Headway (MAH), s			5.9		5.8		6.1		5.3			
Max Q Clear (g_c+I1), s			17.1		18.4		31.7		23.6			
Green Ext Time (g_e), s			9.5		0.2		5.7		3.7			
Prob of Phs Call (p_c)			1.00		1.00		1.00		1.00			
Prob of Max Out (p_x)			0.00		0.00		0.00		0.03			
Left-Turn Movement Data												
Assigned Mvmt			5		7		1		3			
Mvmt Sat Flow, veh/h			684		1059		573		1360			
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			2944		1157		3514		992			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			585		600		101		740			
Left Lane Group Data												
Assigned Mvmt		0	5	0	7	0	1	0	3			
Lane Assignment												

Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	56	0	2	0	126	0	287
Grp Sat Flow (s), veh/h/ln	0	684	0	1059	0	573	0	1360
Q Serve Time (g_s), s	0.0	4.4	0.0	0.2	0.0	15.0	0.0	19.9
Cycle Q Clear Time (g_c), s	0.0	15.1	0.0	16.4	0.0	29.7	0.0	21.6
Perm LT Sat Flow (s_l), veh/h/ln	0	684	0	1059	0	573	0	1360
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	61.5	0.0	27.4	0.0	61.5	0.0	27.4
Perm LT Serve Time (g_u), s	0.0	50.8	0.0	11.2	0.0	46.8	0.0	25.6
Perm LT Q Serve Time (g_ps), s	0.0	4.4	0.0	0.2	0.0	15.0	0.0	19.9
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Lane Grp Cap (c), veh/h	0	419	0	190	0	340	0	421
V/C Ratio (X)	0.00	0.13	0.00	0.01	0.00	0.37	0.00	0.68
Avail Cap (c_a), veh/h	0	419	0	377	0	340	0	661
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	13.2	0.0	39.5	0.0	18.1	0.0	35.0
Incr Delay (d2), s/veh	0.0	0.7	0.0	0.0	0.0	3.1	0.0	2.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	13.8	0.0	39.6	0.0	21.2	0.0	37.0
1st-Term Q (Q1), veh/ln	0.0	0.8	0.0	0.0	0.0	2.3	0.0	7.5
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.3	0.0	0.2
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.9	0.0	0.1	0.0	2.6	0.0	7.7
%ile Storage Ratio (RQ%)	0.00	2.86	0.00	0.16	0.00	8.36	0.00	24.50
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T				T		
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	490	0	0	0	386	0	0
Grp Sat Flow (s), veh/h/ln	0	1770	0	0	0	1770	0	0
Q Serve Time (g_s), s	0.0	14.7	0.0	0.0	0.0	10.7	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	14.7	0.0	0.0	0.0	10.7	0.0	0.0
Lane Grp Cap (c), veh/h	0	1089	0	0	0	1089	0	0
V/C Ratio (X)	0.00	0.45	0.00	0.00	0.00	0.35	0.00	0.00
Avail Cap (c_a), veh/h	0	1089	0	0	0	1089	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	10.2	0.0	0.0	0.0	9.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.3	0.0	0.0	0.0	0.9	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	11.6	0.0	0.0	0.0	10.4	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	7.1	0.0	0.0	0.0	5.1	0.0	0.0

2nd-Term Q (Q2), veh/ln	0.0	0.4	0.0	0.0	0.0	0.3	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	7.5	0.0	0.0	0.0	5.4	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	4.30	0.00	0.00	0.00	1.22	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		T+R		T+R		T+R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	487	0	41	0	403	0	316
Grp Sat Flow (s), veh/h/ln	0	1759	0	1757	0	1845	0	1732
Q Serve Time (g_s), s	0.0	14.7	0.0	1.7	0.0	10.7	0.0	16.2
Cycle Q Clear Time (g_c), s	0.0	14.7	0.0	1.7	0.0	10.7	0.0	16.2
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.33	0.00	0.34	0.00	0.05	0.00	0.43
Lane Grp Cap (c), veh/h	0	1083	0	481	0	1135	0	474
V/C Ratio (X)	0.00	0.45	0.00	0.09	0.00	0.35	0.00	0.67
Avail Cap (c_a), veh/h	0	1083	0	791	0	1135	0	779
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	10.2	0.0	27.0	0.0	9.5	0.0	32.3
Incr Delay (d2), s/veh	0.0	1.4	0.0	0.1	0.0	0.9	0.0	1.6
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	11.6	0.0	27.1	0.0	10.3	0.0	33.9
1st-Term Q (Q1), veh/ln	0.0	7.0	0.0	0.8	0.0	5.4	0.0	7.7
2nd-Term Q (Q2), veh/ln	0.0	0.4	0.0	0.0	0.0	0.3	0.0	0.2
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	7.4	0.0	0.9	0.0	5.6	0.0	7.9
%ile Storage Ratio (RQ%)	0.00	4.28	0.00	0.14	0.00	1.27	0.00	5.52
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

















HCM 2010 Ctrl Delay	17.5
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings
12: Post Road & Burnhamthorpe Road

2024 Future Background PM
Neighbourhood 10

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	333	9	41	609	15	5	5	24	10	5	4
Future Volume (vph)	6	333	9	41	609	15	5	5	24	10	5	4
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		0.996			0.997			0.902			0.973	
Flt Protected		0.999			0.997			0.993			0.973	
Satd. Flow (prot)	0	1853	0	0	1852	0	0	1668	0	0	1764	0
Flt Permitted		0.999			0.997			0.993			0.973	
Satd. Flow (perm)	0	1853	0	0	1852	0	0	1668	0	0	1764	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		370.4			875.6			119.0			126.6	
Travel Time (s)		26.7			63.0			8.6			9.1	
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)	7	362	10	45	662	16	5	5	26	11	5	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	379	0	0	723	0	0	36	0	0	20	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			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	65.7%					ICU Level of Service C						
Analysis Period (min)	15											

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	333	9	41	609	15	5	5	24	10	5	4
Future Vol, veh/h	6	333	9	41	609	15	5	5	24	10	5	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	362	10	45	662	16	5	5	26	11	5	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	678	0	0	372	0	0	1146	1149	367	1157	1146	670
Stage 1	-	-	-	-	-	-	381	381	-	760	760	-
Stage 2	-	-	-	-	-	-	765	768	-	397	386	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	914	-	-	1186	-	-	176	198	678	173	199	457
Stage 1	-	-	-	-	-	-	641	613	-	398	414	-
Stage 2	-	-	-	-	-	-	396	411	-	629	610	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	914	-	-	1186	-	-	161	184	678	154	185	457
Mov Cap-2 Maneuver	-	-	-	-	-	-	161	184	-	154	185	-
Stage 1	-	-	-	-	-	-	635	607	-	394	389	-
Stage 2	-	-	-	-	-	-	363	386	-	593	604	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.5			16			26.4		
HCM LOS							C			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	363	914	-	-	1186	-	-	189
HCM Lane V/C Ratio	0.102	0.007	-	-	0.038	-	-	0.109
HCM Control Delay (s)	16	9	0	-	8.2	0	-	26.4
HCM Lane LOS	C	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.4

Lanes, Volumes, Timings
13: Trafalgar Road & Burnhamthorpe Road

2024 Future Background PM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	212	65	109	351	240	166	1636	94	181	1165	110
Future Volume (vph)	60	212	65	109	351	240	166	1636	94	181	1165	110
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	180.0		0.0	180.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	70.0			45.0			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		0.965			0.939			0.992			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1798	0	1770	1749	0	1770	3511	0	1770	3493	0
Flt Permitted	0.167			0.367			0.208			0.069		
Satd. Flow (perm)	311	1798	0	684	1749	0	387	3511	0	129	3493	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			30			8			20	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		875.6			414.4			579.3			1019.4	
Travel Time (s)		63.0			29.8			41.7			73.4	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	61	216	66	111	358	245	169	1669	96	185	1189	112
Shared Lane Traffic (%)												
Lane Group Flow (vph)	61	282	0	111	603	0	169	1765	0	185	1301	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		23.8	23.8		26.0	26.0		11.5	26.0	
Total Split (s)	30.0	30.0		30.0	30.0		60.0	60.0		15.0	75.0	
Total Split (%)	28.6%	28.6%		28.6%	28.6%		57.1%	57.1%		14.3%	71.4%	
Maximum Green (s)	24.0	24.0		24.2	24.2		54.0	54.0		11.0	69.0	
Yellow Time (s)	3.7	3.7		3.5	3.5		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		5.8	5.8		6.0	6.0		4.0	6.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Act Effect Green (s)	24.0	24.0		24.2	24.2		54.0	54.0		71.0	69.0	
Actuated g/C Ratio	0.23	0.23		0.23	0.23		0.51	0.51		0.68	0.66	
v/c Ratio	0.86	0.67		0.71	1.42		0.85	0.98		0.71	0.57	
Control Delay	115.8	43.9		62.9	231.6		60.0	41.6		36.4	10.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	115.8	43.9		62.9	231.6		60.0	41.6		36.4	10.8	

Lanes, Volumes, Timings
 13: Trafalgar Road & Burnhamthorpe Road

2024 Future Background PM
 Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	F	D		E	F		E	D		D	B	
Approach Delay		56.7			205.4			43.2			14.0	
Approach LOS		E			F			D			B	

Intersection Summary

Area Type:	Other
Cycle Length:	105
Actuated Cycle Length:	105
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	120
Control Type:	Pretimed
Maximum v/c Ratio:	1.42
Intersection Signal Delay:	60.4
Intersection LOS:	E
Intersection Capacity Utilization	117.9%
ICU Level of Service	H
Analysis Period (min)	15

Splits and Phases: 13: Trafalgar Road & Burnhamthorpe Road



HCM 2010 Signalized Intersection Capacity Analysis
 13: Trafalgar Road & Burnhamthorpe Road

2024 Future Background PM
 Neighbourhood 10

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	212	65	109	351	240	166	1636	94	181	1165	110
Future Volume (veh/h)	60	212	65	109	351	240	166	1636	94	181	1165	110
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	61	216	66	111	358	245	169	1669	96	185	1189	112
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	68	315	96	162	237	162	262	1747	100	264	2145	202
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.51	0.51	0.51	0.10	0.66	0.66
Ln Grp Delay, s/veh	133.7	0.0	46.0	69.7	0.0	281.8	37.4	44.2	46.0	41.4	11.7	11.7
Ln Grp LOS	F		D	E		F	D	D	D	D	B	B
Approach Vol, veh/h		343			714			1934			1486	
Approach Delay, s/veh		61.6			248.8			44.5			15.4	
Approach LOS		E			F			D			B	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2		4		6		8			
Case No		1.2	6.0		6.0		4.0		6.0			
Phs Duration (G+Y+Rc), s		15.0	60.0		30.2		75.0		30.2			
Change Period (Y+Rc), s		4.0	* 6		6.0		* 6		* 6			
Max Green (Gmax), s		11.0	* 54		24.0		* 69		* 24			
Max Allow Headway (MAH), s		4.6	6.1		5.9		5.8		5.8			
Max Q Clear (g_c+I1), s		7.7	51.9		26.2		22.7		26.2			
Green Ext Time (g_e), s		0.2	2.0		0.0		15.7		0.0			
Prob of Phs Call (p_c)		1.00	1.00		1.00		1.00		1.00			
Prob of Max Out (p_x)		0.00	0.00		0.00		0.00		0.00			
Left-Turn Movement Data												
Assigned Mvmt		1	5		7				3			
Mvmt Sat Flow, veh/h		1774	422		813				1093			
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			3404		1370		3271		1032			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			195		419		308		706			
Left Lane Group Data												
Assigned Mvmt		1	5	0	7	0	0	0	3			
Lane Assignment		(Pr/Pm)										

HCM 2010 Signalized Intersection Capacity Analysis
 13: Trafalgar Road & Burnhamthorpe Road

Lanes in Grp	1	1	0	1	0	0	0	1
Grp Vol (v), veh/h	185	169	0	61	0	0	0	111
Grp Sat Flow (s), veh/h/ln	1774	422	0	813	0	0	0	1093
Q Serve Time (g_s), s	5.7	38.1	0.0	0.0	0.0	0.0	0.0	9.0
Cycle Q Clear Time (g_c), s	5.7	43.8	0.0	24.2	0.0	0.0	0.0	24.2
Perm LT Sat Flow (s_l), veh/h/ln	270	422	0	813	0	0	0	1093
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	56.0	54.0	0.0	24.2	0.0	0.0	0.0	24.2
Perm LT Serve Time (g_u), s	4.1	48.3	0.0	0.0	0.0	0.0	0.0	9.0
Perm LT Q Serve Time (g_ps), s	4.1	38.1	0.0	0.0	0.0	0.0	0.0	9.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00
Lane Grp Cap (c), veh/h	264	262	0	68	0	0	0	162
V/C Ratio (X)	0.70	0.65	0.00	0.89	0.00	0.00	0.00	0.68
Avail Cap (c_a), veh/h	264	262	0	68	0	0	0	162
Upstream Filter (I)	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	27.1	25.7	0.0	52.6	0.0	0.0	0.0	48.8
Incr Delay (d2), s/veh	14.3	11.7	0.0	81.1	0.0	0.0	0.0	20.9
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	41.4	37.4	0.0	133.7	0.0	0.0	0.0	69.7
1st-Term Q (Q1), veh/ln	5.1	4.4	0.0	1.8	0.0	0.0	0.0	3.2
2nd-Term Q (Q2), veh/ln	1.1	0.8	0.0	1.5	0.0	0.0	0.0	0.9
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00
%ile Back of Q (50%), veh/ln	6.1	5.3	0.0	3.3	0.0	0.0	0.0	4.1
%ile Storage Ratio (RQ%)	8.11	6.95	0.00	26.20	0.00	0.00	0.00	65.79
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T				T		
Lanes in Grp	0	1	0	0	0	1	0	0
Grp Vol (v), veh/h	0	863	0	0	0	642	0	0
Grp Sat Flow (s), veh/h/ln	0	1770	0	0	0	1770	0	0
Q Serve Time (g_s), s	0.0	48.7	0.0	0.0	0.0	20.6	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	48.7	0.0	0.0	0.0	20.6	0.0	0.0
Lane Grp Cap (c), veh/h	0	908	0	0	0	1161	0	0
V/C Ratio (X)	0.00	0.95	0.00	0.00	0.00	0.55	0.00	0.00
Avail Cap (c_a), veh/h	0	908	0	0	0	1161	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	24.3	0.0	0.0	0.0	9.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	19.9	0.0	0.0	0.0	1.9	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	44.2	0.0	0.0	0.0	11.7	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	23.5	0.0	0.0	0.0	10.0	0.0	0.0

HCM 2010 Signalized Intersection Capacity Analysis
 13: Trafalgar Road & Burnhamthorpe Road

2024 Future Background PM
 Neighbourhood 10

2nd-Term Q (Q2), veh/ln	0.0	5.0	0.0	0.0	0.0	0.6	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	28.5	0.0	0.0	0.0	10.6	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	12.09	0.00	0.00	0.00	2.54	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data














Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		T+R		T+R		T+R		T+R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	902	0	282	0	659	0	603
Grp Sat Flow (s), veh/h/ln	0	1828	0	1789	0	1808	0	1738
Q Serve Time (g_s), s	0.0	49.9	0.0	15.2	0.0	20.7	0.0	24.2
Cycle Q Clear Time (g_c), s	0.0	49.9	0.0	15.2	0.0	20.7	0.0	24.2
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.11	0.00	0.23	0.00	0.17	0.00	0.41
Lane Grp Cap (c), veh/h	0	939	0	412	0	1186	0	400
V/C Ratio (X)	0.00	0.96	0.00	0.69	0.00	0.56	0.00	1.51
Avail Cap (c_a), veh/h	0	939	0	412	0	1186	0	400
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	24.6	0.0	37.0	0.0	9.8	0.0	40.5
Incr Delay (d2), s/veh	0.0	21.4	0.0	9.0	0.0	1.9	0.0	241.3
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	46.0	0.0	46.0	0.0	11.7	0.0	281.8
1st-Term Q (Q1), veh/ln	0.0	25.1	0.0	7.4	0.0	10.2	0.0	11.6
2nd-Term Q (Q2), veh/ln	0.0	5.6	0.0	1.0	0.0	0.6	0.0	26.8
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	30.6	0.0	8.5	0.0	10.9	0.0	38.4
%ile Storage Ratio (RQ%)	0.00	13.00	0.00	2.40	0.00	2.60	0.00	23.22
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.8
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4

Intersection Summary

HCM 2010 Ctrl Delay	68.7
HCM 2010 LOS	E

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	53	13	889	90	22	919
Future Volume (vph)	53	13	889	90	22	919
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	75.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				75.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.986			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3490	0	1770	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3490	0	1770	3539
Link Speed (k/h)	50		50			50
Link Distance (m)	152.3		429.6			443.3
Travel Time (s)	11.0		30.9			31.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	58	14	966	98	24	999
Shared Lane Traffic (%)						
Lane Group Flow (vph)	58	14	1064	0	24	999
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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		15	25	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	37.4%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	2.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑		↘	↑↑
Traffic Vol, veh/h	53	13	889	90	22	919
Future Vol, veh/h	53	13	889	90	22	919
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	750	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	58	14	966	98	24	999

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1563	532	0	0	1064
Stage 1	1015	-	-	-	-
Stage 2	548	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	102	492	-	-	651
Stage 1	311	-	-	-	-
Stage 2	543	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	98	492	-	-	651
Mov Cap-2 Maneuver	98	-	-	-	-
Stage 1	299	-	-	-	-
Stage 2	543	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	70.2	0	0.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	98	492	651	-
HCM Lane V/C Ratio	-	-	0.588	0.029	0.037	-
HCM Control Delay (s)	-	-	84.3	12.5	10.7	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	2.8	0.1	0.1	-

Lanes, Volumes, Timings
15: Sixth Line & Marvin Avenue



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	87	29	1017	147	61	928
Future Volume (vph)	87	29	1017	147	61	928
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	75.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				75.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.981			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3472	0	1770	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3472	0	1770	3539
Link Speed (k/h)	50		50			50
Link Distance (m)	192.9		502.5			429.6
Travel Time (s)	13.9		36.2			30.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	95	32	1105	160	66	1009
Shared Lane Traffic (%)						
Lane Group Flow (vph)	95	32	1265	0	66	1009
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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		15	25	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	51.0%
Analysis Period (min)	15
	ICU Level of Service A

Intersection						
Int Delay, s/veh	16.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↵	↵	↕↕		↵	↕↕
Traffic Vol, veh/h	87	29	1017	147	61	928
Future Vol, veh/h	87	29	1017	147	61	928
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	750	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	95	32	1105	160	66	1009












Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1822	633	0	0	1265
Stage 1	1185	-	-	-	-
Stage 2	637	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	~ 69	422	-	-	545
Stage 1	253	-	-	-	-
Stage 2	489	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	~ 61	422	-	-	545
Mov Cap-2 Maneuver	~ 61	-	-	-	-
Stage 1	222	-	-	-	-
Stage 2	489	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s\$	322.7	0	0.8
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	61	422	545	-
HCM Lane V/C Ratio	-	-	1.55	0.075	0.122	-
HCM Control Delay (s)	-	-	\$ 425.5	14.2	12.5	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	8.4	0.2	0.4	-

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lanes, Volumes, Timings
16: Sixth Line & Carnegie Drive

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1	1	1164	2	3	1015
Future Volume (vph)	1	1	1164	2	3	1015
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	75.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				75.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3539	0	1770	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3539	0	1770	3539
Link Speed (k/h)	50		50			50
Link Distance (m)	130.7		363.7			502.5
Travel Time (s)	9.4		26.2			36.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	1	1265	2	3	1103
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	1	1267	0	3	1103
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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		15	25	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	42.2%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↵	↵	↕↕		↵	↕↕
Traffic Vol, veh/h	1	1	1164	2	3	1015
Future Vol, veh/h	1	1	1164	2	3	1015
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	750	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	1	1265	2	3	1103
























Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1824	634	0	0	1267
Stage 1	1266	-	-	-	-
Stage 2	558	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	69	422	-	-	544
Stage 1	229	-	-	-	-
Stage 2	537	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	69	422	-	-	544
Mov Cap-2 Maneuver	69	-	-	-	-
Stage 1	228	-	-	-	-
Stage 2	537	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	35.8	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	69	422	544	-
HCM Lane V/C Ratio	-	-	0.016	0.003	0.006	-
HCM Control Delay (s)	-	-	58	13.6	11.7	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	0	0	0	-

Lanes, Volumes, Timings
17: Sixth Line & Dundas Street

2024 Future Background PM
Neighbourhood 10

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	1415	165	207	2266	436	194	187	202	289	88	91
Future Volume (vph)	136	1415	165	207	2266	436	194	187	202	289	88	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		80.0	35.0		0.0	80.0		0.0	45.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	100.0			75.0			100.0			45.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95
Frt			0.850		0.976				0.850		0.924	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3454	0	1770	1863	1583	1770	3270	0
Flt Permitted	0.048			0.106			0.633			0.392		
Satd. Flow (perm)	89	3539	1583	197	3454	0	1179	1863	1583	730	3270	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			171		37				179		96	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		409.7			323.7			341.1			122.2	
Travel Time (s)		29.5			23.3			24.6			8.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	143	1489	174	218	2385	459	204	197	213	304	93	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	143	1489	174	218	2844	0	204	197	213	304	189	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	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6			8		8	4		

Lanes, Volumes, Timings
17: Sixth Line & Dundas Street

2024 Future Background PM
Neighbourhood 10

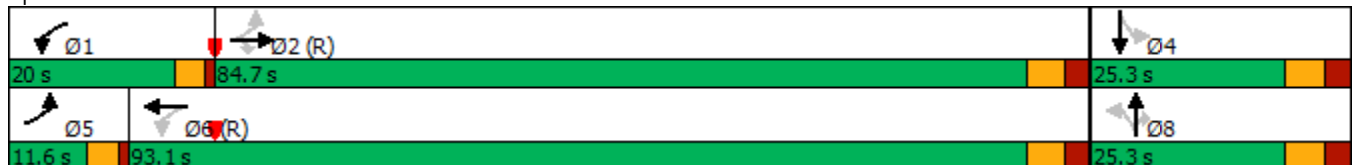

























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	11.5	37.2	37.2	11.5	34.2		16.5	16.5	16.5	16.5	16.5	
Total Split (s)	11.6	84.7	84.7	20.0	93.1		25.3	25.3	25.3	25.3	25.3	
Total Split (%)	8.9%	65.2%	65.2%	15.4%	71.6%		19.5%	19.5%	19.5%	19.5%	19.5%	
Maximum Green (s)	7.6	78.5	78.5	16.0	86.9		18.8	18.8	18.8	18.8	18.8	
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5		2.8	2.8	2.8	2.8	2.8	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.2	6.2	4.0	6.2		6.5	6.5	6.5	6.5	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	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	C-Max	C-Max	None	C-Max		Max	Max	Max	Max	Max	
Walk Time (s)		7.0	7.0		7.0							
Flash Dont Walk (s)		24.0	24.0		21.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effect Green (s)	92.3	82.5	82.5	99.4	86.9		18.8	18.8	18.8	18.8	18.8	
Actuated g/C Ratio	0.71	0.63	0.63	0.76	0.67		0.14	0.14	0.14	0.14	0.14	
v/c Ratio	0.89	0.66	0.16	0.74	1.23		1.20	0.73	0.56	2.90	0.34	
Control Delay	78.1	17.3	2.0	29.0	128.6		179.8	69.9	17.3	898.5	26.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	78.1	17.3	2.0	29.0	128.6		179.8	69.9	17.3	898.5	26.1	
LOS	E	B	A	C	F		F	E	B	F	C	
Approach Delay		20.6			121.5			88.2			564.0	
Approach LOS		C			F			F			F	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 2.90
 Intersection Signal Delay: 124.1
 Intersection LOS: F
 Intersection Capacity Utilization 129.3%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 17: Sixth Line & Dundas Street



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	136	1415	165	207	2266	436	194	187	202	289	88	91
Future Volume (veh/h)	136	1415	165	207	2266	436	194	187	202	289	88	91
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	143	1489	174	218	2385	459	204	197	213	304	93	96
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	159	2367	1059	286	1991	371	162	269	229	98	256	229
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.06	0.67	0.67	0.06	0.67	0.67	0.14	0.14	0.14	0.14	0.14	0.14
Ln Grp Delay, s/veh	89.0	13.6	8.3	23.8	107.9	135.4	218.9	69.2	98.7	1041.7	54.2	56.2
Ln Grp LOS	F	B	A	C	F	F	F	E	F	F	D	E
Approach Vol, veh/h		1806			3062			614			493	
Approach Delay, s/veh		19.1			115.0			129.2			663.5	
Approach LOS		B			F			F			F	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2		4	5	6		8			
Case No		1.1	3.0		6.0	1.1	4.0		5.0			
Phs Duration (G+Y+Rc), s		11.6	93.1		25.3	11.6	93.1		25.3			
Change Period (Y+Rc), s		4.0	* 6.2		6.5	4.0	* 6.2		6.5			
Max Green (Gmax), s		16.0	* 79		18.8	7.6	* 87		18.8			
Max Allow Headway (MAH), s		4.6	5.6		5.8	4.6	5.8		5.2			
Max Q Clear (g_c+I1), s		7.0	33.3		20.8	8.3	88.9		20.8			
Green Ext Time (g_e), s		0.6	22.5		0.0	0.0	0.0		0.0			
Prob of Phs Call (p_c)		1.00	1.00		1.00	0.99	1.00		1.00			
Prob of Max Out (p_x)		0.08	0.00		0.00	1.00	0.00		0.00			
Left-Turn Movement Data												
Assigned Mvmt		1			7	5			3			
Mvmt Sat Flow, veh/h		1774			972	1774			1189			
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			3539		1770		2979		1863			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			1583		1583		555		1583			
Left Lane Group Data												
Assigned Mvmt		1	0	0	7	5	0	0	3			
Lane Assignment		(Pr/Pm)			(Pr/Pm)							

HCM 2010 Signalized Intersection Capacity Analysis
 17: Sixth Line & Dundas Street

2024 Future Background PM
 Neighbourhood 10

Lanes in Grp	1	0	0	1	1	0	0	1
Grp Vol (v), veh/h	218	0	0	304	143	0	0	204
Grp Sat Flow (s), veh/h/ln	1774	0	0	972	1774	0	0	1189
Q Serve Time (g_s), s	5.0	0.0	0.0	5.6	6.3	0.0	0.0	11.6
Cycle Q Clear Time (g_c), s	5.0	0.0	0.0	18.8	6.3	0.0	0.0	18.8
Perm LT Sat Flow (s_l), veh/h/ln	298	0	0	972	93	0	0	1189
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	86.9	0.0	0.0	18.8	86.9	0.0	0.0	18.8
Perm LT Serve Time (g_u), s	55.7	0.0	0.0	5.6	0.0	0.0	0.0	11.6
Perm LT Q Serve Time (g_ps), s	55.7	0.0	0.0	5.6	0.0	0.0	0.0	11.6
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00
Lane Grp Cap (c), veh/h	286	0	0	98	159	0	0	162
V/C Ratio (X)	0.76	0.00	0.00	3.11	0.90	0.00	0.00	1.26
Avail Cap (c_a), veh/h	401	0	0	98	159	0	0	162
Upstream Filter (I)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00
Uniform Delay (d1), s/veh	18.3	0.0	0.0	63.8	45.6	0.0	0.0	61.2
Incr Delay (d2), s/veh	5.4	0.0	0.0	977.9	43.3	0.0	0.0	157.7
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	23.8	0.0	0.0	1041.7	89.0	0.0	0.0	218.9
1st-Term Q (Q1), veh/ln	5.3	0.0	0.0	3.5	5.1	0.0	0.0	5.8
2nd-Term Q (Q2), veh/ln	0.4	0.0	0.0	26.5	1.9	0.0	0.0	7.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00
%ile Back of Q (50%), veh/ln	5.7	0.0	0.0	30.0	7.0	0.0	0.0	12.9
%ile Storage Ratio (RQ%)	37.67	0.00	0.00	158.66	12.91	0.00	0.00	37.83
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	51.6	0.0	0.0	0.0	10.6
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.3
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		T
Lanes in Grp	0	2	0	1	0	1	0	1
Grp Vol (v), veh/h	0	1489	0	93	0	1386	0	197
Grp Sat Flow (s), veh/h/ln	0	1770	0	1770	0	1770	0	1863
Q Serve Time (g_s), s	0.0	31.3	0.0	6.2	0.0	86.9	0.0	13.2
Cycle Q Clear Time (g_c), s	0.0	31.3	0.0	6.2	0.0	86.9	0.0	13.2
Lane Grp Cap (c), veh/h	0	2367	0	256	0	1183	0	269
V/C Ratio (X)	0.00	0.63	0.00	0.36	0.00	1.17	0.00	0.73
Avail Cap (c_a), veh/h	0	2367	0	256	0	1183	0	269
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	12.3	0.0	50.2	0.0	21.5	0.0	53.2
Incr Delay (d2), s/veh	0.0	1.3	0.0	4.0	0.0	86.4	0.0	16.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	13.6	0.0	54.2	0.0	107.9	0.0	69.2
1st-Term Q (Q1), veh/ln	0.0	15.1	0.0	3.0	0.0	41.7	0.0	6.8

2nd-Term Q (Q2), veh/ln	0.0	0.4	0.0	0.3	0.0	28.4	0.0	1.2
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	15.5	0.0	3.3	0.0	70.1	0.0	8.0
%ile Storage Ratio (RQ%)	0.00	9.54	0.00	7.94	0.00	54.51	0.00	5.98
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	50.7	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		R		T+R		T+R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	174	0	96	0	1458	0	213
Grp Sat Flow (s), veh/h/ln	0	1583	0	1583	0	1765	0	1583
Q Serve Time (g_s), s	0.0	5.3	0.0	7.2	0.0	86.9	0.0	17.3
Cycle Q Clear Time (g_c), s	0.0	5.3	0.0	7.2	0.0	86.9	0.0	17.3
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	1.00	0.00	0.31	0.00	1.00
Lane Grp Cap (c), veh/h	0	1059	0	229	0	1180	0	229
V/C Ratio (X)	0.00	0.16	0.00	0.42	0.00	1.24	0.00	0.93
Avail Cap (c_a), veh/h	0	1059	0	229	0	1180	0	229
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	8.0	0.0	50.6	0.0	21.6	0.0	55.0
Incr Delay (d2), s/veh	0.0	0.3	0.0	5.6	0.0	113.8	0.0	43.8
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	8.3	0.0	56.2	0.0	135.4	0.0	98.7
1st-Term Q (Q1), veh/ln	0.0	2.3	0.0	3.1	0.0	41.6	0.0	7.6
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.4	0.0	37.3	0.0	2.8
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	2.4	0.0	3.5	0.0	78.9	0.0	10.4
%ile Storage Ratio (RQ%)	0.00	7.10	0.00	8.41	0.00	61.35	0.00	7.75
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	69.7	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0

Intersection Summary

HCM 2010 Ctrl Delay	132.7
HCM 2010 LOS	F

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings
19: Sixth Line & Threshing Mill Boulevard



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	4	1068	9	7	975
Future Volume (vph)	5	4	1068	9	7	975
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	75.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				75.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.999			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3536	0	1770	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3536	0	1770	3539
Link Speed (k/h)	50		50			50
Link Distance (m)	290.6		268.1			363.7
Travel Time (s)	20.9		19.3			26.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	4	1161	10	8	1060
Shared Lane Traffic (%)						
Lane Group Flow (vph)	5	4	1171	0	8	1060
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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		15	25	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	39.8%
Analysis Period (min)	15
	ICU Level of Service A

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↵	↶	↕↶		↵	↕↶
Traffic Vol, veh/h	5	4	1068	9	7	975
Future Vol, veh/h	5	4	1068	9	7	975
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	750	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	4	1161	10	8	1060

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1712	586	0	0	1171
Stage 1	1166	-	-	-	-
Stage 2	546	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	81	454	-	-	592
Stage 1	259	-	-	-	-
Stage 2	544	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	80	454	-	-	592
Mov Cap-2 Maneuver	80	-	-	-	-
Stage 1	255	-	-	-	-
Stage 2	544	-	-	-	-

























Approach	WB	NB	SB
HCM Control Delay, s	35.4	0	0.1
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT	
Capacity (veh/h)	-	-	80	454	592
HCM Lane V/C Ratio	-	-	0.068	0.01	0.013
HCM Control Delay (s)	-	-	53.3	13	11.2
HCM Lane LOS	-	-	F	B	B
HCM 95th %tile Q(veh)	-	-	0.2	0	0

Lanes, Volumes, Timings
1: Neyagawa Boulevard & William Halton Parkway

2024 Future Background PM (Mitigation)

Neighbourhood 10

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	2100	59	456	2100	34	29	203	288	25	502	28
Future Volume (vph)	28	2100	59	456	2100	34	29	203	288	25	502	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	3433	5085	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.066			0.950			0.279			0.611		
Satd. Flow (perm)	123	5085	1583	3433	5085	1583	520	3539	1583	1138	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			62			36			29			62
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		433.0			261.8			285.2			280.3	
Travel Time (s)		26.0			15.7			17.1			16.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	30	2234	63	485	2234	36	31	216	306	27	534	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	2234	63	485	2234	36	31	216	306	27	534	30
Enter Blocked Intersection	No	No	No	No	No	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	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	Perm	NA	Perm	Prot	NA	Perm	Perm	NA	pm+ov	Perm	NA	Perm
Protected Phases		2		1	6			8	1		4	
Permitted Phases	2		2			6	8		8	4		4

Lanes, Volumes, Timings
1: Neyagawa Boulevard & William Halton Parkway

2024 Future Background PM (Mitigation)
Neighbourhood 10

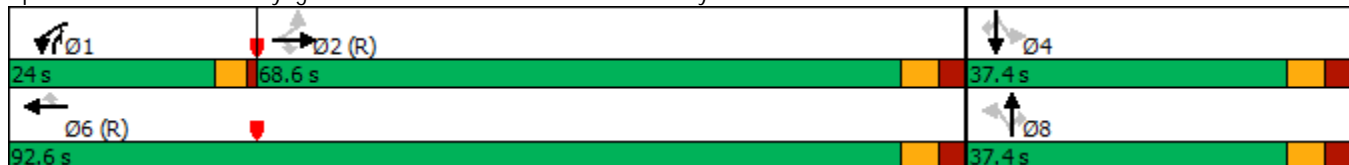


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2	2	1	6	6	8	8	1	4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	15.0	15.0	7.0	15.0	15.0	15.0
Minimum Split (s)	16.4	16.4	16.4	11.0	40.4	40.4	37.4	37.4	11.0	37.4	37.4	37.4
Total Split (s)	68.6	68.6	68.6	24.0	92.6	92.6	37.4	37.4	24.0	37.4	37.4	37.4
Total Split (%)	52.8%	52.8%	52.8%	18.5%	71.2%	71.2%	28.8%	28.8%	18.5%	28.8%	28.8%	28.8%
Maximum Green (s)	62.2	62.2	62.2	20.0	86.2	86.2	31.0	31.0	20.0	31.0	31.0	31.0
Yellow Time (s)	3.7	3.7	3.7	3.0	3.7	3.7	3.7	3.7	3.0	3.7	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	1.0	2.7	2.7	2.7	2.7	1.0	2.7	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	4.0	6.4	6.4	6.4	6.4	4.0	6.4	6.4	6.4
Lead/Lag	Lag	Lag	Lag	Lead						Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	None	C-Max	C-Max	Max	Max	None	Max	Max	Max
Walk Time (s)							7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)							24.0	24.0		24.0	24.0	24.0
Pedestrian Calls (#/hr)							0	0		0	0	0
Act Effect Green (s)	62.3	62.3	62.3	19.9	86.2	86.2	31.0	31.0	57.3	31.0	31.0	31.0
Actuated g/C Ratio	0.48	0.48	0.48	0.15	0.66	0.66	0.24	0.24	0.44	0.24	0.24	0.24
v/c Ratio	0.52	0.92	0.08	0.92	0.66	0.03	0.25	0.26	0.43	0.10	0.63	0.07
Control Delay	59.2	38.7	4.8	78.6	14.4	2.4	46.5	41.1	24.7	40.0	48.4	1.5
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	59.2	38.7	4.8	78.6	14.4	2.4	46.5	41.1	24.7	40.0	48.4	1.5
LOS	E	D	A	E	B	A	D	D	C	D	D	A
Approach Delay		38.0			25.5			32.4			45.6	
Approach LOS		D			C			C			D	

Intersection Summary

























Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 63 (48%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 32.7
 Intersection LOS: C
 Intersection Capacity Utilization 91.7%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 1: Neyagawa Boulevard & William Halton Parkway



HCM 2010 Signalized Intersection Summary
 1: Neyagawa Boulevard & William Halton Parkway

2024 Future Background PM (Mitigation)
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	2100	59	456	2100	34	29	203	288	25	502	28
Future Volume (veh/h)	28	2100	59	456	2100	34	29	203	288	25	502	28
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	30	2234	63	485	2234	36	31	216	306	27	534	30
Adj No. of Lanes	1	3	1	2	3	1	1	2	1	1	2	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	121	2433	758	529	3372	1050	142	844	621	221	844	378
Arrive On Green	0.48	0.48	0.48	0.15	0.66	0.66	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	164	5085	1583	3442	5085	1583	843	3539	1583	876	3539	1583
Grp Volume(v), veh/h	30	2234	63	485	2234	36	31	216	306	27	534	30
Grp Sat Flow(s),veh/h/ln	164	1695	1583	1721	1695	1583	843	1770	1583	876	1770	1583
Q Serve(g_s), s	17.4	53.1	2.8	18.0	34.3	1.0	4.5	6.4	18.9	3.4	17.6	1.9
Cycle Q Clear(g_c), s	27.8	53.1	2.8	18.0	34.3	1.0	22.0	6.4	18.9	9.8	17.6	1.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	121	2433	758	529	3372	1050	142	844	621	221	844	378
V/C Ratio(X)	0.25	0.92	0.08	0.92	0.66	0.03	0.22	0.26	0.49	0.12	0.63	0.08
Avail Cap(c_a), veh/h	121	2433	758	529	3372	1050	142	844	621	221	844	378
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.7	31.5	18.4	54.2	13.2	7.6	54.3	40.1	29.8	44.1	44.4	38.4
Incr Delay (d2), s/veh	4.8	7.0	0.2	20.8	1.0	0.1	3.5	0.7	2.8	1.1	3.6	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	26.4	1.3	10.1	16.3	0.5	1.2	3.2	8.7	0.9	9.0	0.9
LnGrp Delay(d),s/veh	33.6	38.5	18.6	74.9	14.2	7.6	57.8	40.9	32.5	45.2	48.0	38.8
LnGrp LOS	C	D	B	E	B	A	E	D	C	D	D	D
Approach Vol, veh/h		2327			2755			553			591	
Approach Delay, s/veh		37.9			24.8			37.2			47.4	
Approach LOS		D			C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	24.0	68.6		37.4		92.6		37.4				
Change Period (Y+Rc), s	4.0	6.4		6.4		6.4		6.4				
Max Green Setting (Gmax), s	20.0	62.2		31.0		86.2		31.0				
Max Q Clear Time (g_c+I1), s	20.0	55.1		19.6		36.3		24.0				
Green Ext Time (p_c), s	0.0	6.6		3.3		35.4		1.9				
Intersection Summary												
HCM 2010 Ctrl Delay				33.0								
HCM 2010 LOS				C								

Lanes, Volumes, Timings
6: Trafalgar Road & William Halton Parkway

2024 Future Background PM (Mitigation)
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	2128	55	10	2143	10	81	1910	10	10	1464	59
Future Volume (vph)	53	2128	55	10	2143	10	81	1910	10	10	1464	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	75.0		0.0	75.0		0.0	75.0		0.0	75.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	75.0			75.0			75.0			75.0		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.996			0.999			0.999			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5065	0	1770	5080	0	1770	3536	0	1770	3518	0
Flt Permitted	0.084			0.084			0.072			0.079		
Satd. Flow (perm)	156	5065	0	156	5080	0	134	3536	0	147	3518	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			1							4
Link Speed (k/h)		50			50			50				50
Link Distance (m)		411.7			267.6			229.4				560.6
Travel Time (s)		29.6			19.3			16.5				40.4
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)	58	2313	60	11	2329	11	88	2076	11	11	1591	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	58	2373	0	11	2340	0	88	2087	0	11	1655	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		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings
6: Trafalgar Road & William Halton Parkway

2024 Future Background PM (Mitigation)

Neighbourhood 10

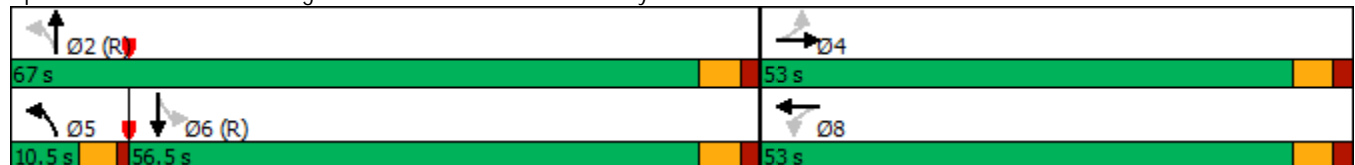






















Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	39.6	39.6		39.6	39.6		9.5	39.6		39.6	39.6	
Total Split (s)	53.0	53.0		53.0	53.0		10.5	67.0		56.5	56.5	
Total Split (%)	44.2%	44.2%		44.2%	44.2%		8.8%	55.8%		47.1%	47.1%	
Maximum Green (s)	47.4	47.4		47.4	47.4		6.0	61.4		50.9	50.9	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.5	3.7		3.7	3.7	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.0	1.9		1.9	1.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6		4.5	5.6		5.6	5.6	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	27.0	27.0		27.0	27.0			27.0		27.0	27.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effect Green (s)	47.4	47.4		47.4	47.4		62.5	61.4		50.9	50.9	
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.52	0.51		0.42	0.42	
v/c Ratio	0.95	1.18		0.18	1.17		0.58	1.15		0.18	1.11	
Control Delay	142.2	122.2		32.8	114.5		32.0	104.9		30.4	92.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	142.2	122.2		32.8	114.5		32.0	104.9		30.4	92.1	
LOS	F	F		C	F		C	F		C	F	
Approach Delay		122.7			114.1			101.9			91.7	
Approach LOS		F			F			F			F	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.18
 Intersection Signal Delay: 109.1
 Intersection LOS: F
 Intersection Capacity Utilization 115.3%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 6: Trafalgar Road & William Halton Parkway



























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	2128	55	10	2143	10	81	1910	10	10	1464	59
Future Volume (veh/h)	53	2128	55	10	2143	10	81	1910	10	10	1464	59
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	58	2313	60	11	2329	11	88	2076	11	11	1591	64
Adj No. of Lanes	1	3	0	1	3	0	1	2	0	1	2	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	2014	52	60	2063	10	133	1847	10	60	1502	60
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.04	0.51	0.51	0.43	0.43	0.43
Sat Flow, veh/h	153	5098	132	148	5224	25	1774	3610	19	197	3469	139
Grp Volume(v), veh/h	58	1536	837	11	1511	829	88	1017	1070	11	809	846
Grp Sat Flow(s),veh/h/ln	153	1695	1839	148	1695	1858	1774	1770	1859	197	1770	1838
Q Serve(g_s), s	0.0	47.4	47.4	0.0	47.4	47.4	3.2	61.4	61.4	0.0	52.0	52.0
Cycle Q Clear(g_c), s	47.4	47.4	47.4	47.4	47.4	47.4	3.2	61.4	61.4	52.0	52.0	52.0
Prop In Lane	1.00		0.07	1.00		0.01	1.00		0.01	1.00		0.08
Lane Grp Cap(c), veh/h	60	1339	727	60	1339	734	133	905	951	60	766	796
V/C Ratio(X)	0.97	1.15	1.15	0.18	1.13	1.13	0.66	1.12	1.12	0.18	1.06	1.06
Avail Cap(c_a), veh/h	60	1339	727	60	1339	734	149	905	951	60	766	796
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.0	36.3	36.3	60.0	36.3	36.3	28.5	29.3	29.3	60.0	34.0	34.0
Incr Delay (d2), s/veh	104.0	75.3	83.9	1.4	67.8	74.8	9.0	69.7	69.9	6.6	48.2	49.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	36.1	41.0	0.4	34.7	39.5	1.9	47.2	49.7	0.5	35.6	37.3
LnGrp Delay(d),s/veh	164.0	111.6	120.2	61.4	104.1	111.1	37.5	99.0	99.2	66.6	82.2	83.9
LnGrp LOS	F	F	F	E	F	F	D	F	F	E	F	F
Approach Vol, veh/h		2431			2351			2175			1666	
Approach Delay, s/veh		115.8			106.4			96.6			83.0	
Approach LOS		F			F			F			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		67.0		53.0	9.4	57.6		53.0				
Change Period (Y+Rc), s		* 5.6		* 5.6	4.5	* 5.6		* 5.6				
Max Green Setting (Gmax), s		* 61		* 47	6.0	* 51		* 47				
Max Q Clear Time (g_c+I1), s		63.4		49.4	5.2	54.0		49.4				
Green Ext Time (p_c), s		0.0		0.0	0.0	0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				102.1								
HCM 2010 LOS				F								
Notes												

Lanes, Volumes, Timings
13: Trafalgar Road & Burnhamthorpe Road

2024 Future Background PM (Mitigation)

Neighbourhood 10

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	212	65	109	351	240	166	1636	94	181	1165	110
Future Volume (vph)	60	212	65	109	351	240	166	1636	94	181	1165	110
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	180.0		0.0	180.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	70.0			45.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850			0.850			0.850		0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3493	0
Flt Permitted	0.336			0.272			0.126			0.062		
Satd. Flow (perm)	626	1863	1583	507	1863	1583	235	3539	1583	115	3493	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			100			198			100		12	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		875.6			414.4			579.3			1019.4	
Travel Time (s)		63.0			29.8			41.7			73.4	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	61	216	66	111	358	245	169	1669	96	185	1189	112
Shared Lane Traffic (%)												
Lane Group Flow (vph)	61	216	66	111	358	245	169	1669	96	185	1301	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	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
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	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		

Lanes, Volumes, Timings
13: Trafalgar Road & Burnhamthorpe Road

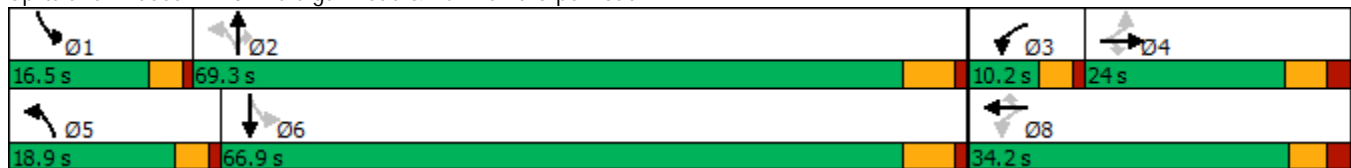
2024 Future Background PM (Mitigation)
Neighbourhood 10

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	10.0	5.0	20.0	20.0	7.0	20.0	
Minimum Split (s)	24.0	24.0	24.0	9.5	23.8	23.8	9.5	26.0	26.0	11.5	26.0	
Total Split (s)	24.0	24.0	24.0	10.2	34.2	34.2	18.9	69.3	69.3	16.5	66.9	
Total Split (%)	20.0%	20.0%	20.0%	8.5%	28.5%	28.5%	15.8%	57.8%	57.8%	13.8%	55.8%	
Maximum Green (s)	18.0	18.0	18.0	6.2	28.4	28.4	14.9	63.3	63.3	12.5	60.9	
Yellow Time (s)	3.7	3.7	3.7	3.0	3.5	3.5	3.0	4.6	4.6	3.0	4.6	
All-Red Time (s)	2.3	2.3	2.3	1.0	2.3	2.3	1.0	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	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	4.0	5.8	5.8	4.0	6.0	6.0	4.0	6.0	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	
Act Effect Green (s)	16.6	16.6	16.6	28.8	27.0	27.0	75.7	63.4	63.4	77.4	64.2	
Actuated g/C Ratio	0.14	0.14	0.14	0.25	0.23	0.23	0.64	0.54	0.54	0.66	0.55	
v/c Ratio	0.69	0.82	0.21	0.58	0.84	0.47	0.59	0.87	0.11	0.80	0.68	
Control Delay	86.8	73.6	4.7	49.6	61.1	12.4	17.5	30.5	2.8	51.4	21.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	86.8	73.6	4.7	49.6	61.1	12.4	17.5	30.5	2.8	51.4	21.9	
LOS	F	E	A	D	E	B	B	C	A	D	C	
Approach Delay		62.7			42.6			28.0			25.6	
Approach LOS		E			D			C			C	

Intersection Summary

























Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	117.4
Natural Cycle:	90
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.87
Intersection Signal Delay:	32.2
Intersection LOS:	C
Intersection Capacity Utilization:	100.2%
ICU Level of Service:	G
Analysis Period (min):	15

Splits and Phases: 13: Trafalgar Road & Burnhamthorpe Road



HCM 2010 Signalized Intersection Capacity Analysis 2024 Future Background PM (Mitigation)
 13: Trafalgar Road & Burnhamthorpe Road

Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	212	65	109	351	240	166	1636	94	181	1165	110
Future Volume (veh/h)	60	212	65	109	351	240	166	1636	94	181	1165	110
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	61	216	66	111	358	245	169	1669	96	185	1189	112
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	116	292	248	209	457	388	297	1949	872	218	1812	170
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.16	0.16	0.16	0.05	0.25	0.25	0.06	0.55	0.55	0.06	0.55	0.55
Ln Grp Delay, s/veh	58.5	55.9	43.2	40.2	49.1	41.9	17.4	27.1	12.6	40.6	21.3	21.3
Ln Grp LOS	E	E	D	D	D	D	B	C	B	D	C	C
Approach Vol, veh/h		343			714			1934			1486	
Approach Delay, s/veh		53.9			45.2			25.5			23.7	
Approach LOS		D			D			C			C	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs		1	2	3	4	5	6		8			
Case No		1.1	3.0	1.2	5.0	1.1	4.0		3.0			
Phs Duration (G+Y+Rc), s		11.4	69.3	10.2	24.0	11.0	69.7		34.2			
Change Period (Y+Rc), s		4.0	* 6	4.0	6.0	4.0	* 6		* 6			
Max Green (Gmax), s		12.5	* 63	6.2	18.0	14.9	* 61		* 28			
Max Allow Headway (MAH), s		4.6	5.7	4.6	5.7	4.6	5.8		5.4			
Max Q Clear (g_c+I1), s		7.1	48.1	7.9	20.0	6.7	31.4		22.6			
Green Ext Time (g_e), s		0.3	11.8	0.0	0.0	0.4	13.3		1.9			
Prob of Phs Call (p_c)		1.00	1.00	0.97	1.00	1.00	1.00		1.00			
Prob of Max Out (p_x)		0.62	0.00	1.00	1.00	0.09	0.00		0.92			
Left-Turn Movement Data												
Assigned Mvmt		1		3	7	5						
Mvmt Sat Flow, veh/h		1774		1774	813	1774						
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			3539		1863		3271		1863			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			1583		1583		308		1583			
Left Lane Group Data												
Assigned Mvmt		1	0	3	7	5	0	0	0			
Lane Assignment		(Pr/Pm)		(Pr/Pm)		(Pr/Pm)						

HCM 2010 Signalized Intersection Capacity Analysis 2024 Future Background PM (Mitigation)
 13: Trafalgar Road & Burnhamthorpe Road

Neighbourhood 10

Lanes in Grp	1	0	1	1	1	0	0	0
Grp Vol (v), veh/h	185	0	111	61	169	0	0	0
Grp Sat Flow (s), veh/h/ln	1774	0	1774	813	1774	0	0	0
Q Serve Time (g_s), s	5.1	0.0	5.9	7.6	4.7	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	5.1	0.0	5.9	18.0	4.7	0.0	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	270	0	1093	813	422	0	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	63.3	0.0	20.0	18.0	63.3	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	17.2	0.0	5.3	7.6	34.3	0.0	0.0	0.0
Perm LT Q Serve Time (g_ps), s	17.2	0.0	1.7	7.6	19.4	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	218	0	209	116	297	0	0	0
V/C Ratio (X)	0.85	0.00	0.53	0.53	0.57	0.00	0.00	0.00
Avail Cap (c_a), veh/h	296	0	209	116	419	0	0	0
Upstream Filter (I)	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	25.0	0.0	37.6	54.2	15.7	0.0	0.0	0.0
Incr Delay (d2), s/veh	15.6	0.0	2.6	4.3	1.7	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	40.6	0.0	40.2	58.5	17.4	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	5.8	0.0	2.8	1.9	2.3	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.9	0.0	0.1	0.1	0.1	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00
%ile Back of Q (50%), veh/ln	6.7	0.0	3.0	2.1	2.4	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	8.92	0.00	47.36	16.28	3.16	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		T
Lanes in Grp	0	2	0	1	0	1	0	1
Grp Vol (v), veh/h	0	1669	0	216	0	642	0	358
Grp Sat Flow (s), veh/h/ln	0	1770	0	1863	0	1770	0	1863
Q Serve Time (g_s), s	0.0	46.1	0.0	12.7	0.0	29.2	0.0	20.6
Cycle Q Clear Time (g_c), s	0.0	46.1	0.0	12.7	0.0	29.2	0.0	20.6
Lane Grp Cap (c), veh/h	0	1949	0	292	0	981	0	457
V/C Ratio (X)	0.00	0.86	0.00	0.74	0.00	0.66	0.00	0.78
Avail Cap (c_a), veh/h	0	1949	0	292	0	981	0	460
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	22.0	0.0	46.2	0.0	17.9	0.0	40.5
Incr Delay (d2), s/veh	0.0	5.1	0.0	9.6	0.0	3.4	0.0	8.5
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	27.1	0.0	55.9	0.0	21.3	0.0	49.1
1st-Term Q (Q1), veh/ln	0.0	22.3	0.0	6.5	0.0	14.1	0.0	10.6

HCM 2010 Signalized Intersection Capacity Analysis 2024 Future Background PM (Mitigation)
 13: Trafalgar Road & Burnhamthorpe Road

Neighbourhood 10

2nd-Term Q (Q2), veh/ln	0.0	1.4	0.0	0.8	0.0	0.9	0.0	1.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	23.6	0.0	7.3	0.0	15.0	0.0	11.7
%ile Storage Ratio (RQ%)	0.00	10.13	0.00	2.07	0.00	3.61	0.00	7.10
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		R		R		T+R		R
Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	96	0	66	0	659	0	245
Grp Sat Flow (s), veh/h/ln	0	1583	0	1583	0	1808	0	1583
Q Serve Time (g_s), s	0.0	3.3	0.0	4.2	0.0	29.4	0.0	15.9
Cycle Q Clear Time (g_c), s	0.0	3.3	0.0	4.2	0.0	29.4	0.0	15.9
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	1.00	0.00	0.17	0.00	1.00
Lane Grp Cap (c), veh/h	0	872	0	248	0	1002	0	388
V/C Ratio (X)	0.00	0.11	0.00	0.27	0.00	0.66	0.00	0.63
Avail Cap (c_a), veh/h	0	872	0	248	0	1002	0	391
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	12.4	0.0	42.7	0.0	18.0	0.0	38.7
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.6	0.0	3.4	0.0	3.2
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	12.6	0.0	43.2	0.0	21.3	0.0	41.9
1st-Term Q (Q1), veh/ln	0.0	1.5	0.0	1.9	0.0	14.6	0.0	6.9
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.9	0.0	0.3
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	1.5	0.0	1.9	0.0	15.6	0.0	7.3
%ile Storage Ratio (RQ%)	0.00	0.65	0.00	0.54	0.00	3.74	0.00	4.40
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary












HCM 2010 Ctrl Delay	30.2
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings
15: Sixth Line & Marvin Avenue

2024 Future Background PM (Mitigation)
Neighbourhood 10

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	87	29	1017	147	61	928
Future Volume (vph)	87	29	1017	147	61	928
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	75.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				75.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.981			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3472	0	1770	3539
Flt Permitted	0.950				0.191	
Satd. Flow (perm)	1770	1583	3472	0	356	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		32	26			
Link Speed (k/h)	50		50			50
Link Distance (m)	192.9		502.5			429.6
Travel Time (s)	13.9		36.2			30.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	95	32	1105	160	66	1009
Shared Lane Traffic (%)						
Lane Group Flow (vph)	95	32	1265	0	66	1009
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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		15	25	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	

Lanes, Volumes, Timings
15: Sixth Line & Marvin Avenue

2024 Future Background PM (Mitigation)

Neighbourhood 10

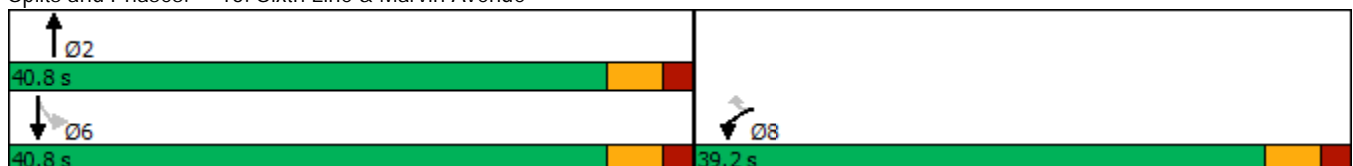


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	20.0		20.0	20.0
Minimum Split (s)	39.2	39.2	33.2		33.2	33.2
Total Split (s)	39.2	39.2	40.8		40.8	40.8
Total Split (%)	49.0%	49.0%	51.0%		51.0%	51.0%
Maximum Green (s)	34.0	34.0	35.6		35.6	35.6
Yellow Time (s)	3.3	3.3	3.3		3.3	3.3
All-Red Time (s)	1.9	1.9	1.9		1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.2	5.2	5.2		5.2	5.2
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		Max	Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	27.0	27.0	21.0		21.0	21.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effect Green (s)	10.3	10.3	44.6		44.6	44.6
Actuated g/C Ratio	0.17	0.17	0.73		0.73	0.73
v/c Ratio	0.32	0.11	0.50		0.25	0.39
Control Delay	25.0	9.2	5.7		7.8	4.9
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	25.0	9.2	5.7		7.8	4.9
LOS	C	A	A		A	A
Approach Delay	21.0		5.7			5.1
Approach LOS	C		A			A

Intersection Summary












Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	60.9
Natural Cycle:	80
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.50
Intersection Signal Delay:	6.2
Intersection LOS:	A
Intersection Capacity Utilization:	67.7%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 15: Sixth Line & Marvin Avenue



HCM 2010 Signalized Intersection Capacity Analysis 2024 Future Background PM (Mitigation)
 15: Sixth Line & Marvin Avenue

Neighbourhood 10

										
Movement	WBL	WBR	NBT	NBR	SBL	SBT				
Lane Configurations										
Traffic Volume (veh/h)	87	29	1017	147	61	928				
Future Volume (veh/h)	87	29	1017	147	61	928				
Number	3	18	2	12	1	6				
Initial Q, veh	0	0	0	0	0	0				
Ped-Bike Adj (A_pbT)	1.00	1.00		1.00	1.00					
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00				
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863				
Adj Flow Rate, veh/h	95	32	1105	160	66	1009				
Adj No. of Lanes	1	1	2	0	1	2				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				
Percent Heavy Veh, %	2	2	2	2	2	2				
Opposing Right Turn Influence	Yes				Yes					
Cap, veh/h	278	248	2027	293	333	2310				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				
Prop Arrive On Green	0.16	0.16	0.65	0.65	0.65	0.65				
Ln Grp Delay, s/veh	21.2	20.0	6.9	7.0	10.7	5.2				
Ln Grp LOS	C	C	A	A	B	A				
Approach Vol, veh/h	127		1265			1075				
Approach Delay, s/veh	20.9		7.0			5.5				
Approach LOS	C		A			A				
Timer:		1	2	3	4	5	6	7	8	
Assigned Phs			2	8			6			
Case No			8.0	9.0			6.0			
Phs Duration (G+Y+Rc), s			40.8	13.7			40.8			
Change Period (Y+Rc), s			* 5.2	5.2			* 5.2			
Max Green (Gmax), s			* 36	34.0			* 36			
Max Allow Headway (MAH), s			5.8	4.6			6.0			
Max Q Clear (g_c+I1), s			12.5	4.6			17.7			
Green Ext Time (g_e), s			11.3	0.5			9.0			
Prob of Phs Call (p_c)			1.00	0.85			1.00			
Prob of Max Out (p_x)			0.00	0.00			0.00			
Left-Turn Movement Data										
Assigned Mvmt			5	3			1			
Mvmt Sat Flow, veh/h			0	1774			436			
Through Movement Data										
Assigned Mvmt			2	8			6			
Mvmt Sat Flow, veh/h			3198	0			3632			
Right-Turn Movement Data										
Assigned Mvmt			12	18			16			
Mvmt Sat Flow, veh/h			449	1583			0			
Left Lane Group Data										
Assigned Mvmt		0	5	3	0	0	1	0	0	
Lane Assignment										

HCM 2010 Signalized Intersection Capacity Analysis 2024 Future Background PM (Mitigation)
 15: Sixth Line & Marvin Avenue

Neighbourhood 10

Lanes in Grp	0	0	1	0	0	1	0	0
Grp Vol (v), veh/h	0	0	95	0	0	66	0	0
Grp Sat Flow (s), veh/h/ln	0	0	1774	0	0	436	0	0
Q Serve Time (g_s), s	0.0	0.0	2.6	0.0	0.0	5.2	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	2.6	0.0	0.0	15.7	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	1774	0	0	436	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	35.6	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	25.1	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	5.2	0.0	0.0
Time to First Blk (g_f), s	0.0	35.6	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	0	278	0	0	333	0	0
V/C Ratio (X)	0.00	0.00	0.34	0.00	0.00	0.20	0.00	0.00
Avail Cap (c_a), veh/h	0	0	1106	0	0	333	0	0
Upstream Filter (I)	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	20.5	0.0	0.0	9.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.7	0.0	0.0	1.3	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	21.2	0.0	0.0	10.7	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	1.3	0.0	0.0	0.6	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.0	1.3	0.0	0.0	0.7	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	1.78	0.00	0.00	2.37	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	8	0	0	6	0	0
Lane Assignment		T				T		
Lanes in Grp	0	1	0	0	0	2	0	0
Grp Vol (v), veh/h	0	629	0	0	0	1009	0	0
Grp Sat Flow (s), veh/h/ln	0	1770	0	0	0	1770	0	0
Q Serve Time (g_s), s	0.0	10.4	0.0	0.0	0.0	7.6	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	10.4	0.0	0.0	0.0	7.6	0.0	0.0
Lane Grp Cap (c), veh/h	0	1155	0	0	0	2310	0	0
V/C Ratio (X)	0.00	0.54	0.00	0.00	0.00	0.44	0.00	0.00
Avail Cap (c_a), veh/h	0	1155	0	0	0	2310	0	0
Upstream Filter (I)	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	5.1	0.0	0.0	0.0	4.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.8	0.0	0.0	0.0	0.6	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	6.9	0.0	0.0	0.0	5.2	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	4.9	0.0	0.0	0.0	3.6	0.0	0.0

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 15: Sixth Line & Marvin Avenue

Neighbourhood 10

2nd-Term Q (Q2), veh/ln	0.0	0.6	0.0	0.0	0.0	0.2	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	5.5	0.0	0.0	0.0	3.8	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	2.75	0.00	0.00	0.00	2.25	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	18	0	0	16	0	0
Lane Assignment		T+R	R					
Lanes in Grp	0	1	1	0	0	0	0	0
Grp Vol (v), veh/h	0	636	32	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	1784	1583	0	0	0	0	0
Q Serve Time (g_s), s	0.0	10.5	0.9	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	10.5	0.9	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.25	1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	1164	248	0	0	0	0	0
V/C Ratio (X)	0.00	0.55	0.13	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	1164	987	0	0	0	0	0
Upstream Filter (I)	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	5.1	19.8	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.8	0.2	0.0	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	7.0	20.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	4.9	0.4	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	5.5	0.4	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	2.78	0.57	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 2010 Ctrl Delay	7.1
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Appendix G

2030 Future Background Conditions Synchro Worksheets

Lanes, Volumes, Timings
1: Neyagawa Boulevard & William Halton Parkway

2030 Future Background AM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	2100	175	430	2100	6	194	571	530	53	216	73
Future Volume (vph)	42	2100	175	430	2100	6	194	571	530	53	216	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	3433	5085	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.061			0.950			0.554			0.151		
Satd. Flow (perm)	114	5085	1583	3433	5085	1583	1032	3539	1583	281	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			139			29			29			62
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		433.0			261.8			285.2			280.3	
Travel Time (s)		31.2			18.8			20.5			20.2	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	51	2561	213	524	2561	7	237	696	646	65	263	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	2561	213	524	2561	7	237	696	646	65	263	89
Enter Blocked Intersection	No	No	No	No	No	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	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	Perm	NA	Perm	Prot	NA	Perm	Perm	NA	pm+ov	Perm	NA	Perm
Protected Phases		2		1	6			8	1		4	
Permitted Phases	2		2			6	8		8	4		4

Lanes, Volumes, Timings
1: Neyagawa Boulevard & William Halton Parkway

2030 Future Background AM
Neighbourhood 10

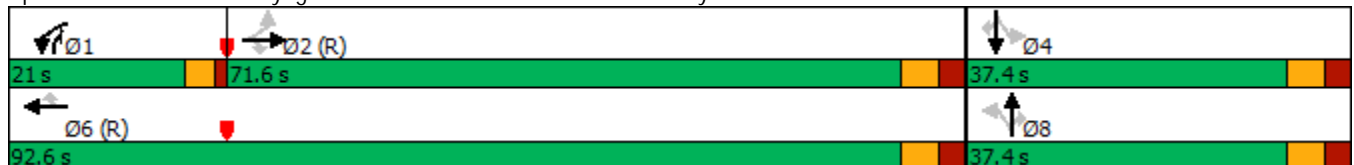


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2	2	1	6	6	8	8	1	4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	15.0	15.0	7.0	15.0	15.0	15.0
Minimum Split (s)	40.4	40.4	40.4	11.0	40.4	40.4	37.4	37.4	11.0	37.4	37.4	37.4
Total Split (s)	71.6	71.6	71.6	21.0	92.6	92.6	37.4	37.4	21.0	37.4	37.4	37.4
Total Split (%)	55.1%	55.1%	55.1%	16.2%	71.2%	71.2%	28.8%	28.8%	16.2%	28.8%	28.8%	28.8%
Maximum Green (s)	65.2	65.2	65.2	17.0	86.2	86.2	31.0	31.0	17.0	31.0	31.0	31.0
Yellow Time (s)	3.7	3.7	3.7	3.0	3.7	3.7	3.7	3.7	3.0	3.7	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	1.0	2.7	2.7	2.7	2.7	1.0	2.7	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	4.0	6.4	6.4	6.4	6.4	4.0	6.4	6.4	6.4
Lead/Lag	Lag	Lag	Lag	Lead					Lead			
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	None	C-Max	C-Max	Max	Max	None	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	27.0	27.0	27.0		27.0	27.0	24.0	24.0		24.0	24.0	24.0
Pedestrian Calls (#/hr)	0	0	0		0	0	0	0		0	0	0
Act Effect Green (s)	65.2	65.2	65.2	17.0	86.2	86.2	31.0	31.0	54.4	31.0	31.0	31.0
Actuated g/C Ratio	0.50	0.50	0.50	0.13	0.66	0.66	0.24	0.24	0.42	0.24	0.24	0.24
v/c Ratio	0.89	1.00	0.25	1.17	0.76	0.01	0.96	0.83	0.95	0.97	0.31	0.21
Control Delay	127.9	51.3	7.2	146.6	16.8	0.0	98.0	56.4	59.9	152.5	42.0	16.4
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	127.9	51.3	7.2	146.6	16.8	0.0	98.0	56.4	59.9	152.5	42.0	16.4
LOS	F	D	A	F	B	A	F	E	E	F	D	B
Approach Delay		49.3			38.7			64.1			53.7	
Approach LOS		D			D			E			D	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 130
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.17
 Intersection Signal Delay: 48.4
 Intersection LOS: D
 Intersection Capacity Utilization 100.5%
 ICU Level of Service G
 Analysis Period (min) 15

Splits and Phases: 1: Neyagawa Boulevard & William Halton Parkway



HCM 2010 Signalized Intersection Summary
 1: Neyagawa Boulevard & William Halton Parkway

2030 Future Background AM
 Neighbourhood 10

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	2100	175	430	2100	6	194	571	530	53	216	73
Future Volume (veh/h)	42	2100	175	430	2100	6	194	571	530	53	216	73
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	51	2561	213	524	2561	7	237	696	646	65	263	89
Adj No. of Lanes	1	3	1	2	3	1	1	2	1	1	2	1
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	95	2550	794	450	3372	1050	237	844	585	76	844	378
Arrive On Green	0.50	0.50	0.50	0.13	0.66	0.66	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	122	5085	1583	3442	5085	1583	1025	3539	1583	406	3539	1583
Grp Volume(v), veh/h	51	2561	213	524	2561	7	237	696	646	65	263	89
Grp Sat Flow(s),veh/h/ln	122	1695	1583	1721	1695	1583	1025	1770	1583	406	1770	1583
Q Serve(g_s), s	41.8	65.2	10.1	17.0	44.4	0.2	23.1	24.2	31.0	6.8	7.9	5.9
Cycle Q Clear(g_c), s	65.2	65.2	10.1	17.0	44.4	0.2	31.0	24.2	31.0	31.0	7.9	5.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	95	2550	794	450	3372	1050	237	844	585	76	844	378
V/C Ratio(X)	0.54	1.00	0.27	1.16	0.76	0.01	1.00	0.82	1.10	0.85	0.31	0.24
Avail Cap(c_a), veh/h	95	2550	794	450	3372	1050	237	844	585	76	844	378
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.9	32.4	18.7	56.5	14.9	7.4	56.2	46.9	41.0	63.9	40.7	39.9
Incr Delay (d2), s/veh	20.3	18.8	0.8	95.8	1.7	0.0	58.3	9.0	69.3	66.9	1.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	34.7	4.6	14.1	21.1	0.1	12.3	12.8	32.2	3.8	4.0	2.7
LnGrp Delay(d),s/veh	69.2	51.2	19.5	152.3	16.5	7.4	114.5	55.9	110.3	130.8	41.7	41.4
LnGrp LOS	E	F	B	F	B	A	F	E	F	F	D	D
Approach Vol, veh/h		2825			3092			1579			417	
Approach Delay, s/veh		49.1			39.5			87.0			55.5	
Approach LOS		D			D			F			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	21.0	71.6		37.4		92.6		37.4				
Change Period (Y+Rc), s	4.0	6.4		6.4		6.4		6.4				
Max Green Setting (Gmax), s	17.0	65.2		31.0		86.2		31.0				
Max Q Clear Time (g_c+I1), s	19.0	67.2		33.0		46.4		33.0				
Green Ext Time (p_c), s	0.0	0.0		0.0		34.2		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				53.3								
HCM 2010 LOS				D								

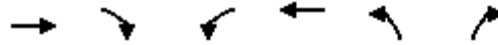
Lanes, Volumes, Timings
2: Burnhamthorpe Road & William Halton Parkway

2030 Future Background AM
Neighbourhood 10



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	2100	116	0	2100	232	0
Future Volume (vph)	2100	116	0	2100	232	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		75.0	75.0		0.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			75.0		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				
Flt Protected					0.950	
Satd. Flow (prot)	3539	1583	1863	3539	1770	1863
Flt Permitted					0.950	
Satd. Flow (perm)	3539	1583	1863	3539	1770	1863
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		88				
Link Speed (k/h)	50			50	50	
Link Distance (m)	587.8			591.4	185.0	
Travel Time (s)	42.3			42.6	13.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2283	126	0	2283	252	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2283	126	0	2283	252	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)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Prot	Perm	NA	Prot	Perm
Protected Phases	2	2		6	8	
Permitted Phases			6			8

Lanes, Volumes, Timings
2: Burnhamthorpe Road & William Halton Parkway

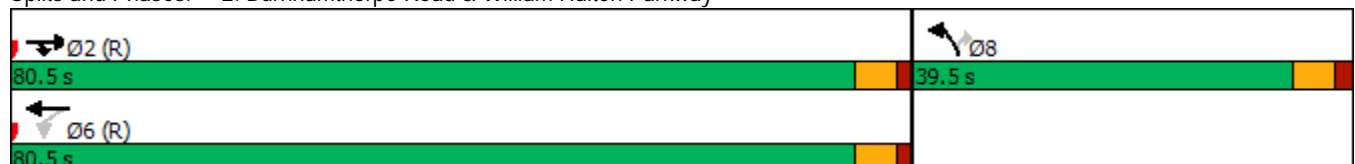


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	33.1	33.1	39.1	39.1	39.5	39.5
Total Split (s)	80.5	80.5	80.5	80.5	39.5	39.5
Total Split (%)	67.1%	67.1%	67.1%	67.1%	32.9%	32.9%
Maximum Green (s)	75.4	75.4	75.4	75.4	34.0	34.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.4	1.4	1.4	1.4	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	27.0	27.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effect Green (s)	87.0	87.0		87.0	22.4	
Actuated g/C Ratio	0.72	0.72		0.72	0.19	
v/c Ratio	0.89	0.11		0.89	0.76	
Control Delay	19.7	2.5		19.7	61.0	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	19.7	2.5		19.7	61.0	
LOS	B	A		B	E	
Approach Delay	18.8			19.7	61.0	
Approach LOS	B			B	E	

Intersection Summary







Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 21.4
 Intersection LOS: C
 Intersection Capacity Utilization 79.7%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 2: Burnhamthorpe Road & William Halton Parkway



HCM 2010 Signalized Intersection Summary
2: Burnhamthorpe Road & William Halton Parkway

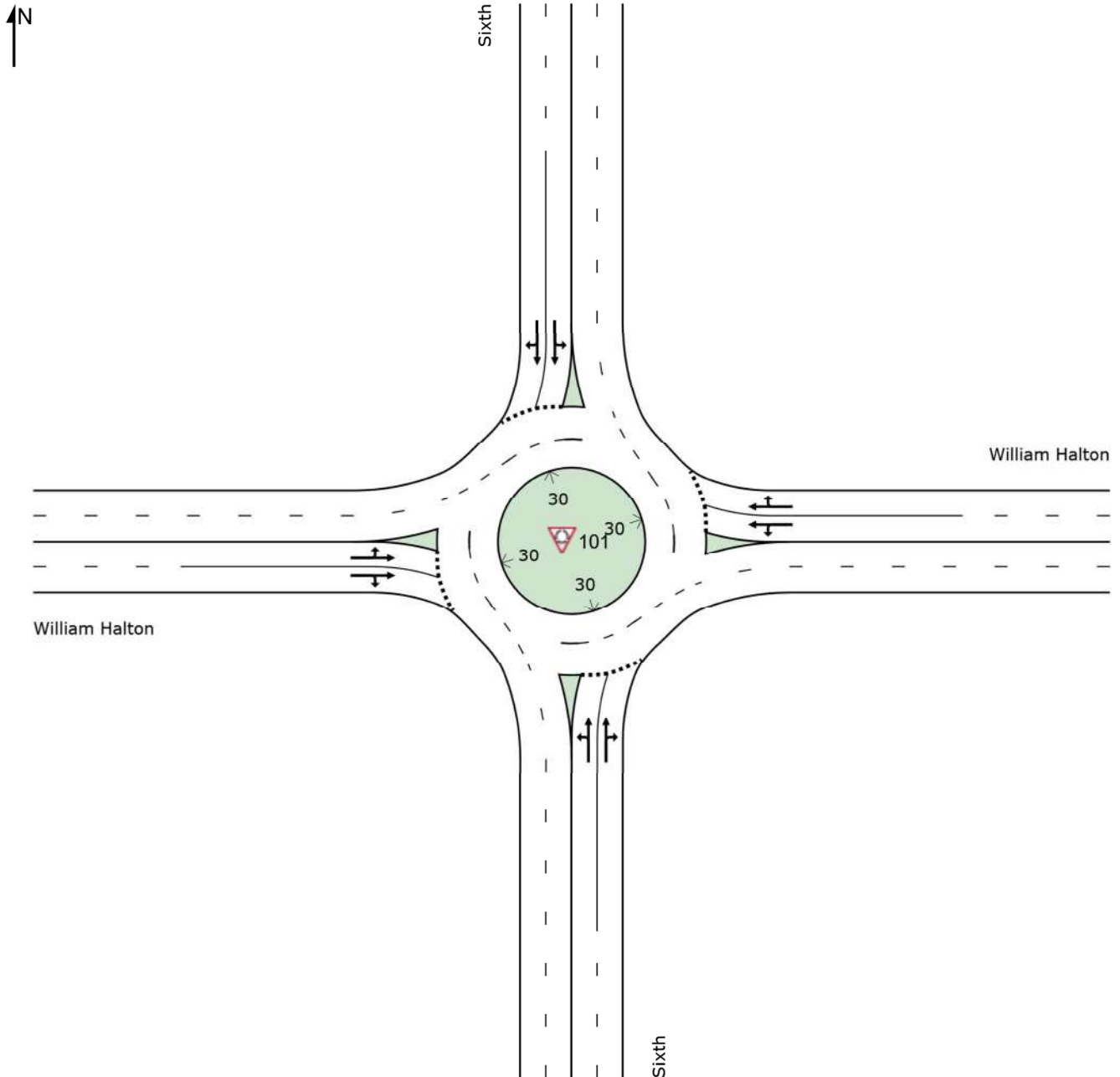
2030 Future Background AM
Neighbourhood 10

								
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑		
Traffic Volume (veh/h)	2100	116	0	2100	232	0		
Future Volume (veh/h)	2100	116	0	2100	232	0		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	2283	126	0	2283	252	0		
Adj No. of Lanes	2	1	1	2	1	1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	2650	1185	60	2650	289	258		
Arrive On Green	0.75	0.75	0.00	0.75	0.16	0.00		
Sat Flow, veh/h	3632	1583	143	3632	1774	1583		
Grp Volume(v), veh/h	2283	126	0	2283	252	0		
Grp Sat Flow(s),veh/h/ln	1770	1583	143	1770	1774	1583		
Q Serve(g_s), s	54.8	2.6	0.0	54.8	16.6	0.0		
Cycle Q Clear(g_c), s	54.8	2.6	0.0	54.8	16.6	0.0		
Prop In Lane		1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	2650	1185	60	2650	289	258		
V/C Ratio(X)	0.86	0.11	0.00	0.86	0.87	0.00		
Avail Cap(c_a), veh/h	2650	1185	60	2650	503	449		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	10.7	4.1	0.0	10.7	49.0	0.0		
Incr Delay (d2), s/veh	4.0	0.2	0.0	4.0	8.1	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	27.8	1.2	0.0	27.8	8.8	0.0		
LnGrp Delay(d),s/veh	14.7	4.3	0.0	14.7	57.1	0.0		
LnGrp LOS	B	A		B	E			
Approach Vol, veh/h	2409			2283	252			
Approach Delay, s/veh	14.1			14.7	57.1			
Approach LOS	B			B	E			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		94.9				94.9		25.1
Change Period (Y+Rc), s		* 5.1				* 5.1		5.5
Max Green Setting (Gmax), s		* 75				* 75		34.0
Max Q Clear Time (g_c+I1), s		56.8				56.8		18.6
Green Ext Time (p_c), s		17.0				16.8		0.9
Intersection Summary								
HCM 2010 Ctrl Delay			16.6					
HCM 2010 LOS			B					
Notes								

SITE LAYOUT

 Site: 101 [WH & 6th - 2024 AM FB]

New Site
Site Category: (None)
Roundabout



MOVEMENT SUMMARY

 Site: 101 [WH & 6th - 2030 AM FB]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Sixth												
1	L2	131	2.0	1.578	540.6	LOS F	142.9	1017.4	1.00	6.29	17.94	6.3
2	T1	1172	2.0	1.578	533.5	LOS F	200.3	1426.0	1.00	7.19	19.86	6.3
3	R2	103	2.0	1.578	532.7	LOS F	200.3	1426.0	1.00	7.75	21.05	6.3
Approach		1405	2.0	1.578	534.1	LOS F	200.3	1426.0	1.00	7.15	19.77	6.3
East: William Halton												
4	L2	23	2.0	1.567	525.4	LOS F	249.0	1772.5	1.00	9.07	24.26	6.5
5	T1	2211	2.0	1.567	518.9	LOS F	309.7	2205.2	1.00	9.77	25.49	6.5
6	R2	125	2.0	1.567	518.4	LOS F	309.7	2205.2	1.00	10.37	26.56	6.5
Approach		2359	2.0	1.567	519.0	LOS F	309.7	2205.2	1.00	9.79	25.54	6.5
North: Sixth												
7	L2	156	2.0	1.634	589.2	LOS F	171.0	1217.5	1.00	7.09	20.30	5.8
8	T1	1214	2.0	1.634	582.5	LOS F	235.7	1678.4	1.00	8.00	22.22	5.8
9	R2	217	2.0	1.634	581.8	LOS F	235.7	1678.4	1.00	8.65	23.59	5.8
Approach		1586	2.0	1.634	583.0	LOS F	235.7	1678.4	1.00	8.00	22.22	5.8
West: William Halton												
10	L2	203	2.0	1.563	521.8	LOS F	259.9	1850.2	1.00	9.27	24.21	6.5
11	T1	2211	2.0	1.563	515.4	LOS F	318.1	2264.7	1.00	9.98	25.41	6.5
12	R2	37	2.0	1.563	514.9	LOS F	318.1	2264.7	1.00	10.46	26.23	6.5
Approach		2451	2.0	1.563	515.9	LOS F	318.1	2264.7	1.00	9.93	25.33	6.5
All Vehicles		7801	2.0	1.634	533.7	LOS F	318.1	2264.7	1.00	8.99	23.76	6.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Organisation: CGH TRANSPORTATION | Processed: February 22, 2019 10:49:52 AM

Project: C:\Users\AndrewHarte\CGH TRANSPORTATION\CGH Working - Documents\Projects\2018-23 Mattamy Neighbourhood 10\DATA\Sidra WH & 6.sip8

Lanes, Volumes, Timings
6: Trafalgar Road & William Halton Parkway

2030 Future Background AM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	2142	101	10	2114	10	113	1855	10	10	1903	91
Future Volume (vph)	57	2142	101	10	2114	10	113	1855	10	10	1903	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	180.0		0.0	180.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	75.0			75.0			75.0			75.0		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.993			0.999			0.999			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5050	0	1770	5080	0	1770	3536	0	1770	3514	0
Flt Permitted	0.081			0.081			0.067			0.067		
Satd. Flow (perm)	151	5050	0	151	5080	0	125	3536	0	125	3514	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			1							
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		410.5			491.4			229.1			561.1	
Travel Time (s)		29.6			35.4			16.5			40.4	
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)	62	2328	110	11	2298	11	123	2016	11	11	2068	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	2438	0	11	2309	0	123	2027	0	11	2167	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		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		

Lanes, Volumes, Timings
6: Trafalgar Road & William Halton Parkway

2030 Future Background AM
Neighbourhood 10

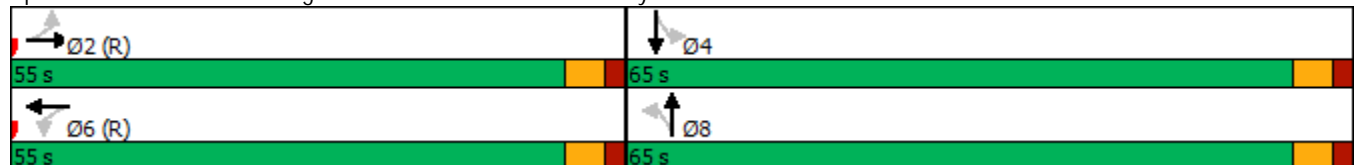


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	39.6	39.6		39.6	39.6		39.6	39.6		39.6	39.6	
Total Split (s)	55.0	55.0		55.0	55.0		65.0	65.0		65.0	65.0	
Total Split (%)	45.8%	45.8%		45.8%	45.8%		54.2%	54.2%		54.2%	54.2%	
Maximum Green (s)	49.4	49.4		49.4	49.4		59.4	59.4		59.4	59.4	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.7	3.7		3.7	3.7	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.9	1.9		1.9	1.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6		5.6	5.6		5.6	5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	27.0	27.0		27.0	27.0		27.0	27.0		27.0	27.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	49.4	49.4		49.4	49.4		59.4	59.4		59.4	59.4	
Actuated g/C Ratio	0.41	0.41		0.41	0.41		0.50	0.50		0.50	0.50	
v/c Ratio	1.00	1.17		0.18	1.10		2.02	1.16		0.18	1.25	
Control Delay	154.5	116.1		31.3	88.8		532.4	107.7		25.8	144.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	154.5	116.1		31.3	88.8		532.4	107.7		25.8	144.8	
LOS	F	F		C	F		F	F		C	F	
Approach Delay		117.1			88.5			132.0			144.2	
Approach LOS		F			F			F			F	

Intersection Summary





















Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 65 (54%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 2.02
 Intersection Signal Delay: 119.8
 Intersection LOS: F
 Intersection Capacity Utilization 133.5%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 6: Trafalgar Road & William Halton Parkway



HCM 2010 Signalized Intersection Summary
6: Trafalgar Road & William Halton Parkway

2030 Future Background AM
Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	2142	101	10	2114	10	113	1855	10	10	1903	91
Future Volume (veh/h)	57	2142	101	10	2114	10	113	1855	10	10	1903	91
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	62	2328	110	11	2298	11	123	2016	11	11	2068	99
Adj No. of Lanes	1	3	0	1	3	0	1	2	0	1	2	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	2049	96	60	2150	10	60	1787	10	60	1703	81
Arrive On Green	0.41	0.41	0.41	0.41	0.41	0.41	0.50	0.50	0.50	0.50	0.50	0.50
Sat Flow, veh/h	158	4978	234	139	5224	25	182	3609	20	209	3440	163
Grp Volume(v), veh/h	62	1580	858	11	1491	818	123	988	1039	11	1056	1111
Grp Sat Flow(s),veh/h/ln	158	1695	1822	139	1695	1858	182	1770	1859	209	1770	1834
Q Serve(g_s), s	0.0	49.4	49.4	0.0	49.4	49.4	0.0	59.4	59.4	0.0	59.4	59.4
Cycle Q Clear(g_c), s	49.4	49.4	49.4	49.4	49.4	49.4	59.4	59.4	59.4	59.4	59.4	59.4
Prop In Lane	1.00		0.13	1.00		0.01	1.00		0.01	1.00		0.09
Lane Grp Cap(c), veh/h	60	1396	750	60	1396	765	60	876	920	60	876	908
V/C Ratio(X)	1.03	1.13	1.14	0.18	1.07	1.07	2.05	1.13	1.13	0.18	1.21	1.22
Avail Cap(c_a), veh/h	60	1396	750	60	1396	765	60	876	920	60	876	908
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.0	35.3	35.3	60.0	35.3	35.3	60.0	30.3	30.3	60.0	30.3	30.3
Incr Delay (d2), s/veh	125.8	69.1	80.1	6.6	44.6	52.6	525.2	71.8	72.1	6.6	103.2	110.7
Initial Q Delay(d3),s/veh	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	36.5	41.5	0.5	31.7	36.5	10.7	46.4	48.8	0.5	54.1	57.9
LnGrp Delay(d),s/veh	186.4	104.4	115.4	66.6	79.9	87.9	585.2	102.1	102.4	66.6	133.5	141.0
LnGrp LOS	F	F	F	E	F	F	F	F	F	E	F	F
Approach Vol, veh/h		2500			2320			2150			2178	
Approach Delay, s/veh		110.2			82.7			129.9			137.0	
Approach LOS		F			F			F			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		55.0		65.0		55.0		65.0				
Change Period (Y+Rc), s		* 5.6		* 5.6		* 5.6		* 5.6				
Max Green Setting (Gmax), s		* 49		* 59		* 49		* 59				
Max Q Clear Time (g_c+I1), s		51.4		61.4		51.4		61.4				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				114.2								
HCM 2010 LOS				F								
Notes												

Lanes, Volumes, Timings
10: Sixth Line & Burnhamthorpe Road

2030 Future Background AM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	55	7	171	105	225	42	877	345	284	669	46
Future Volume (vph)	26	55	7	171	105	225	42	877	345	284	669	46
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	75.0		0.0	75.0		0.0	75.0		0.0	75.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	75.0			75.0			75.0			75.0		
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		0.984			0.898			0.958			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1833	0	1770	1673	0	1770	3391	0	1770	3504	0
Flt Permitted	0.197			0.714			0.363			0.086		
Satd. Flow (perm)	367	1833	0	1330	1673	0	676	3391	0	160	3504	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			116			64			11	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		1521.4			371.3			436.2			1085.8	
Travel Time (s)		109.5			26.7			31.4			78.2	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	28	59	7	182	112	239	45	933	367	302	712	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	66	0	182	351	0	45	1300	0	302	761	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	
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings
10: Sixth Line & Burnhamthorpe Road

2030 Future Background AM
Neighbourhood 10

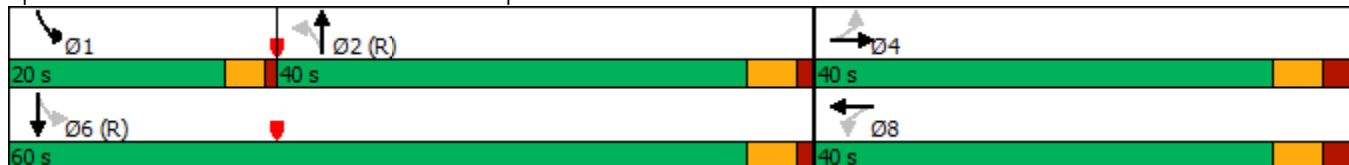


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	40.0	40.0		40.0	40.0		33.1	33.1		9.7	33.1	
Total Split (s)	40.0	40.0		40.0	40.0		40.0	40.0		20.0	60.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		40.0%	40.0%		20.0%	60.0%	
Maximum Green (s)	34.0	34.0		34.0	34.0		34.9	34.9		16.0	54.9	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.7	3.7		3.0	3.7	
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		5.1	5.1		4.0	5.1	
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		C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	27.0	27.0		27.0	27.0		21.0	21.0			21.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effect Green (s)	20.6	20.6		20.6	20.6		47.8	47.8		69.4	68.3	
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.48	0.48		0.69	0.68	
v/c Ratio	0.37	0.17		0.67	0.81		0.14	0.79		0.80	0.32	
Control Delay	45.3	28.0		47.2	38.5		21.0	27.7		38.8	7.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	45.3	28.0		47.2	38.5		21.0	27.7		38.8	7.6	
LOS	D	C		D	D		C	C		D	A	
Approach Delay		33.2			41.5			27.5			16.5	
Approach LOS		C			D			C			B	

Intersection Summary























Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 95
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 26.3
 Intersection LOS: C
 Intersection Capacity Utilization 85.2%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 10: Sixth Line & Burnhamthorpe Road



















HCM 2010 Signalized Intersection Summary
10: Sixth Line & Burnhamthorpe Road

2030 Future Background AM
Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	55	7	171	105	225	42	877	345	284	669	46
Future Volume (veh/h)	26	55	7	171	105	225	42	877	345	284	669	46
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	28	59	7	182	112	239	45	933	367	302	712	49
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	123	409	48	367	133	283	416	1220	477	341	2147	148
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.49	0.49	0.49	0.11	0.64	0.64
Sat Flow, veh/h	1026	1635	194	1330	531	1132	702	2489	972	1774	3360	231
Grp Volume(v), veh/h	28	0	66	182	0	351	45	661	639	302	375	386
Grp Sat Flow(s),veh/h/ln	1026	0	1829	1330	0	1663	702	1770	1691	1774	1770	1822
Q Serve(g_s), s	2.7	0.0	2.8	12.3	0.0	20.1	3.5	30.4	30.9	8.2	9.7	9.7
Cycle Q Clear(g_c), s	22.7	0.0	2.8	15.1	0.0	20.1	3.5	30.4	30.9	8.2	9.7	9.7
Prop In Lane	1.00		0.11	1.00		0.68	1.00		0.57	1.00		0.13
Lane Grp Cap(c), veh/h	123	0	457	367	0	416	416	868	829	341	1131	1164
V/C Ratio(X)	0.23	0.00	0.14	0.50	0.00	0.84	0.11	0.76	0.77	0.89	0.33	0.33
Avail Cap(c_a), veh/h	215	0	622	487	0	565	416	868	829	432	1131	1164
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.5	0.0	29.2	35.1	0.0	35.6	13.9	20.7	20.9	20.3	8.3	8.3
Incr Delay (d2), s/veh	0.9	0.0	0.1	1.0	0.0	8.5	0.5	6.3	6.8	16.3	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	1.4	4.7	0.0	10.1	0.7	16.2	15.9	9.7	4.9	5.1
LnGrp Delay(d),s/veh	47.4	0.0	29.3	36.1	0.0	44.1	14.4	27.0	27.7	36.7	9.1	9.0
LnGrp LOS	D		C	D		D	B	C	C	D	A	A
Approach Vol, veh/h		94			533			1345			1063	
Approach Delay, s/veh		34.7			41.4			26.9			16.9	
Approach LOS		C			D			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	14.9	54.1		31.0		69.0		31.0				
Change Period (Y+Rc), s	4.0	* 5.1		6.0		* 5.1		6.0				
Max Green Setting (Gmax), s	16.0	* 35		34.0		* 55		34.0				
Max Q Clear Time (g_c+I1), s	10.2	32.9		24.7		11.7		22.1				
Green Ext Time (p_c), s	0.7	1.6		0.3		6.9		2.8				
Intersection Summary												
HCM 2010 Ctrl Delay				26.2								
HCM 2010 LOS				C								
Notes												

Lanes, Volumes, Timings
12: Post Road & Burnhamthorpe Road

2030 Future Background AM
Neighbourhood 10

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	761	3	12	549	5	8	0	36	15	0	6
Future Volume (vph)	2	761	3	12	549	5	8	0	36	15	0	6
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					0.999			0.890			0.959	
Flt Protected					0.999			0.991			0.966	
Satd. Flow (prot)	0	1863	0	0	1859	0	0	1643	0	0	1726	0
Flt Permitted					0.999			0.991			0.966	
Satd. Flow (perm)	0	1863	0	0	1859	0	0	1643	0	0	1726	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		371.3			874.7			135.5			130.1	
Travel Time (s)		26.7			63.0			9.8			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)	2	827	3	13	597	5	9	0	39	16	0	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	832	0	0	615	0	0	48	0	0	23	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			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	51.5%					ICU Level of Service A						
Analysis Period (min)	15											

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	761	3	12	549	5	8	0	36	15	0	6
Future Vol, veh/h	2	761	3	12	549	5	8	0	36	15	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	827	3	13	597	5	9	0	39	16	0	7

























Major/Minor	Major1		Major2		Minor1			Minor2				
Conflicting Flow All	602	0	0	830	0	0	1462	1461	829	1478	1460	600
Stage 1	-	-	-	-	-	-	833	833	-	626	626	-
Stage 2	-	-	-	-	-	-	629	628	-	852	834	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	975	-	-	802	-	-	107	129	370	104	129	501
Stage 1	-	-	-	-	-	-	363	384	-	472	477	-
Stage 2	-	-	-	-	-	-	470	476	-	354	383	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	975	-	-	802	-	-	103	125	370	91	125	501
Mov Cap-2 Maneuver	-	-	-	-	-	-	103	125	-	91	125	-
Stage 1	-	-	-	-	-	-	362	382	-	470	466	-
Stage 2	-	-	-	-	-	-	453	465	-	315	381	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0		0.2		22.7		42.3	
HCM LOS					C		E	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	251	975	-	-	802	-	-	119
HCM Lane V/C Ratio	0.191	0.002	-	-	0.016	-	-	0.192
HCM Control Delay (s)	22.7	8.7	0	-	9.6	0	-	42.3
HCM Lane LOS	C	A	A	-	A	A	-	E
HCM 95th %tile Q(veh)	0.7	0	-	-	0.1	-	-	0.7

Lanes, Volumes, Timings
13: Trafalgar Road & Burnhamthorpe Road

2030 Future Background AM
Neighbourhood 10

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	502	183	73	270	109	153	1614	145	316	1450	122
Future Volume (vph)	95	502	183	73	270	109	153	1614	145	316	1450	122
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		75.0	15.0		0.0	180.0		0.0	180.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	70.0			45.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850			0.850			0.850		0.988	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3497	0
Flt Permitted	0.581			0.116			0.086			0.950		
Satd. Flow (perm)	1082	1863	1583	216	1863	1583	160	3539	1583	1770	3497	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			150			111			150		10	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		874.7			414.4			579.3			229.1	
Travel Time (s)		63.0			29.8			41.7			16.5	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	97	512	187	74	276	111	156	1647	148	322	1480	124
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	512	187	74	276	111	156	1647	148	322	1604	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	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
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	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2			

Lanes, Volumes, Timings
13: Trafalgar Road & Burnhamthorpe Road

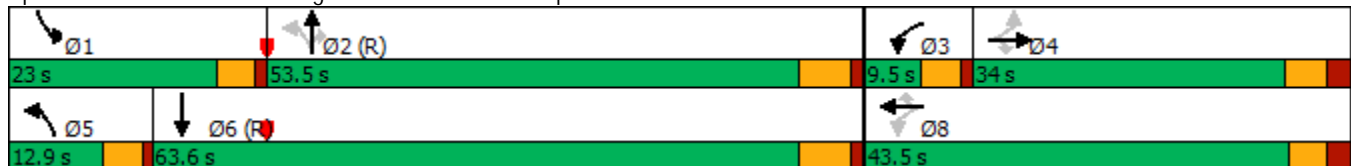
2030 Future Background AM
Neighbourhood 10

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	10.0	5.0	20.0	20.0	7.0	20.0	
Minimum Split (s)	24.0	24.0	24.0	9.5	23.8	23.8	9.5	26.0	26.0	11.5	26.0	
Total Split (s)	34.0	34.0	34.0	9.5	43.5	43.5	12.9	53.5	53.5	23.0	63.6	
Total Split (%)	28.3%	28.3%	28.3%	7.9%	36.3%	36.3%	10.8%	44.6%	44.6%	19.2%	53.0%	
Maximum Green (s)	28.0	28.0	28.0	5.0	37.7	37.7	8.4	47.5	47.5	18.5	57.6	
Yellow Time (s)	3.7	3.7	3.7	3.5	3.5	3.5	3.5	4.6	4.6	3.5	4.6	
All-Red Time (s)	2.3	2.3	2.3	1.0	2.3	2.3	1.0	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	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	4.5	5.8	5.8	4.5	6.0	6.0	4.5	6.0	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Act Effect Green (s)	29.9	29.9	29.9	39.0	37.7	37.7	57.4	47.5	47.5	18.5	57.6	
Actuated g/C Ratio	0.25	0.25	0.25	0.32	0.31	0.31	0.48	0.40	0.40	0.15	0.48	
v/c Ratio	0.36	1.10	0.37	0.55	0.47	0.19	0.83	1.18	0.21	1.18	0.95	
Control Delay	43.0	115.9	12.0	45.2	36.4	6.3	58.4	121.0	4.3	157.9	43.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	43.0	115.9	12.0	45.2	36.4	6.3	58.4	121.0	4.3	157.9	43.5	
LOS	D	F	B	D	D	A	E	F	A	F	D	
Approach Delay		82.6			30.6			107.2			62.6	
Approach LOS		F			C			F			E	

Intersection Summary

























Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.18
 Intersection Signal Delay: 79.8
 Intersection LOS: E
 Intersection Capacity Utilization 110.2%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 13: Trafalgar Road & Burnhamthorpe Road



HCM 2010 Signalized Intersection Summary
13: Trafalgar Road & Burnhamthorpe Road

2030 Future Background AM
Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	502	183	73	270	109	153	1614	145	316	1450	122
Future Volume (veh/h)	95	502	183	73	270	109	153	1614	145	316	1450	122
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	97	512	187	74	276	111	156	1647	148	322	1480	124
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	251	435	369	134	582	495	199	1401	627	273	1594	133
Arrive On Green	0.23	0.23	0.23	0.04	0.31	0.31	0.07	0.40	0.40	0.15	0.48	0.48
Sat Flow, veh/h	992	1863	1583	1774	1863	1583	1774	3539	1583	1774	3308	276
Grp Volume(v), veh/h	97	512	187	74	276	111	156	1647	148	322	788	816
Grp Sat Flow(s),veh/h/ln	992	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1814
Q Serve(g_s), s	10.5	28.0	12.3	3.7	14.4	6.2	6.2	47.5	7.5	18.5	49.9	50.9
Cycle Q Clear(g_c), s	15.3	28.0	12.3	3.7	14.4	6.2	6.2	47.5	7.5	18.5	49.9	50.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	251	435	369	134	582	495	199	1401	627	273	853	874
V/C Ratio(X)	0.39	1.18	0.51	0.55	0.47	0.22	0.78	1.18	0.24	1.18	0.92	0.93
Avail Cap(c_a), veh/h	251	435	369	134	585	497	202	1401	627	273	853	874
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.3	46.0	40.0	35.2	33.3	30.5	27.9	36.2	24.2	50.8	29.0	29.3
Incr Delay (d2), s/veh	1.0	101.7	1.1	4.8	0.6	0.2	17.7	86.9	0.9	111.2	17.0	18.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	26.6	5.5	2.0	7.5	2.7	4.0	40.1	3.4	17.5	28.3	29.8
LnGrp Delay(d),s/veh	44.3	147.7	41.1	40.0	33.9	30.7	45.6	123.1	25.0	161.9	46.1	47.4
LnGrp LOS	D	F	D	D	C	C	D	F	C	F	D	D
Approach Vol, veh/h		796			461			1951			1926	
Approach Delay, s/veh		110.0			34.1			109.5			66.0	
Approach LOS		F			C			F			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	23.0	53.5	9.5	34.0	12.7	63.8		43.5				
Change Period (Y+Rc), s	4.5	* 6	4.5	6.0	4.5	* 6		* 6				
Max Green Setting (Gmax), s	18.5	* 48	5.0	28.0	8.4	* 58		* 38				
Max Q Clear Time (g_c+I1), s	20.5	49.5	5.7	30.0	8.2	52.9		16.4				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	4.0		2.4				
Intersection Summary												
HCM 2010 Ctrl Delay			86.5									
HCM 2010 LOS			F									
Notes												

Lanes, Volumes, Timings
14: Sixth Line & Settlers Road

2030 Future Background AM
Neighbourhood 10



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	80	20	1117	27	7	805
Future Volume (vph)	80	20	1117	27	7	805
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	75.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				75.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.997			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3529	0	1770	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3529	0	1770	3539
Link Speed (k/h)	50		50			50
Link Distance (m)	124.5		437.1			436.2
Travel Time (s)	9.0		31.5			31.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	22	1214	29	8	875
Shared Lane Traffic (%)						
Lane Group Flow (vph)	87	22	1243	0	8	875
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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		15	25	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	42.8%
ICU Level of Service	A
Analysis Period (min)	15

Intersection						
Int Delay, s/veh	7.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↵	↵	↕↕		↵	↕↕
Traffic Vol, veh/h	80	20	1117	27	7	805
Future Vol, veh/h	80	20	1117	27	7	805
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	750	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	87	22	1214	29	8	875

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1683	622	0	0	1243
Stage 1	1229	-	-	-	-
Stage 2	454	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	~ 85	430	-	-	556
Stage 1	239	-	-	-	-
Stage 2	606	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	~ 84	430	-	-	556
Mov Cap-2 Maneuver	~ 84	-	-	-	-
Stage 1	236	-	-	-	-
Stage 2	606	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	160.6	0	0.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	84	430	556	-
HCM Lane V/C Ratio	-	-	1.035	0.051	0.014	-
HCM Control Delay (s)	-	-	197.3	13.8	11.6	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	5.9	0.2	0	-

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lanes, Volumes, Timings
15: Sixth Line & Marvin Avenue

2030 Future Background AM
Neighbourhood 10



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	131	45	1094	44	16	938
Future Volume (vph)	131	45	1094	44	16	938
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	75.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				75.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.994			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3518	0	1770	3539
Flt Permitted	0.950				0.194	
Satd. Flow (perm)	1770	1583	3518	0	361	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		29	6			
Link Speed (k/h)	50		50			50
Link Distance (m)	174.1		499.3			437.1
Travel Time (s)	12.5		35.9			31.5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	142	49	1189	48	17	1020
Shared Lane Traffic (%)						
Lane Group Flow (vph)	142	49	1237	0	17	1020
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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		15	25	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	

Lanes, Volumes, Timings
15: Sixth Line & Marvin Avenue

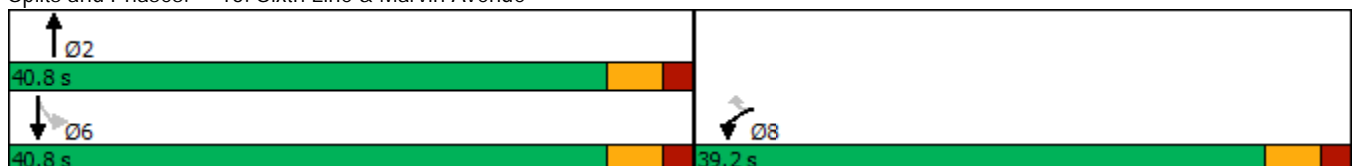


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	20.0		20.0	20.0
Minimum Split (s)	39.2	39.2	33.2		33.2	33.2
Total Split (s)	39.2	39.2	40.8		40.8	40.8
Total Split (%)	49.0%	49.0%	51.0%		51.0%	51.0%
Maximum Green (s)	34.0	34.0	35.6		35.6	35.6
Yellow Time (s)	3.3	3.3	3.3		3.3	3.3
All-Red Time (s)	1.9	1.9	1.9		1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.2	5.2	5.2		5.2	5.2
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		Max	Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	27.0	27.0	21.0		21.0	21.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effect Green (s)	10.9	10.9	41.5		41.5	41.5
Actuated g/C Ratio	0.19	0.19	0.71		0.71	0.71
v/c Ratio	0.43	0.15	0.50		0.07	0.41
Control Delay	25.3	12.4	6.3		5.4	5.6
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	25.3	12.4	6.3		5.4	5.6
LOS	C	B	A		A	A
Approach Delay	22.0		6.3			5.6
Approach LOS	C		A			A

Intersection Summary












Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	58.5
Natural Cycle:	75
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.50
Intersection Signal Delay:	7.2
Intersection LOS:	A
Intersection Capacity Utilization:	48.6%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 15: Sixth Line & Marvin Avenue














HCM 2010 Signalized Intersection Summary
 15: Sixth Line & Marvin Avenue

2030 Future Background AM
 Neighbourhood 10

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Traffic Volume (veh/h)	131	45	1094	44	16	938		
Future Volume (veh/h)	131	45	1094	44	16	938		
Number	3	18	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863		
Adj Flow Rate, veh/h	142	49	1189	48	17	1020		
Adj No. of Lanes	1	1	2	0	1	2		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	303	270	2225	90	334	2271		
Arrive On Green	0.17	0.17	0.64	0.64	0.64	0.64		
Sat Flow, veh/h	1774	1583	3561	140	448	3632		
Grp Volume(v), veh/h	142	49	606	631	17	1020		
Grp Sat Flow(s),veh/h/ln	1774	1583	1770	1838	448	1770		
Q Serve(g_s), s	4.0	1.5	10.4	10.4	1.2	8.0		
Cycle Q Clear(g_c), s	4.0	1.5	10.4	10.4	11.6	8.0		
Prop In Lane	1.00	1.00		0.08	1.00			
Lane Grp Cap(c), veh/h	303	270	1136	1180	334	2271		
V/C Ratio(X)	0.47	0.18	0.53	0.53	0.05	0.45		
Avail Cap(c_a), veh/h	1087	970	1136	1180	334	2271		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	20.7	19.7	5.4	5.4	8.6	5.0		
Incr Delay (d2), s/veh	1.1	0.3	1.8	1.7	0.3	0.6		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.0	0.7	5.5	5.6	0.2	4.0		
LnGrp Delay(d),s/veh	21.9	20.0	7.2	7.2	8.9	5.6		
LnGrp LOS	C	B	A	A	A	A		
Approach Vol, veh/h	191		1237			1037		
Approach Delay, s/veh	21.4		7.2			5.7		
Approach LOS	C		A			A		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		40.8				40.8		14.7
Change Period (Y+Rc), s		* 5.2				* 5.2		5.2
Max Green Setting (Gmax), s		* 36				* 36		34.0
Max Q Clear Time (g_c+I1), s		12.4				13.6		6.0
Green Ext Time (p_c), s		11.0				9.4		0.8
Intersection Summary								
HCM 2010 Ctrl Delay			7.7					
HCM 2010 LOS			A					
Notes								

Lanes, Volumes, Timings
16: Sixth Line & Carnegie Drive

2030 Future Background AM
Neighbourhood 10

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	2	2	1138	1	1	1069
Future Volume (vph)	2	2	1138	1	1	1069
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	75.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				75.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3539	0	1770	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3539	0	1770	3539
Link Speed (k/h)	50		50			50
Link Distance (m)	228.0		367.6			499.3
Travel Time (s)	16.4		26.5			35.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	2	1237	1	1	1162
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	2	1238	0	1	1162
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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		15	25	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	41.5%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↗	↕↔		↙	↕↕
Traffic Vol, veh/h	2	2	1138	1	1	1069
Future Vol, veh/h	2	2	1138	1	1	1069
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	750	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	2	1237	1	1	1162
























Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1821	619	0	0	1238
Stage 1	1238	-	-	-	-
Stage 2	583	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	69	432	-	-	558
Stage 1	237	-	-	-	-
Stage 2	521	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	69	432	-	-	558
Mov Cap-2 Maneuver	69	-	-	-	-
Stage 1	237	-	-	-	-
Stage 2	521	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	36.2	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	69	432	558	-
HCM Lane V/C Ratio	-	-	0.032	0.005	0.002	-
HCM Control Delay (s)	-	-	58.9	13.4	11.5	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	0.1	0	0	-

Lanes, Volumes, Timings
17: Sixth Line & Dundas Street

2030 Future Background AM
Neighbourhood 10

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	2296	226	168	1061	210	180	135	336	555	187	128
Future Volume (vph)	72	2296	226	168	1061	210	180	135	336	555	187	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		80.0	35.0		0.0	80.0		0.0	45.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	100.0			75.0			100.0			45.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95
Frt			0.850		0.975				0.850		0.939	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3451	0	1770	1863	1583	1770	3323	0
Flt Permitted	0.130			0.054			0.497			0.638		
Satd. Flow (perm)	242	3539	1583	101	3451	0	926	1863	1583	1188	3323	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			127		28				106		127	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		409.7			323.7			341.1			111.8	
Travel Time (s)		29.5			23.3			24.6			8.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	74	2367	233	173	1094	216	186	139	346	572	193	132
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	2367	233	173	1310	0	186	139	346	572	325	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	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6			8		8	4		

Lanes, Volumes, Timings
17: Sixth Line & Dundas Street

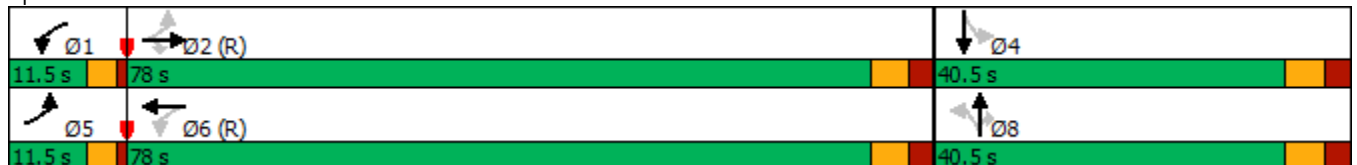
2030 Future Background AM
Neighbourhood 10

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	11.5	37.2	37.2	11.5	34.2		40.5	40.5	40.5	40.5	40.5	
Total Split (s)	11.5	78.0	78.0	11.5	78.0		40.5	40.5	40.5	40.5	40.5	
Total Split (%)	8.8%	60.0%	60.0%	8.8%	60.0%		31.2%	31.2%	31.2%	31.2%	31.2%	
Maximum Green (s)	7.5	71.8	71.8	7.5	71.8		34.0	34.0	34.0	34.0	34.0	
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5		2.8	2.8	2.8	2.8	2.8	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.2	6.2	4.0	6.2		6.5	6.5	6.5	6.5	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	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	C-Max	C-Max	None	C-Max		Max	Max	Max	Max	Max	
Walk Time (s)		7.0	7.0		7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		24.0	24.0		21.0		27.0	27.0	27.0	27.0	27.0	
Pedestrian Calls (#/hr)		0	0		0		0	0	0	0	0	
Act Effct Green (s)	81.3	71.8	71.8	82.4	74.2		34.0	34.0	34.0	34.0	34.0	
Actuated g/C Ratio	0.63	0.55	0.55	0.63	0.57		0.26	0.26	0.26	0.26	0.26	
v/c Ratio	0.31	1.21	0.25	1.08	0.66		0.77	0.29	0.70	1.85	0.34	
Control Delay	11.6	128.6	7.3	125.9	21.3		66.2	40.3	38.4	421.6	24.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	11.6	128.6	7.3	125.9	21.3		66.2	40.3	38.4	421.6	24.2	
LOS	B	F	A	F	C		E	D	D	F	C	
Approach Delay		114.8			33.5			46.5			277.6	
Approach LOS		F			C			D			F	

Intersection Summary
























Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.85
 Intersection Signal Delay: 111.2
 Intersection LOS: F
 Intersection Capacity Utilization 131.2%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 17: Sixth Line & Dundas Street



HCM 2010 Signalized Intersection Summary
 17: Sixth Line & Dundas Street

2030 Future Background AM
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	2296	226	168	1061	210	180	135	336	555	187	128
Future Volume (veh/h)	72	2296	226	168	1061	210	180	135	336	555	187	128
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	74	2367	233	173	1094	216	186	139	346	572	193	132
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	2	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	269	1955	874	158	1652	325	245	487	414	239	538	350
Arrive On Green	0.05	0.55	0.55	0.06	0.56	0.56	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1774	3539	1583	1774	2950	580	1051	1863	1583	907	2057	1339
Grp Volume(v), veh/h	74	2367	233	173	655	655	186	139	346	572	165	160
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1760	1051	1863	1583	907	1770	1626
Q Serve(g_s), s	2.2	71.8	10.0	7.5	33.6	33.9	22.9	7.7	26.8	26.3	9.8	10.5
Cycle Q Clear(g_c), s	2.2	71.8	10.0	7.5	33.6	33.9	33.4	7.7	26.8	34.0	9.8	10.5
Prop In Lane	1.00		1.00	1.00		0.33	1.00		1.00	1.00		0.82
Lane Grp Cap(c), veh/h	269	1955	874	158	991	986	245	487	414	239	463	425
V/C Ratio(X)	0.27	1.21	0.27	1.10	0.66	0.67	0.76	0.29	0.84	2.40	0.36	0.38
Avail Cap(c_a), veh/h	283	1955	874	158	991	986	245	487	414	239	463	425
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.8	29.1	15.3	42.1	20.0	20.1	53.0	38.3	45.4	54.9	39.1	39.3
Incr Delay (d2), s/veh	0.5	99.9	0.7	99.9	3.5	3.5	19.5	1.5	17.8	641.6	2.1	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	61.9	4.6	10.0	17.3	17.4	8.0	4.2	13.8	51.1	5.1	5.0
LnGrp Delay(d),s/veh	16.3	129.0	16.0	142.1	23.4	23.6	72.5	39.8	63.2	696.5	41.2	41.9
LnGrp LOS	B	F	B	F	C	C	E	D	E	F	D	D
Approach Vol, veh/h		2674			1483			671			897	
Approach Delay, s/veh		116.1			37.3			60.9			459.2	
Approach LOS		F			D			E			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.5	78.0		40.5	10.5	79.0		40.5				
Change Period (Y+Rc), s	4.0	* 6.2		6.5	4.0	* 6.2		6.5				
Max Green Setting (Gmax), s	7.5	* 72		34.0	7.5	* 72		34.0				
Max Q Clear Time (g_c+I1), s	9.5	73.8		36.0	4.2	35.9		35.4				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.1	14.7		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay	143.0											
HCM 2010 LOS	F											
Notes												

Lanes, Volumes, Timings
19: Sixth Line & Threshing Mills Boulevard

2030 Future Background AM
Neighbourhood 10



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	9	7	1088	3	2	1086
Future Volume (vph)	9	7	1088	3	2	1086
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	75.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				75.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3539	0	1770	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3539	0	1770	3539
Link Speed (k/h)	50		50			50
Link Distance (m)	256.7		277.3			367.6
Travel Time (s)	18.5		20.0			26.5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	8	1183	3	2	1180
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	8	1186	0	2	1180
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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		15	25	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	40.2%
ICU Level of Service	A
Analysis Period (min)	15

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↵	↶	↕↶		↵	↕↕
Traffic Vol, veh/h	9	7	1088	3	2	1086
Future Vol, veh/h	9	7	1088	3	2	1086
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	750	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	8	1183	3	2	1180

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1779	593	0	0	1186
Stage 1	1185	-	-	-	-
Stage 2	594	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	73	449	-	-	585
Stage 1	253	-	-	-	-
Stage 2	514	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	73	449	-	-	585
Mov Cap-2 Maneuver	73	-	-	-	-
Stage 1	252	-	-	-	-
Stage 2	514	-	-	-	-














Approach	WB	NB	SB
HCM Control Delay, s	40.5	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	73	449	585	-
HCM Lane V/C Ratio	-	-	0.134	0.017	0.004	-
HCM Control Delay (s)	-	-	61.8	13.2	11.2	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	0.4	0.1	0	-

Lanes, Volumes, Timings
14: Sixth Line & Settlers Road

2030 Future Background AM (Mitigation)

Neighbourhood 10

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	80	20	1117	27	7	805
Future Volume (vph)	80	20	1117	27	7	805
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	75.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				75.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.997			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3529	0	1770	3539
Flt Permitted	0.950				0.198	
Satd. Flow (perm)	1770	1583	3529	0	369	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		22	4			
Link Speed (k/h)	50		50			50
Link Distance (m)	124.5		437.1			436.2
Travel Time (s)	9.0		31.5			31.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	22	1214	29	8	875
Shared Lane Traffic (%)						
Lane Group Flow (vph)	87	22	1243	0	8	875
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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		15	25	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	

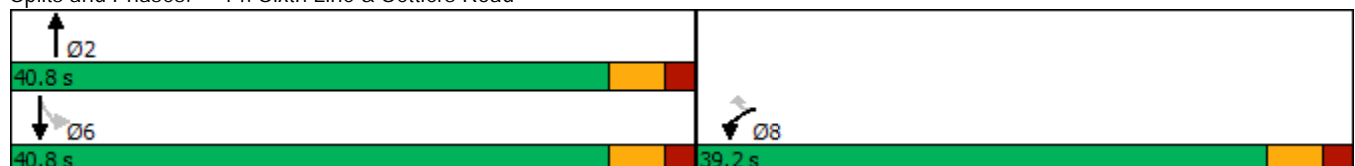













Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	20.0		20.0	20.0
Minimum Split (s)	39.2	39.2	33.2		33.2	33.2
Total Split (s)	39.2	39.2	40.8		40.8	40.8
Total Split (%)	49.0%	49.0%	51.0%		51.0%	51.0%
Maximum Green (s)	34.0	34.0	35.6		35.6	35.6
Yellow Time (s)	3.3	3.3	3.3		3.3	3.3
All-Red Time (s)	1.9	1.9	1.9		1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.2	5.2	5.2		5.2	5.2
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		Max	Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	27.0	27.0	21.0		21.0	21.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effect Green (s)	10.2	10.2	45.6		45.6	45.6
Actuated g/C Ratio	0.17	0.17	0.74		0.74	0.74
v/c Ratio	0.30	0.08	0.48		0.03	0.33
Control Delay	25.3	10.2	5.4		4.1	4.5
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	25.3	10.2	5.4		4.1	4.5
LOS	C	B	A		A	A
Approach Delay	22.3		5.4			4.5
Approach LOS	C		A			A

Intersection Summary

Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	61.8
Natural Cycle:	75
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.48
Intersection Signal Delay:	5.9
Intersection LOS:	A
Intersection Capacity Utilization:	48.7%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 14: Sixth Line & Settlers Road



								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Traffic Volume (veh/h)	80	20	1117	27	7	805		
Future Volume (veh/h)	80	20	1117	27	7	805		
Number	3	18	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863		
Adj Flow Rate, veh/h	87	22	1214	29	8	875		
Adj No. of Lanes	1	1	2	0	1	2		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	264	236	2327	56	347	2331		
Arrive On Green	0.15	0.15	0.66	0.66	0.66	0.66		
Sat Flow, veh/h	1774	1583	3626	84	446	3632		
Grp Volume(v), veh/h	87	22	608	635	8	875		
Grp Sat Flow(s),veh/h/ln	1774	1583	1770	1848	446	1770		
Q Serve(g_s), s	2.4	0.6	9.7	9.7	0.5	6.1		
Cycle Q Clear(g_c), s	2.4	0.6	9.7	9.7	10.2	6.1		
Prop In Lane	1.00	1.00		0.05	1.00			
Lane Grp Cap(c), veh/h	264	236	1165	1217	347	2331		
V/C Ratio(X)	0.33	0.09	0.52	0.52	0.02	0.38		
Avail Cap(c_a), veh/h	1116	996	1165	1217	347	2331		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	20.6	19.8	4.8	4.8	7.4	4.2		
Incr Delay (d2), s/veh	0.7	0.2	1.7	1.6	0.1	0.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.2	0.3	5.1	5.3	0.1	3.1		
LnGrp Delay(d),s/veh	21.3	20.0	6.5	6.4	7.6	4.6		
LnGrp LOS	C	C	A	A	A	A		
Approach Vol, veh/h	109		1243			883		
Approach Delay, s/veh	21.0		6.4			4.7		
Approach LOS	C		A			A		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		40.8				40.8		13.3
Change Period (Y+Rc), s		* 5.2				* 5.2		5.2
Max Green Setting (Gmax), s		* 36				* 36		34.0
Max Q Clear Time (g_c+I1), s		11.7				12.2		4.4
Green Ext Time (p_c), s		11.2				7.9		0.4
Intersection Summary								
HCM 2010 Ctrl Delay			6.5					
HCM 2010 LOS			A					
Notes								

Lanes, Volumes, Timings
1: Neyagawa Boulevard & William Halton Parkway

2030 Future Background PM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	2100	66	514	2100	39	32	229	325	29	566	31
Future Volume (vph)	31	2100	66	514	2100	39	32	229	325	29	566	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	3433	5085	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.066			0.950			0.222			0.577		
Satd. Flow (perm)	123	5085	1583	3433	5085	1583	414	3539	1583	1075	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			62			41			29			62
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		433.0			261.8			285.2			280.3	
Travel Time (s)		26.0			15.7			17.1			16.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	33	2234	70	547	2234	41	34	244	346	31	602	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	2234	70	547	2234	41	34	244	346	31	602	33
Enter Blocked Intersection	No	No	No	No	No	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	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	Perm	NA	Perm	Prot	NA	Perm	Perm	NA	pm+ov	Perm	NA	Perm
Protected Phases		2		1	6			8	1		4	
Permitted Phases	2		2			6	8		8	4		4

Lanes, Volumes, Timings
1: Neyagawa Boulevard & William Halton Parkway

2030 Future Background PM
Neighbourhood 10

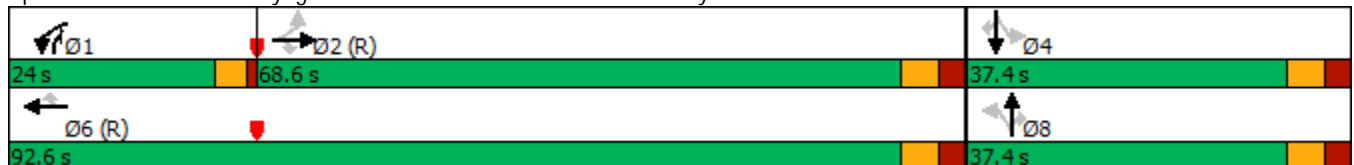


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2	2	1	6	6	8	8	1	4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	15.0	15.0	7.0	15.0	15.0	15.0
Minimum Split (s)	16.4	16.4	16.4	11.0	40.4	40.4	37.4	37.4	11.0	37.4	37.4	37.4
Total Split (s)	68.6	68.6	68.6	24.0	92.6	92.6	37.4	37.4	24.0	37.4	37.4	37.4
Total Split (%)	52.8%	52.8%	52.8%	18.5%	71.2%	71.2%	28.8%	28.8%	18.5%	28.8%	28.8%	28.8%
Maximum Green (s)	62.2	62.2	62.2	20.0	86.2	86.2	31.0	31.0	20.0	31.0	31.0	31.0
Yellow Time (s)	3.7	3.7	3.7	3.0	3.7	3.7	3.7	3.7	3.0	3.7	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	1.0	2.7	2.7	2.7	2.7	1.0	2.7	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	4.0	6.4	6.4	6.4	6.4	4.0	6.4	6.4	6.4
Lead/Lag	Lag	Lag	Lag	Lead						Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	None	C-Max	C-Max	Max	Max	None	Max	Max	Max
Walk Time (s)							7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)							24.0	24.0		24.0	24.0	24.0
Pedestrian Calls (#/hr)							0	0		0	0	0
Act Effect Green (s)	62.2	62.2	62.2	20.0	86.2	86.2	31.0	31.0	57.4	31.0	31.0	31.0
Actuated g/C Ratio	0.48	0.48	0.48	0.15	0.66	0.66	0.24	0.24	0.44	0.24	0.24	0.24
v/c Ratio	0.57	0.92	0.09	1.04	0.66	0.04	0.35	0.29	0.48	0.12	0.71	0.08
Control Delay	66.1	38.9	5.6	101.8	14.4	2.3	52.8	41.6	26.2	40.5	50.9	2.6
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	66.1	38.9	5.6	101.8	14.4	2.3	52.8	41.6	26.2	40.5	50.9	2.6
LOS	E	D	A	F	B	A	D	D	C	D	D	A
Approach Delay		38.3			31.1			33.7			48.1	
Approach LOS		D			C			C			D	

Intersection Summary
































Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 63 (48%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.04
 Intersection Signal Delay: 35.7
 Intersection LOS: D
 Intersection Capacity Utilization 95.8%
 ICU Level of Service F
 Analysis Period (min) 15

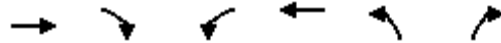
Splits and Phases: 1: Neyagawa Boulevard & William Halton Parkway



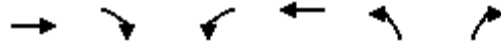
HCM 2010 Signalized Intersection Summary
 1: Neyagawa Boulevard & William Halton Parkway

2030 Future Background PM
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  			 			 	
Traffic Volume (veh/h)	31	2100	66	514	2100	39	32	229	325	29	566	31
Future Volume (veh/h)	31	2100	66	514	2100	39	32	229	325	29	566	31
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	33	2234	70	547	2234	41	34	244	346	31	602	33
Adj No. of Lanes	1	3	1	2	3	1	1	2	1	1	2	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	121	2433	758	529	3372	1050	120	844	621	205	844	378
Arrive On Green	0.48	0.48	0.48	0.15	0.66	0.66	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	164	5085	1583	3442	5085	1583	789	3539	1583	823	3539	1583
Grp Volume(v), veh/h	33	2234	70	547	2234	41	34	244	346	31	602	33
Grp Sat Flow(s),veh/h/ln	164	1695	1583	1721	1695	1583	789	1770	1583	823	1770	1583
Q Serve(g_s), s	19.8	53.1	3.1	20.0	34.3	1.2	5.4	7.3	22.1	4.2	20.3	2.1
Cycle Q Clear(g_c), s	30.1	53.1	3.1	20.0	34.3	1.2	25.7	7.3	22.1	11.5	20.3	2.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	121	2433	758	529	3372	1050	120	844	621	205	844	378
V/C Ratio(X)	0.27	0.92	0.09	1.03	0.66	0.04	0.28	0.29	0.56	0.15	0.71	0.09
Avail Cap(c_a), veh/h	121	2433	758	529	3372	1050	120	844	621	205	844	378
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.4	31.5	18.5	55.0	13.2	7.6	57.2	40.5	30.7	45.2	45.4	38.5
Incr Delay (d2), s/veh	5.5	7.0	0.2	47.9	1.0	0.1	5.8	0.9	3.6	1.6	5.1	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	26.4	1.4	13.0	16.3	0.5	1.4	3.7	10.2	1.0	10.5	1.0
LnGrp Delay(d),s/veh	34.9	38.5	18.7	102.9	14.2	7.6	63.0	41.4	34.3	46.7	50.5	39.0
LnGrp LOS	C	D	B	F	B	A	E	D	C	D	D	D
Approach Vol, veh/h		2337			2822			624			666	
Approach Delay, s/veh		37.9			31.3			38.6			49.8	
Approach LOS		D			C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	24.0	68.6		37.4		92.6		37.4				
Change Period (Y+Rc), s	4.0	6.4		6.4		6.4		6.4				
Max Green Setting (Gmax), s	20.0	62.2		31.0		86.2		31.0				
Max Q Clear Time (g_c+I1), s	22.0	55.1		22.3		36.3		27.7				
Green Ext Time (p_c), s	0.0	6.7		3.2		35.4		1.2				
Intersection Summary												
HCM 2010 Ctrl Delay				36.3								
HCM 2010 LOS				D								



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	2100	57	0	2100	285	0
Future Volume (vph)	2100	57	0	2100	285	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		75.0	75.0		0.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			75.0		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				
Flt Protected					0.950	
Satd. Flow (prot)	3539	1583	1863	3539	1770	1863
Flt Permitted					0.950	
Satd. Flow (perm)	3539	1583	1863	3539	1770	1863
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		34				
Link Speed (k/h)	60			50	60	
Link Distance (m)	240.6			670.8	184.2	
Travel Time (s)	14.4			48.3	11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2283	62	0	2283	310	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2283	62	0	2283	310	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)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Prot	Perm	NA	Prot	Perm
Protected Phases	2	2		6	8	
Permitted Phases			6			8

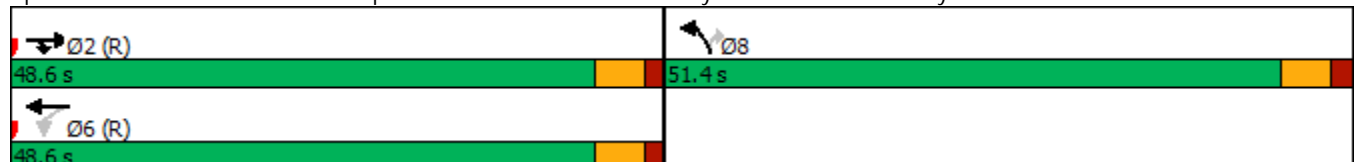








Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	33.1	33.1	33.1	33.1	39.5	39.5
Total Split (s)	48.6	48.6	48.6	48.6	51.4	51.4
Total Split (%)	48.6%	48.6%	48.6%	48.6%	51.4%	51.4%
Maximum Green (s)	43.5	43.5	43.5	43.5	45.9	45.9
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.4	1.4	1.4	1.4	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	27.0	27.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effect Green (s)	65.9	65.9		65.9	23.5	
Actuated g/C Ratio	0.66	0.66		0.66	0.24	
v/c Ratio	0.98	0.06		0.98	0.75	
Control Delay	32.8	4.6		32.8	46.2	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	32.8	4.6		32.8	46.2	
LOS	C	A		C	D	
Approach Delay	32.1			32.8	46.2	
Approach LOS	C			C	D	

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 33.3
 Intersection LOS: C
 Intersection Capacity Utilization 82.7%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 2: Burnhamthorpe Road & William Halton Parkway/Wililam Halton Parkway

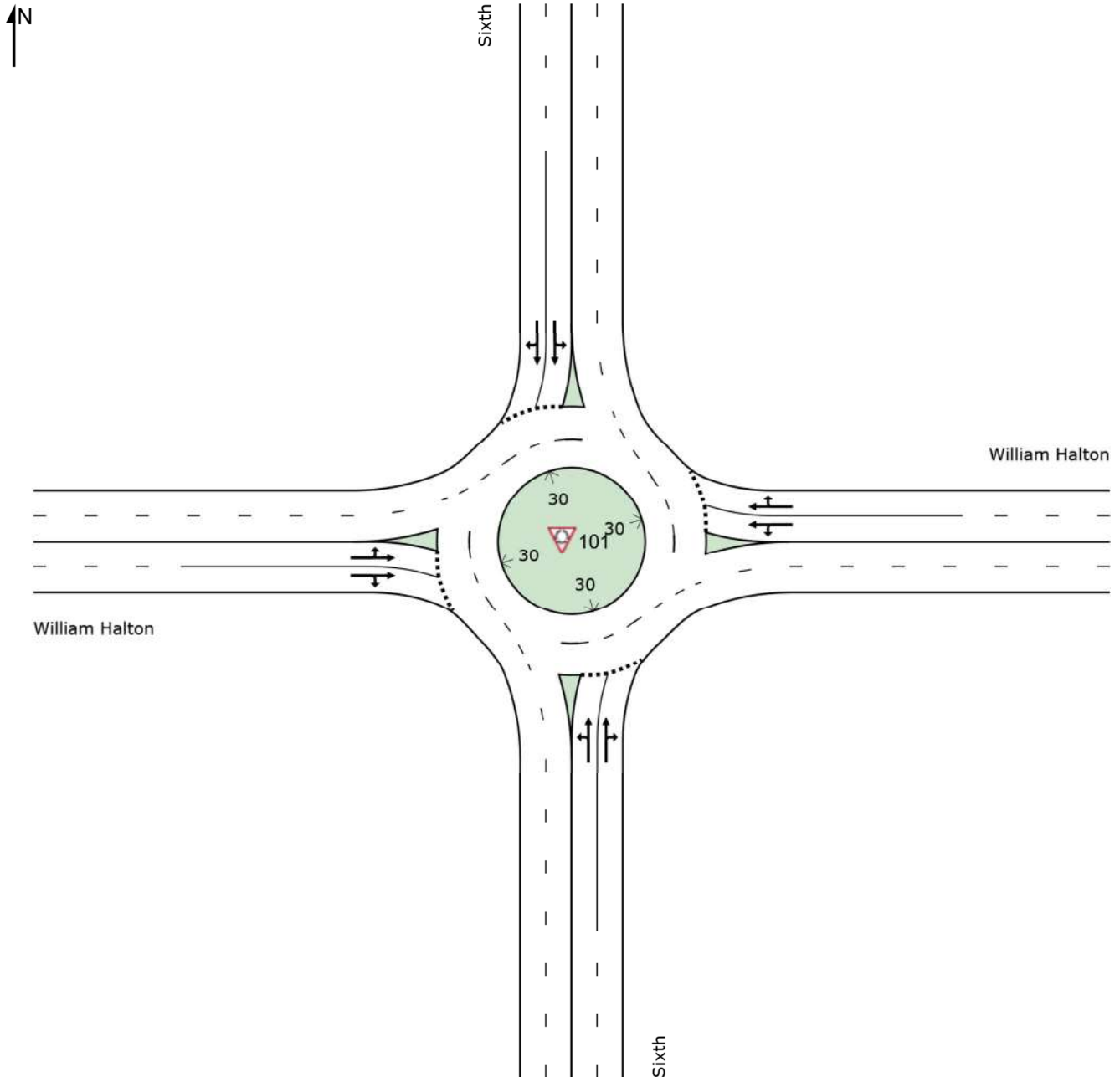


								
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑		
Traffic Volume (veh/h)	2100	57	0	2100	285	0		
Future Volume (veh/h)	2100	57	0	2100	285	0		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	2283	62	0	2283	310	0		
Adj No. of Lanes	2	1	1	2	1	1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	2447	1095	72	2447	359	321		
Arrive On Green	0.69	0.69	0.00	0.69	0.20	0.00		
Sat Flow, veh/h	3632	1583	153	3632	1774	1583		
Grp Volume(v), veh/h	2283	62	0	2283	310	0		
Grp Sat Flow(s),veh/h/ln	1770	1583	153	1770	1774	1583		
Q Serve(g_s), s	56.1	1.3	0.0	56.1	16.9	0.0		
Cycle Q Clear(g_c), s	56.1	1.3	0.0	56.1	16.9	0.0		
Prop In Lane		1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	2447	1095	72	2447	359	321		
V/C Ratio(X)	0.93	0.06	0.00	0.93	0.86	0.00		
Avail Cap(c_a), veh/h	2447	1095	72	2447	814	727		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	13.4	5.0	0.0	13.4	38.5	0.0		
Incr Delay (d2), s/veh	8.1	0.1	0.0	8.1	6.2	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	29.7	0.6	0.0	29.7	8.9	0.0		
LnGrp Delay(d),s/veh	21.5	5.1	0.0	21.5	44.7	0.0		
LnGrp LOS	C	A		C	D			
Approach Vol, veh/h	2345			2283	310			
Approach Delay, s/veh	21.1			21.5	44.7			
Approach LOS	C			C	D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		74.2				74.2		25.8
Change Period (Y+Rc), s		* 5.1				* 5.1		5.5
Max Green Setting (Gmax), s		* 44				* 44		45.9
Max Q Clear Time (g_c+I1), s		58.1				58.1		18.9
Green Ext Time (p_c), s		0.0				0.0		1.4
Intersection Summary								
HCM 2010 Ctrl Delay			22.7					
HCM 2010 LOS			C					
Notes								

SITE LAYOUT

 Site: 101 [WH & 6th - 2024 AM FB]

New Site
Site Category: (None)
Roundabout



MOVEMENT SUMMARY

 Site: 101 [WH & 6th - 2030 PM FB]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Sixth												
1	L2	81	2.0	1.099	122.6	LOS F	37.8	269.4	1.00	2.79	6.61	21.1
2	T1	1011	2.0	1.099	114.3	LOS F	49.4	352.0	1.00	3.01	7.03	21.4
3	R2	28	2.0	1.099	112.6	LOS F	49.4	352.0	1.00	3.16	7.30	21.4
Approach		1120	2.0	1.099	114.8	LOS F	49.4	352.0	1.00	3.00	7.01	21.4
East: William Halton												
4	L2	103	2.0	1.717	660.2	LOS F	292.1	2079.6	1.00	9.72	26.36	5.3
5	T1	2211	2.0	1.717	653.8	LOS F	364.8	2597.3	1.00	10.55	27.84	5.3
6	R2	102	2.0	1.717	653.3	LOS F	364.8	2597.3	1.00	11.19	29.00	5.2
Approach		2416	2.0	1.717	654.1	LOS F	364.8	2597.3	1.00	10.54	27.83	5.3
North: Sixth												
7	L2	67	2.0	1.053	89.3	LOS F	27.1	193.0	1.00	2.30	5.07	26.0
8	T1	967	2.0	1.053	80.4	LOS F	34.8	247.6	1.00	2.43	5.31	26.6
9	R2	39	2.0	1.053	78.4	LOS F	34.8	247.6	1.00	2.53	5.47	26.6
Approach		1074	2.0	1.053	80.9	LOS F	34.8	247.6	1.00	2.43	5.30	26.5
West: William Halton												
10	L2	39	2.0	1.668	616.0	LOS F	269.2	1916.5	1.00	9.38	25.59	5.6
11	T1	2211	2.0	1.668	609.6	LOS F	338.0	2406.9	1.00	10.19	27.06	5.6
12	R2	76	2.0	1.668	609.1	LOS F	338.0	2406.9	1.00	10.83	28.25	5.6
Approach		2325	2.0	1.668	609.7	LOS F	338.0	2406.9	1.00	10.19	27.07	5.6
All Vehicles		6935	2.0	1.717	463.3	LOS F	364.8	2597.3	1.00	7.95	20.72	7.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Organisation: CGH TRANSPORTATION | Processed: February 22, 2019 10:49:53 AM

Project: C:\Users\AndrewHarte\CGH TRANSPORTATION\CGH Working - Documents\Projects\2018-23 Mattamy Neighbourhood 10\DATA\Sidra WH & 6.sip8

Lanes, Volumes, Timings
6: Trafalgar Road & William Halton Parkway

2030 Future Background PM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	2128	62	10	2143	10	90	2174	10	10	1737	65
Future Volume (vph)	59	2128	62	10	2143	10	90	2174	10	10	1737	65
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	75.0		0.0	75.0		0.0	75.0		0.0	75.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	75.0			75.0			75.0			75.0		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.996			0.999			0.999			0.995	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5065	0	1770	5080	0	1770	3536	0	1770	3522	0
Flt Permitted	0.073			0.073			0.074			0.074		
Satd. Flow (perm)	136	5065	0	136	5080	0	138	3536	0	138	3522	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			1							1
Link Speed (k/h)		50			50			50				50
Link Distance (m)		411.7			267.6			229.4				560.6
Travel Time (s)		29.6			19.3			16.5				40.4
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)	64	2313	67	11	2329	11	98	2363	11	11	1888	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	64	2380	0	11	2340	0	98	2374	0	11	1959	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		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings
6: Trafalgar Road & William Halton Parkway

2030 Future Background PM
Neighbourhood 10

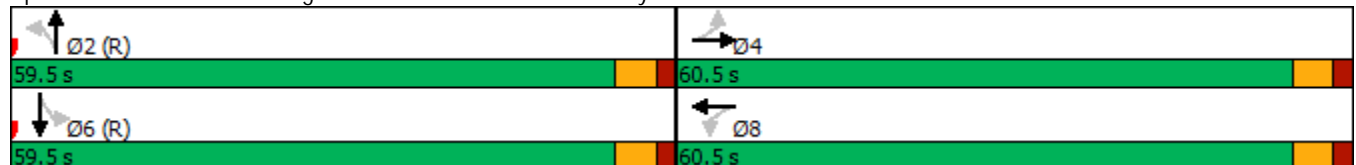


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	39.6	39.6		39.6	39.6		39.6	39.6		39.6	39.6	
Total Split (s)	60.5	60.5		60.5	60.5		59.5	59.5		59.5	59.5	
Total Split (%)	50.4%	50.4%		50.4%	50.4%		49.6%	49.6%		49.6%	49.6%	
Maximum Green (s)	54.9	54.9		54.9	54.9		53.9	53.9		53.9	53.9	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.7	3.7		3.7	3.7	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.9	1.9		1.9	1.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6		5.6	5.6		5.6	5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	27.0	27.0		27.0	27.0		27.0	27.0		27.0	27.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	54.9	54.9		54.9	54.9		53.9	53.9		53.9	53.9	
Actuated g/C Ratio	0.46	0.46		0.46	0.46		0.45	0.45		0.45	0.45	
v/c Ratio	1.03	1.03		0.18	1.01		1.61	1.49		0.18	1.24	
Control Delay	160.9	58.4		28.1	53.0		363.9	254.2		28.9	143.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	160.9	58.4		28.1	53.0		363.9	254.2		28.9	143.7	
LOS	F	E		C	D		F	F		C	F	
Approach Delay		61.1			52.9			258.5			143.1	
Approach LOS		E			D			F			F	

Intersection Summary





















Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.61
 Intersection Signal Delay: 129.3
 Intersection LOS: F
 Intersection Capacity Utilization 127.6%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 6: Trafalgar Road & William Halton Parkway



HCM 2010 Signalized Intersection Summary
6: Trafalgar Road & William Halton Parkway

2030 Future Background PM
Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	2128	62	10	2143	10	90	2174	10	10	1737	65
Future Volume (veh/h)	59	2128	62	10	2143	10	90	2174	10	10	1737	65
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	64	2313	67	11	2329	11	98	2363	11	11	1888	71
Adj No. of Lanes	1	3	0	1	3	0	1	2	0	1	2	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	63	2324	67	60	2390	11	60	1623	8	60	1563	58
Arrive On Green	0.46	0.46	0.46	0.46	0.46	0.46	0.45	0.45	0.45	0.45	0.45	0.45
Sat Flow, veh/h	153	5080	147	147	5224	25	223	3613	17	148	3479	130
Grp Volume(v), veh/h	64	1541	839	11	1511	829	98	1157	1217	11	954	1005
Grp Sat Flow(s),veh/h/ln	153	1695	1837	147	1695	1858	223	1770	1860	148	1770	1840
Q Serve(g_s), s	2.5	54.2	54.8	0.1	52.3	52.4	0.0	53.9	53.9	0.0	53.9	53.9
Cycle Q Clear(g_c), s	54.9	54.2	54.8	54.9	52.3	52.4	53.9	53.9	53.9	53.9	53.9	53.9
Prop In Lane	1.00		0.08	1.00		0.01	1.00		0.01	1.00		0.07
Lane Grp Cap(c), veh/h	63	1551	840	60	1551	850	60	795	835	60	795	826
V/C Ratio(X)	1.01	0.99	1.00	0.18	0.97	0.98	1.63	1.46	1.46	0.18	1.20	1.22
Avail Cap(c_a), veh/h	63	1551	840	60	1551	850	60	795	835	60	795	826
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.9	32.4	32.5	60.0	31.9	31.9	60.0	33.0	33.1	60.0	33.0	33.1
Incr Delay (d2), s/veh	117.0	21.2	30.7	1.4	17.0	24.8	348.3	211.8	212.5	6.6	102.3	108.1
Initial Q Delay(d3),s/veh	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	29.8	34.9	0.4	28.0	32.6	7.8	73.0	76.9	0.5	48.9	52.1
LnGrp Delay(d),s/veh	177.0	53.6	63.3	61.4	48.9	56.7	408.3	244.8	245.5	66.6	135.3	141.1
LnGrp LOS	F	D	E	E	D	E	F	F	F	E	F	F
Approach Vol, veh/h		2444			2351			2472			1970	
Approach Delay, s/veh		60.1			51.7			251.7			137.9	
Approach LOS		E			D			F			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		59.5		60.5		59.5		60.5				
Change Period (Y+Rc), s		* 5.6		* 5.6		* 5.6		* 5.6				
Max Green Setting (Gmax), s		* 54		* 55		* 54		* 55				
Max Q Clear Time (g_c+I1), s		55.9		56.9		55.9		56.9				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				125.8								
HCM 2010 LOS				F								
Notes												

Lanes, Volumes, Timings
10: Sixth Line & Burnhamthorpe Road

2030 Future Background PM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	25	13	270	170	127	53	766	152	118	721	21
Future Volume (vph)	2	25	13	270	170	127	53	766	152	118	721	21
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	75.0		0.0	75.0		0.0	75.0		0.0	75.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	75.0			75.0			75.0			75.0		
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		0.949			0.936			0.975			0.996	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1768	0	1770	1744	0	1770	3451	0	1770	3525	0
Flt Permitted	0.373			0.730			0.316			0.244		
Satd. Flow (perm)	695	1768	0	1360	1744	0	589	3451	0	455	3525	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			49			30			4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		1521.4			370.4			443.3			1085.8	
Travel Time (s)		109.5			26.7			31.9			78.2	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	2	27	14	287	181	135	56	815	162	126	767	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	41	0	287	316	0	56	977	0	126	789	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		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings
10: Sixth Line & Burnhamthorpe Road

2030 Future Background PM
Neighbourhood 10

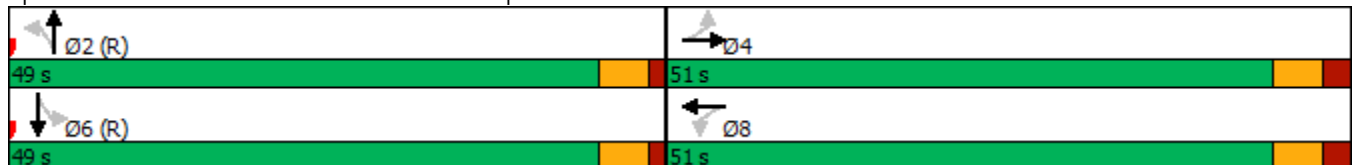


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		23.1	23.1		23.1	23.1	
Total Split (s)	51.0	51.0		51.0	51.0		49.0	49.0		49.0	49.0	
Total Split (%)	51.0%	51.0%		51.0%	51.0%		49.0%	49.0%		49.0%	49.0%	
Maximum Green (s)	45.0	45.0		45.0	45.0		43.9	43.9		43.9	43.9	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.7	3.7		3.7	3.7	
All-Red Time (s)	2.3	2.3		2.3	2.3		1.4	1.4		1.4	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		5.1	5.1		5.1	5.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	27.5	27.5		27.5	27.5		61.4	61.4		61.4	61.4	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.61	0.61		0.61	0.61	
v/c Ratio	0.01	0.08		0.77	0.61		0.16	0.46		0.45	0.36	
Control Delay	21.5	17.2		46.3	30.6		12.3	12.1		19.8	11.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.5	17.2		46.3	30.6		12.3	12.1		19.8	11.3	
LOS	C	B		D	C		B	B		B	B	
Approach Delay		17.4			38.1			12.1			12.5	
Approach LOS		B			D			B			B	

Intersection Summary























Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.77
 Intersection Signal Delay: 18.3
 Intersection LOS: B
 Intersection Capacity Utilization 67.7%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 10: Sixth Line & Burnhamthorpe Road



HCM 2010 Signalized Intersection Summary
10: Sixth Line & Burnhamthorpe Road

2030 Future Background PM
Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	25	13	270	170	127	53	766	152	118	721	21
Future Volume (veh/h)	2	25	13	270	170	127	53	766	152	118	721	21
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	2	27	14	287	181	135	56	815	162	126	767	22
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	190	317	164	421	271	202	419	1812	360	340	2162	62
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.62	0.62	0.62	0.62	0.62	0.62
Sat Flow, veh/h	1059	1157	600	1360	992	740	684	2944	585	573	3514	101
Grp Volume(v), veh/h	2	0	41	287	0	316	56	490	487	126	386	403
Grp Sat Flow(s),veh/h/ln	1059	0	1757	1360	0	1732	684	1770	1759	573	1770	1845
Q Serve(g_s), s	0.2	0.0	1.7	19.9	0.0	16.2	4.4	14.7	14.7	15.0	10.7	10.7
Cycle Q Clear(g_c), s	16.4	0.0	1.7	21.6	0.0	16.2	15.1	14.7	14.7	29.7	10.7	10.7
Prop In Lane	1.00		0.34	1.00		0.43	1.00		0.33	1.00		0.05
Lane Grp Cap(c), veh/h	190	0	481	421	0	474	419	1089	1083	340	1089	1135
V/C Ratio(X)	0.01	0.00	0.09	0.68	0.00	0.67	0.13	0.45	0.45	0.37	0.35	0.35
Avail Cap(c_a), veh/h	377	0	791	661	0	779	419	1089	1083	340	1089	1135
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.5	0.0	27.0	35.0	0.0	32.3	13.2	10.2	10.2	18.1	9.5	9.5
Incr Delay (d2), s/veh	0.0	0.0	0.1	2.0	0.0	1.6	0.7	1.3	1.4	3.1	0.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.9	7.7	0.0	7.9	0.9	7.5	7.4	2.6	5.4	5.6
LnGrp Delay(d),s/veh	39.6	0.0	27.1	37.0	0.0	33.9	13.8	11.6	11.6	21.2	10.4	10.3
LnGrp LOS	D		C	D		C	B	B	B	C	B	B
Approach Vol, veh/h		43			603			1033			915	
Approach Delay, s/veh		27.7			35.4			11.7			11.8	
Approach LOS		C			D			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		66.6		33.4		66.6		33.4				
Change Period (Y+Rc), s		* 5.1		6.0		* 5.1		6.0				
Max Green Setting (Gmax), s		* 44		45.0		* 44		45.0				
Max Q Clear Time (g_c+I1), s		17.1		18.4		31.7		23.6				
Green Ext Time (p_c), s		9.5		0.2		5.7		3.7				
Intersection Summary												
HCM 2010 Ctrl Delay				17.5								
HCM 2010 LOS				B								
Notes												

Lanes, Volumes, Timings
12: Post Road & Burnhamthorpe Road

2030 Future Background PM
Neighbourhood 10

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	333	9	41	609	15	5	5	24	10	5	4
Future Volume (vph)	6	333	9	41	609	15	5	5	24	10	5	4
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		0.996			0.997			0.902			0.973	
Flt Protected		0.999			0.997			0.993			0.973	
Satd. Flow (prot)	0	1853	0	0	1852	0	0	1668	0	0	1764	0
Flt Permitted		0.999			0.997			0.993			0.973	
Satd. Flow (perm)	0	1853	0	0	1852	0	0	1668	0	0	1764	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		370.4			875.6			119.0			126.6	
Travel Time (s)		26.7			63.0			8.6			9.1	
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)	7	362	10	45	662	16	5	5	26	11	5	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	379	0	0	723	0	0	36	0	0	20	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			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	65.7%					ICU Level of Service C						
Analysis Period (min)	15											

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	333	9	41	609	15	5	5	24	10	5	4
Future Vol, veh/h	6	333	9	41	609	15	5	5	24	10	5	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	362	10	45	662	16	5	5	26	11	5	4

























Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	678	0	0	372	0	0	1146	1149	367	1157	1146	670
Stage 1	-	-	-	-	-	-	381	381	-	760	760	-
Stage 2	-	-	-	-	-	-	765	768	-	397	386	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	914	-	-	1186	-	-	176	198	678	173	199	457
Stage 1	-	-	-	-	-	-	641	613	-	398	414	-
Stage 2	-	-	-	-	-	-	396	411	-	629	610	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	914	-	-	1186	-	-	161	184	678	154	185	457
Mov Cap-2 Maneuver	-	-	-	-	-	-	161	184	-	154	185	-
Stage 1	-	-	-	-	-	-	635	607	-	394	389	-
Stage 2	-	-	-	-	-	-	363	386	-	593	604	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.5			16			26.4		
HCM LOS							C			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	363	914	-	-	1186	-	-	189
HCM Lane V/C Ratio	0.102	0.007	-	-	0.038	-	-	0.109
HCM Control Delay (s)	16	9	0	-	8.2	0	-	26.4
HCM Lane LOS	C	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.4

Lanes, Volumes, Timings
13: Trafalgar Road & Burnhamthorpe Road

2030 Future Background PM
Neighbourhood 10

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	212	65	109	351	240	166	1636	94	181	1165	110
Future Volume (vph)	60	212	65	109	351	240	166	1636	94	181	1165	110
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	15.0		0.0	180.0		0.0	180.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	70.0			45.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850			0.850			0.850		0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3493	0
Flt Permitted	0.186			0.467			0.130			0.062		
Satd. Flow (perm)	346	1863	1583	870	1863	1583	242	3539	1583	115	3493	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			66			197			77		12	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		875.6			414.4			579.3			1019.4	
Travel Time (s)		63.0			29.8			41.7			73.4	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	61	216	66	111	358	245	169	1669	96	185	1189	112
Shared Lane Traffic (%)												
Lane Group Flow (vph)	61	216	66	111	358	245	169	1669	96	185	1301	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	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
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	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		

Lanes, Volumes, Timings
13: Trafalgar Road & Burnhamthorpe Road

2030 Future Background PM
Neighbourhood 10

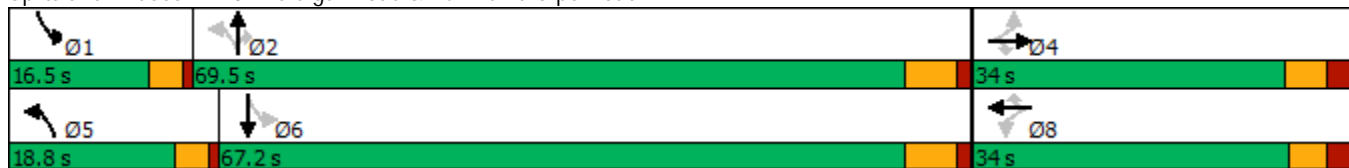


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	20.0	20.0	7.0	20.0	
Minimum Split (s)	24.0	24.0	24.0	23.8	23.8	23.8	9.5	26.0	26.0	11.5	26.0	
Total Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	18.8	69.5	69.5	16.5	67.2	
Total Split (%)	28.3%	28.3%	28.3%	28.3%	28.3%	28.3%	15.7%	57.9%	57.9%	13.8%	56.0%	
Maximum Green (s)	28.0	28.0	28.0	28.2	28.2	28.2	14.8	63.5	63.5	12.5	61.2	
Yellow Time (s)	3.7	3.7	3.7	3.5	3.5	3.5	3.0	4.6	4.6	3.0	4.6	
All-Red Time (s)	2.3	2.3	2.3	2.3	2.3	2.3	1.0	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	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	5.8	5.8	5.8	4.0	6.0	6.0	4.0	6.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	
Act Effect Green (s)	25.3	25.3	25.3	25.5	25.5	25.5	75.8	63.6	63.6	77.6	64.5	
Actuated g/C Ratio	0.22	0.22	0.22	0.22	0.22	0.22	0.65	0.55	0.55	0.67	0.56	
v/c Ratio	0.81	0.53	0.17	0.58	0.88	0.49	0.58	0.86	0.11	0.79	0.67	
Control Delay	108.0	45.6	9.9	54.1	66.6	12.9	16.3	29.0	4.8	50.4	21.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	108.0	45.6	9.9	54.1	66.6	12.9	16.3	29.0	4.8	50.4	21.1	
LOS	F	D	A	D	E	B	B	C	A	D	C	
Approach Delay		49.8			46.3			26.7			24.7	
Approach LOS		D			D			C			C	

Intersection Summary

























Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 116
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 30.9
 Intersection LOS: C
 Intersection Capacity Utilization 100.2%
 ICU Level of Service G
 Analysis Period (min) 15

Splits and Phases: 13: Trafalgar Road & Burnhamthorpe Road
















HCM 2010 Signalized Intersection Summary
 13: Trafalgar Road & Burnhamthorpe Road

2030 Future Background PM
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	212	65	109	351	240	166	1636	94	181	1165	110
Future Volume (veh/h)	60	212	65	109	351	240	166	1636	94	181	1165	110
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	61	216	66	111	358	245	169	1669	96	185	1189	112
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	114	454	386	220	454	386	298	1956	875	219	1818	171
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.06	0.55	0.55	0.06	0.56	0.56
Sat Flow, veh/h	813	1863	1583	1093	1863	1583	1774	3539	1583	1774	3271	308
Grp Volume(v), veh/h	61	216	66	111	358	245	169	1669	96	185	642	659
Grp Sat Flow(s),veh/h/ln	813	1863	1583	1093	1863	1583	1774	1770	1583	1774	1770	1808
Q Serve(g_s), s	7.3	11.4	3.8	11.1	20.7	15.9	4.7	45.9	3.3	5.1	29.1	29.2
Cycle Q Clear(g_c), s	28.0	11.4	3.8	22.5	20.7	15.9	4.7	45.9	3.3	5.1	29.1	29.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	114	454	386	220	454	386	298	1956	875	219	984	1006
V/C Ratio(X)	0.53	0.48	0.17	0.50	0.79	0.64	0.57	0.85	0.11	0.85	0.65	0.66
Avail Cap(c_a), veh/h	114	454	386	222	457	389	418	1956	875	297	984	1006
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.4	37.2	34.3	46.8	40.7	38.9	15.5	21.8	12.2	25.0	17.8	17.8
Incr Delay (d2), s/veh	4.7	0.8	0.2	1.8	8.9	3.3	1.7	5.0	0.3	15.2	3.4	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	6.0	1.7	3.5	11.8	7.3	2.4	23.6	1.5	4.2	15.0	15.4
LnGrp Delay(d),s/veh	59.1	38.0	34.5	48.6	49.6	42.2	17.2	26.8	12.5	40.2	21.2	21.1
LnGrp LOS	E	D	C	D	D	D	B	C	B	D	C	C
Approach Vol, veh/h		343			714			1934			1486	
Approach Delay, s/veh		41.0			46.9			25.2			23.5	
Approach LOS		D			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.4	69.5		34.0	11.0	69.9		34.0				
Change Period (Y+Rc), s	4.0	* 6		6.0	4.0	* 6		* 6				
Max Green Setting (Gmax), s	12.5	* 64		28.0	14.8	* 61		* 28				
Max Q Clear Time (g_c+I1), s	7.1	47.9		30.0	6.7	31.2		24.5				
Green Ext Time (p_c), s	0.3	12.1		0.0	0.4	13.4		1.5				
Intersection Summary												
HCM 2010 Ctrl Delay			29.3									
HCM 2010 LOS			C									
Notes												

Lanes, Volumes, Timings
14: Sixth Line & Settlers Road

2030 Future Background PM
Neighbourhood 10

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	53	13	889	90	22	919
Future Volume (vph)	53	13	889	90	22	919
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	75.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				75.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.986			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3490	0	1770	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3490	0	1770	3539
Link Speed (k/h)	50		50			50
Link Distance (m)	152.3		429.6			443.3
Travel Time (s)	11.0		30.9			31.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	58	14	966	98	24	999
Shared Lane Traffic (%)						
Lane Group Flow (vph)	58	14	1064	0	24	999
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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		15	25	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	37.4%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	2.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↑		↘	↑↑
Traffic Vol, veh/h	53	13	889	90	22	919
Future Vol, veh/h	53	13	889	90	22	919
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	750	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	58	14	966	98	24	999












Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1563	532	0	0	1064
Stage 1	1015	-	-	-	-
Stage 2	548	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	102	492	-	-	651
Stage 1	311	-	-	-	-
Stage 2	543	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	98	492	-	-	651
Mov Cap-2 Maneuver	98	-	-	-	-
Stage 1	299	-	-	-	-
Stage 2	543	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	70.2	0	0.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	98	492	651	-
HCM Lane V/C Ratio	-	-	0.588	0.029	0.037	-
HCM Control Delay (s)	-	-	84.3	12.5	10.7	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	2.8	0.1	0.1	-

Lanes, Volumes, Timings
15: Sixth Line & Marvin Avenue

2030 Future Background PM
Neighbourhood 10

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	87	29	1017	147	61	928
Future Volume (vph)	87	29	1017	147	61	928
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	75.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				75.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.981			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3472	0	1770	3539
Flt Permitted	0.950				0.191	
Satd. Flow (perm)	1770	1583	3472	0	356	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		32	26			
Link Speed (k/h)	50		50			50
Link Distance (m)	192.9		502.5			429.6
Travel Time (s)	13.9		36.2			30.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	95	32	1105	160	66	1009
Shared Lane Traffic (%)						
Lane Group Flow (vph)	95	32	1265	0	66	1009
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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		15	25	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	

Lanes, Volumes, Timings
15: Sixth Line & Marvin Avenue

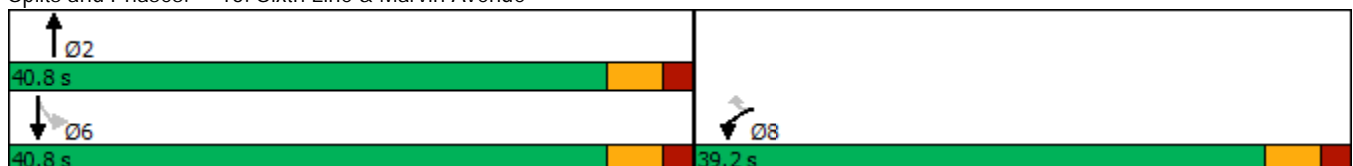


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	20.0		20.0	20.0
Minimum Split (s)	39.2	39.2	33.2		33.2	33.2
Total Split (s)	39.2	39.2	40.8		40.8	40.8
Total Split (%)	49.0%	49.0%	51.0%		51.0%	51.0%
Maximum Green (s)	34.0	34.0	35.6		35.6	35.6
Yellow Time (s)	3.3	3.3	3.3		3.3	3.3
All-Red Time (s)	1.9	1.9	1.9		1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.2	5.2	5.2		5.2	5.2
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		Max	Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	27.0	27.0	21.0		21.0	21.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effect Green (s)	10.3	10.3	44.6		44.6	44.6
Actuated g/C Ratio	0.17	0.17	0.73		0.73	0.73
v/c Ratio	0.32	0.11	0.50		0.25	0.39
Control Delay	25.0	9.2	5.7		7.8	4.9
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	25.0	9.2	5.7		7.8	4.9
LOS	C	A	A		A	A
Approach Delay	21.0		5.7			5.1
Approach LOS	C		A			A

Intersection Summary












Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	60.9
Natural Cycle:	80
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.50
Intersection Signal Delay:	6.2
Intersection LOS:	A
Intersection Capacity Utilization:	67.7%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 15: Sixth Line & Marvin Avenue
















HCM 2010 Signalized Intersection Summary
 15: Sixth Line & Marvin Avenue

2030 Future Background PM
 Neighbourhood 10

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Traffic Volume (veh/h)	87	29	1017	147	61	928		
Future Volume (veh/h)	87	29	1017	147	61	928		
Number	3	18	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863		
Adj Flow Rate, veh/h	95	32	1105	160	66	1009		
Adj No. of Lanes	1	1	2	0	1	2		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	278	248	2027	293	333	2310		
Arrive On Green	0.16	0.16	0.65	0.65	0.65	0.65		
Sat Flow, veh/h	1774	1583	3198	449	436	3632		
Grp Volume(v), veh/h	95	32	629	636	66	1009		
Grp Sat Flow(s),veh/h/ln	1774	1583	1770	1784	436	1770		
Q Serve(g_s), s	2.6	0.9	10.4	10.5	5.2	7.6		
Cycle Q Clear(g_c), s	2.6	0.9	10.4	10.5	15.7	7.6		
Prop In Lane	1.00	1.00		0.25	1.00			
Lane Grp Cap(c), veh/h	278	248	1155	1164	333	2310		
V/C Ratio(X)	0.34	0.13	0.54	0.55	0.20	0.44		
Avail Cap(c_a), veh/h	1106	987	1155	1164	333	2310		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	20.5	19.8	5.1	5.1	9.4	4.6		
Incr Delay (d2), s/veh	0.7	0.2	1.8	1.8	1.3	0.6		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.3	0.4	5.5	5.5	0.7	3.8		
LnGrp Delay(d),s/veh	21.2	20.0	6.9	7.0	10.7	5.2		
LnGrp LOS	C	C	A	A	B	A		
Approach Vol, veh/h	127		1265			1075		
Approach Delay, s/veh	20.9		7.0			5.5		
Approach LOS	C		A			A		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		40.8				40.8		13.7
Change Period (Y+Rc), s		* 5.2				* 5.2		5.2
Max Green Setting (Gmax), s		* 36				* 36		34.0
Max Q Clear Time (g_c+I1), s		12.5				17.7		4.6
Green Ext Time (p_c), s		11.3				9.0		0.5
Intersection Summary								
HCM 2010 Ctrl Delay			7.1					
HCM 2010 LOS			A					
Notes								

Lanes, Volumes, Timings
16: Sixth Line & Carnegie Drive

2030 Future Background PM
Neighbourhood 10

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	1	1	1164	2	3	1015
Future Volume (vph)	1	1	1164	2	3	1015
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	75.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				75.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3539	0	1770	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3539	0	1770	3539
Link Speed (k/h)	50		50			50
Link Distance (m)	130.7		363.7			502.5
Travel Time (s)	9.4		26.2			36.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	1	1265	2	3	1103
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	1	1267	0	3	1103
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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		15	25	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	42.2%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↵	↵	↕↕		↵	↕↕
Traffic Vol, veh/h	1	1	1164	2	3	1015
Future Vol, veh/h	1	1	1164	2	3	1015
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	750	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	1	1265	2	3	1103
























Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1824	634	0	0	1267	0
Stage 1	1266	-	-	-	-	-
Stage 2	558	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	69	422	-	-	544	-
Stage 1	229	-	-	-	-	-
Stage 2	537	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	69	422	-	-	544	-
Mov Cap-2 Maneuver	69	-	-	-	-	-
Stage 1	228	-	-	-	-	-
Stage 2	537	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	35.8	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	69	422	544	-
HCM Lane V/C Ratio	-	-	0.016	0.003	0.006	-
HCM Control Delay (s)	-	-	58	13.6	11.7	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	0	0	0	-

Lanes, Volumes, Timings
17: Sixth Line & Dundas Street

2030 Future Background PM
Neighbourhood 10

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	1415	165	207	2266	436	194	187	202	289	88	91
Future Volume (vph)	136	1415	165	207	2266	436	194	187	202	289	88	91
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		80.0	35.0		0.0	80.0		0.0	45.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	100.0			75.0			100.0			45.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95
Frt			0.850		0.976				0.850		0.924	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3454	0	1770	1863	1583	1770	3270	0
Flt Permitted	0.057			0.071			0.633			0.508		
Satd. Flow (perm)	106	3539	1583	132	3454	0	1179	1863	1583	946	3270	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			142		30				177		96	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		409.7			323.7			341.1			122.2	
Travel Time (s)		29.5			23.3			24.6			8.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	143	1489	174	218	2385	459	204	197	213	304	93	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	143	1489	174	218	2844	0	204	197	213	304	189	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	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6			8		8	4		

Lanes, Volumes, Timings
17: Sixth Line & Dundas Street

2030 Future Background PM
Neighbourhood 10

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2	2	1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	11.5	37.2	37.2	11.5	34.2		16.5	16.5	16.5	16.5	16.5	
Total Split (s)	11.5	74.5	74.5	19.5	82.5		36.0	36.0	36.0	36.0	36.0	
Total Split (%)	8.8%	57.3%	57.3%	15.0%	63.5%		27.7%	27.7%	27.7%	27.7%	27.7%	
Maximum Green (s)	7.5	68.3	68.3	15.5	76.3		29.5	29.5	29.5	29.5	29.5	
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5		2.8	2.8	2.8	2.8	2.8	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.2	6.2	4.0	6.2		6.5	6.5	6.5	6.5	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	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	C-Max	C-Max	None	C-Max		Max	Max	Max	Max	Max	
Walk Time (s)		7.0	7.0		7.0							
Flash Dont Walk (s)		24.0	24.0		21.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effct Green (s)	79.6	69.9	69.9	89.6	76.3		29.5	29.5	29.5	29.5	29.5	
Actuated g/C Ratio	0.61	0.54	0.54	0.69	0.59		0.23	0.23	0.23	0.23	0.23	
v/c Ratio	0.89	0.78	0.19	0.82	1.39		0.76	0.47	0.43	1.42	0.23	
Control Delay	77.5	28.0	4.4	51.7	206.5		66.5	47.7	12.4	251.7	20.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	77.5	28.0	4.4	51.7	206.5		66.5	47.7	12.4	251.7	20.6	
LOS	E	C	A	D	F		E	D	B	F	C	
Approach Delay		29.7			195.5			41.7			163.1	
Approach LOS		C			F			D			F	

Intersection Summary
























Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.42
 Intersection Signal Delay: 126.9
 Intersection LOS: F
 Intersection Capacity Utilization 129.3%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 17: Sixth Line & Dundas Street



HCM 2010 Signalized Intersection Summary
17: Sixth Line & Dundas Street

2030 Future Background PM
Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	136	1415	165	207	2266	436	194	187	202	289	88	91
Future Volume (veh/h)	136	1415	165	207	2266	436	194	187	202	289	88	91
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	143	1489	174	218	2385	459	204	197	213	304	93	96
Adj No. of Lanes	1	2	1	1	2	0	1	1	1	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	158	2038	912	257	1748	326	266	423	359	187	402	359
Arrive On Green	0.06	0.58	0.58	0.07	0.59	0.59	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1774	3539	1583	1774	2979	555	1189	1863	1583	972	1770	1583
Grp Volume(v), veh/h	143	1489	174	218	1386	1458	204	197	213	304	93	96
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1765	1189	1863	1583	972	1770	1583
Q Serve(g_s), s	6.3	40.1	6.8	6.5	76.3	76.3	22.1	11.9	15.6	17.6	5.6	6.5
Cycle Q Clear(g_c), s	6.3	40.1	6.8	6.5	76.3	76.3	28.6	11.9	15.6	29.5	5.6	6.5
Prop In Lane	1.00		1.00	1.00		0.31	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	158	2038	912	257	1039	1036	266	423	359	187	402	359
V/C Ratio(X)	0.91	0.73	0.19	0.85	1.33	1.41	0.77	0.47	0.59	1.63	0.23	0.27
Avail Cap(c_a), veh/h	158	2038	912	347	1039	1036	266	423	359	187	402	359
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.0	20.2	13.1	24.5	26.8	26.9	53.1	43.4	44.9	58.8	41.0	41.4
Incr Delay (d2), s/veh	45.4	2.4	0.5	13.6	156.9	189.5	18.9	3.7	7.0	304.5	1.3	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	20.1	3.1	5.5	82.2	91.3	8.6	6.6	7.5	22.5	2.9	3.0
LnGrp Delay(d),s/veh	86.4	22.6	13.6	38.1	183.8	216.3	72.0	47.1	51.9	363.3	42.3	43.2
LnGrp LOS	F	C	B	D	F	F	E	D	D	F	D	D
Approach Vol, veh/h		1806			3062			614			493	
Approach Delay, s/veh		26.8			188.9			57.0			240.4	
Approach LOS		C			F			E			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.0	81.0		36.0	11.5	82.5		36.0				
Change Period (Y+Rc), s	4.0	* 6.2		6.5	4.0	* 6.2		6.5				
Max Green Setting (Gmax), s	15.5	* 68		29.5	7.5	* 76		29.5				
Max Q Clear Time (g_c+I1), s	8.5	42.1		31.5	8.3	78.3		30.6				
Green Ext Time (p_c), s	0.5	16.5		0.0	0.0	0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			130.6									
HCM 2010 LOS			F									
Notes												

Lanes, Volumes, Timings
19: Sixth Line & Threshing Mill Boulevard

2030 Future Background PM
Neighbourhood 10



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	4	1068	9	7	975
Future Volume (vph)	5	4	1068	9	7	975
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	75.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				75.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.999			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3536	0	1770	3539
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	3536	0	1770	3539
Link Speed (k/h)	50		50			50
Link Distance (m)	290.6		268.1			363.7
Travel Time (s)	20.9		19.3			26.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	4	1161	10	8	1060
Shared Lane Traffic (%)						
Lane Group Flow (vph)	5	4	1171	0	8	1060
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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		15	25	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 39.8% ICU Level of Service A
 Analysis Period (min) 15

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↗	↕↔		↙	↕↕
Traffic Vol, veh/h	5	4	1068	9	7	975
Future Vol, veh/h	5	4	1068	9	7	975
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	750	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	4	1161	10	8	1060














Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1712	586	0	0	1171
Stage 1	1166	-	-	-	-
Stage 2	546	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14
Critical Hdwy Stg 1	5.84	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22
Pot Cap-1 Maneuver	81	454	-	-	592
Stage 1	259	-	-	-	-
Stage 2	544	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	80	454	-	-	592
Mov Cap-2 Maneuver	80	-	-	-	-
Stage 1	255	-	-	-	-
Stage 2	544	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	35.4	0	0.1
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	80	454	592	-
HCM Lane V/C Ratio	-	-	0.068	0.01	0.013	-
HCM Control Delay (s)	-	-	53.3	13	11.2	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	0.2	0	0	-

Lanes, Volumes, Timings
14: Sixth Line & Settlers Road

2030 Future Background PM (Mitigation)
Neighbourhood 10

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	53	13	889	90	22	919
Future Volume (vph)	53	13	889	90	22	919
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	75.0	
Storage Lanes	1	1		0	1	
Taper Length (m)	7.5				75.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.986			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3490	0	1770	3539
Flt Permitted	0.950				0.257	
Satd. Flow (perm)	1770	1583	3490	0	479	3539
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		14	17			
Link Speed (k/h)	50		50			50
Link Distance (m)	152.3		429.6			443.3
Travel Time (s)	11.0		30.9			31.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	58	14	966	98	24	999
Shared Lane Traffic (%)						
Lane Group Flow (vph)	58	14	1064	0	24	999
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
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		15	25	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4
Detector 2 Size(m)			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	

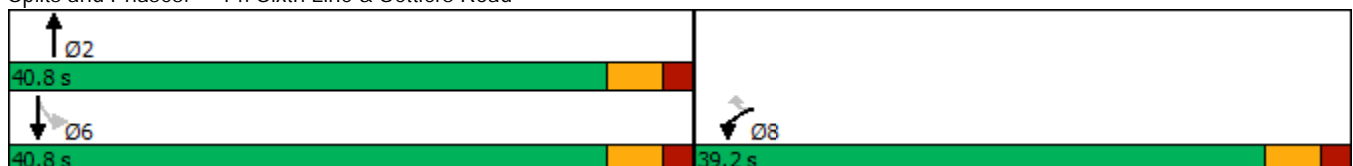













Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	20.0		20.0	20.0
Minimum Split (s)	39.2	39.2	33.2		33.2	33.2
Total Split (s)	39.2	39.2	40.8		40.8	40.8
Total Split (%)	49.0%	49.0%	51.0%		51.0%	51.0%
Maximum Green (s)	34.0	34.0	35.6		35.6	35.6
Yellow Time (s)	3.3	3.3	3.3		3.3	3.3
All-Red Time (s)	1.9	1.9	1.9		1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.2	5.2	5.2		5.2	5.2
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		Max	Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	27.0	27.0	21.0		21.0	21.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effect Green (s)	10.1	10.1	49.7		49.7	49.7
Actuated g/C Ratio	0.16	0.16	0.81		0.81	0.81
v/c Ratio	0.20	0.05	0.38		0.06	0.35
Control Delay	24.9	12.3	3.8		4.0	3.7
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	24.9	12.3	3.8		4.0	3.7
LOS	C	B	A		A	A
Approach Delay	22.5		3.8			3.7
Approach LOS	C		A			A

Intersection Summary

Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	61.3
Natural Cycle:	75
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.38
Intersection Signal Delay:	4.4
Intersection LOS:	A
Intersection Capacity Utilization:	44.4%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 14: Sixth Line & Settlers Road

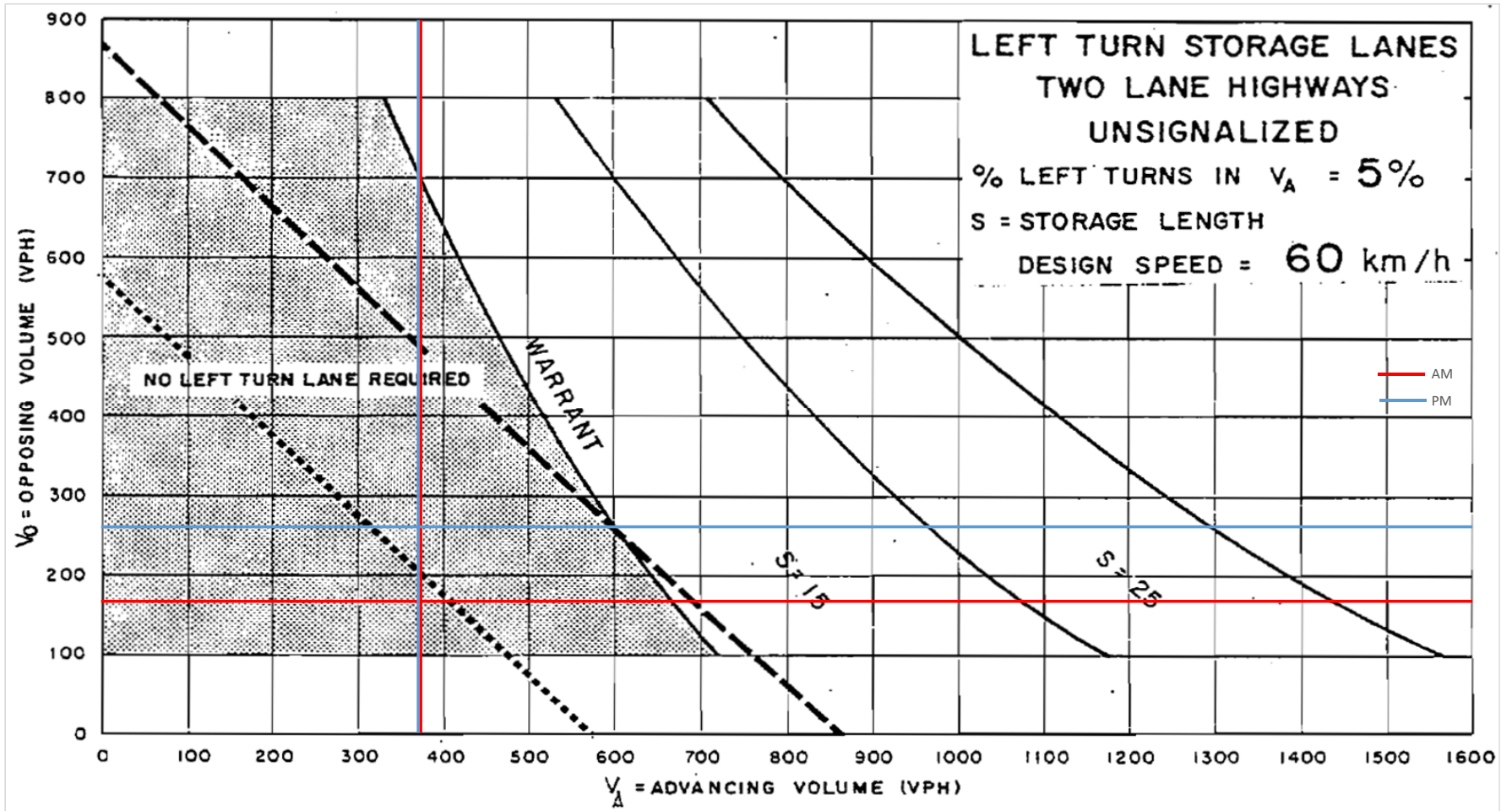


								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Traffic Volume (veh/h)	53	13	889	90	22	919		
Future Volume (veh/h)	53	13	889	90	22	919		
Number	3	18	2	12	1	6		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863		
Adj Flow Rate, veh/h	58	14	966	98	24	999		
Adj No. of Lanes	1	1	2	0	1	2		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	220	196	2200	223	423	2400		
Arrive On Green	0.12	0.12	0.68	0.68	0.68	0.68		
Sat Flow, veh/h	1774	1583	3338	329	528	3632		
Grp Volume(v), veh/h	58	14	527	537	24	999		
Grp Sat Flow(s),veh/h/ln	1774	1583	1770	1805	528	1770		
Q Serve(g_s), s	1.6	0.4	7.2	7.2	1.1	6.6		
Cycle Q Clear(g_c), s	1.6	0.4	7.2	7.2	8.3	6.6		
Prop In Lane	1.00	1.00		0.18	1.00			
Lane Grp Cap(c), veh/h	220	196	1200	1224	423	2400		
V/C Ratio(X)	0.26	0.07	0.44	0.44	0.06	0.42		
Avail Cap(c_a), veh/h	1149	1025	1200	1224	423	2400		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	20.8	20.3	3.9	3.9	5.8	3.8		
Incr Delay (d2), s/veh	0.6	0.2	1.2	1.1	0.3	0.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.8	0.2	3.8	3.8	0.2	3.4		
LnGrp Delay(d),s/veh	21.5	20.5	5.0	5.0	6.0	4.3		
LnGrp LOS	C	C	A	A	A	A		
Approach Vol, veh/h	72		1064			1023		
Approach Delay, s/veh	21.3		5.0			4.4		
Approach LOS	C		A			A		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		40.8				40.8		11.7
Change Period (Y+Rc), s		* 5.2				* 5.2		5.2
Max Green Setting (Gmax), s		* 36				* 36		34.0
Max Q Clear Time (g_c+I1), s		9.2				10.3		3.6
Green Ext Time (p_c), s		9.6				9.8		0.3
Intersection Summary								
HCM 2010 Ctrl Delay			5.3					
HCM 2010 LOS			A					
Notes								

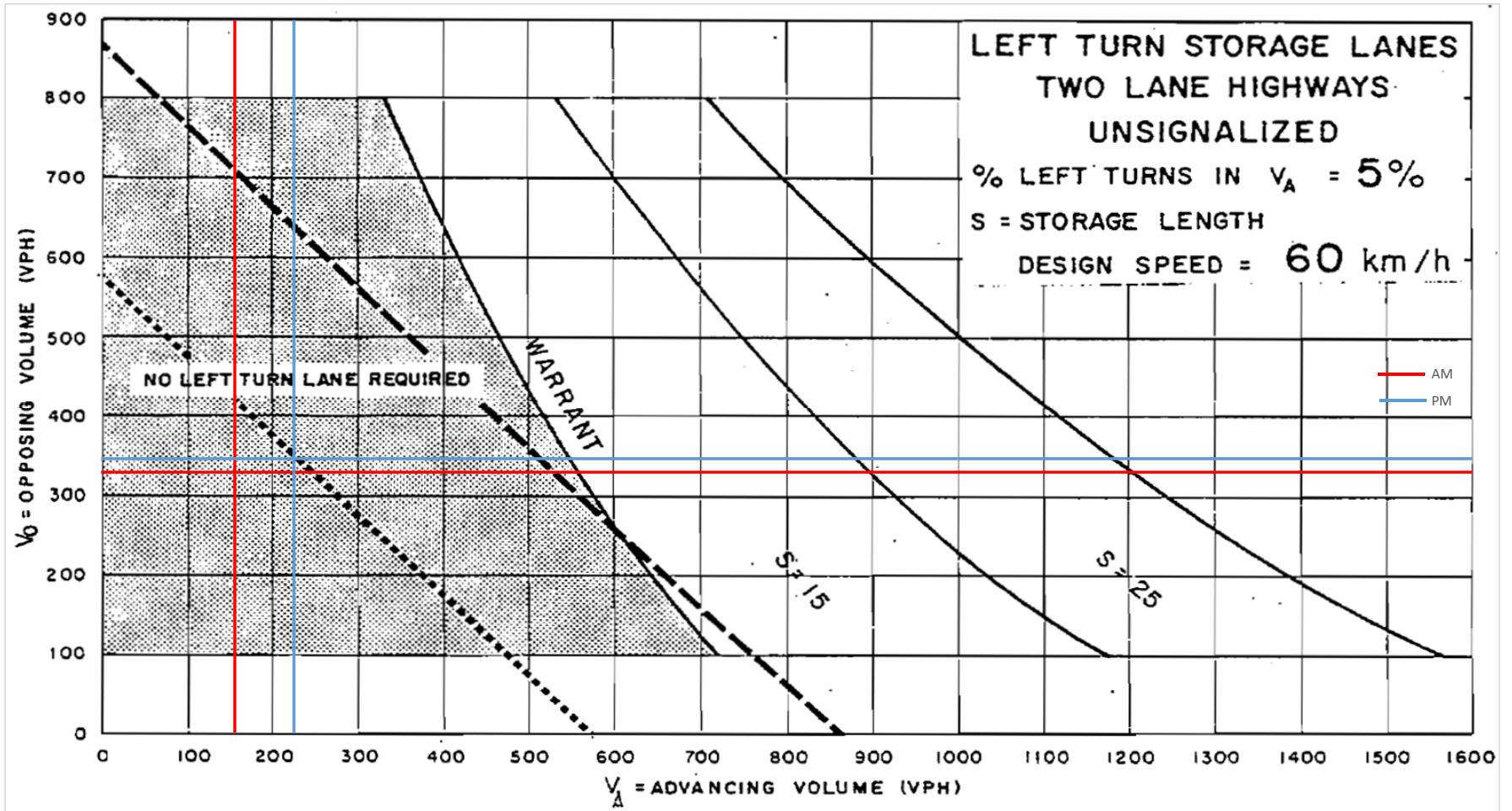
Appendix H

Left Turn Lane Warrants

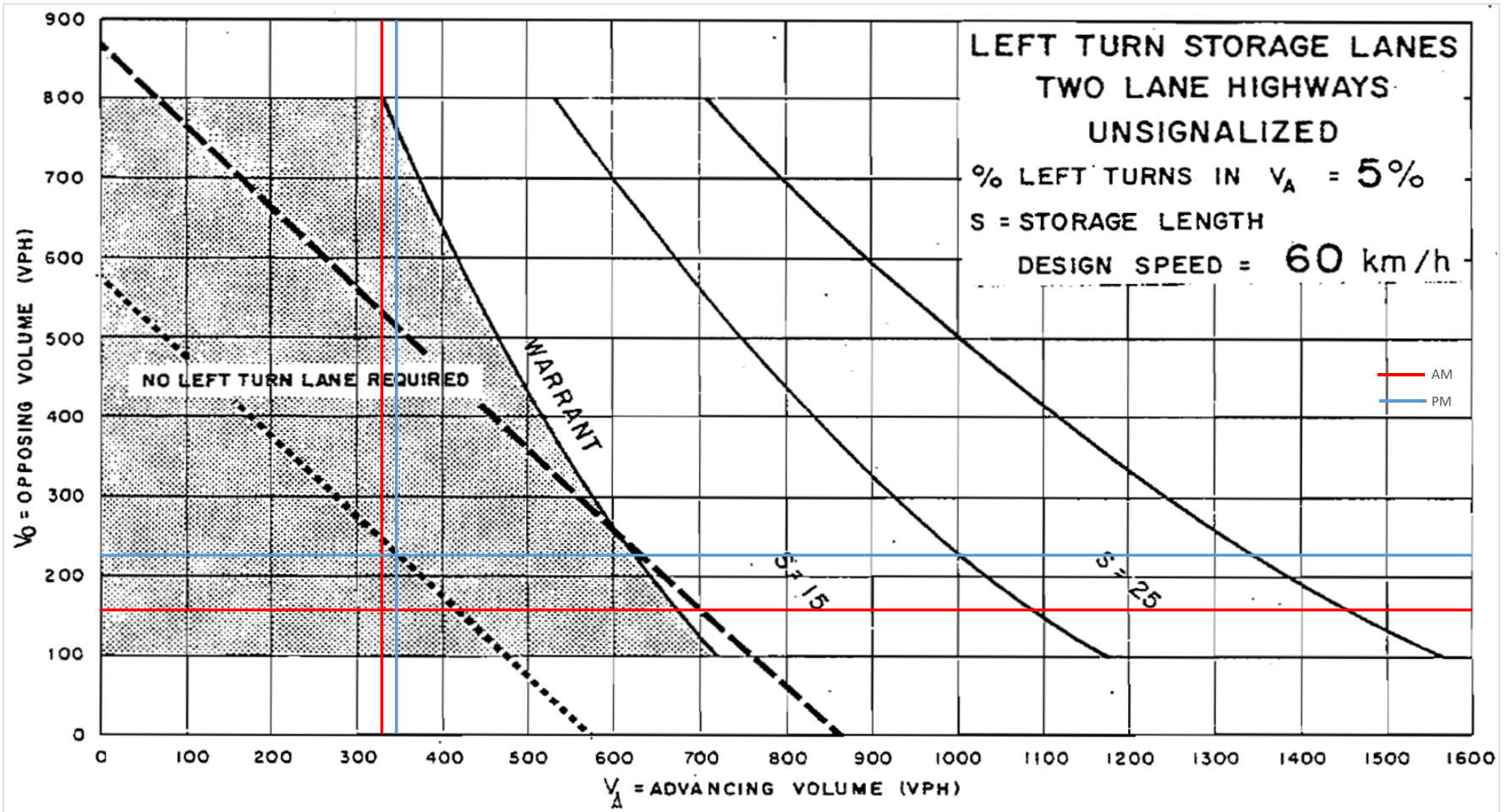
Access #1 at Burnhamthorpe Road Westbound Left



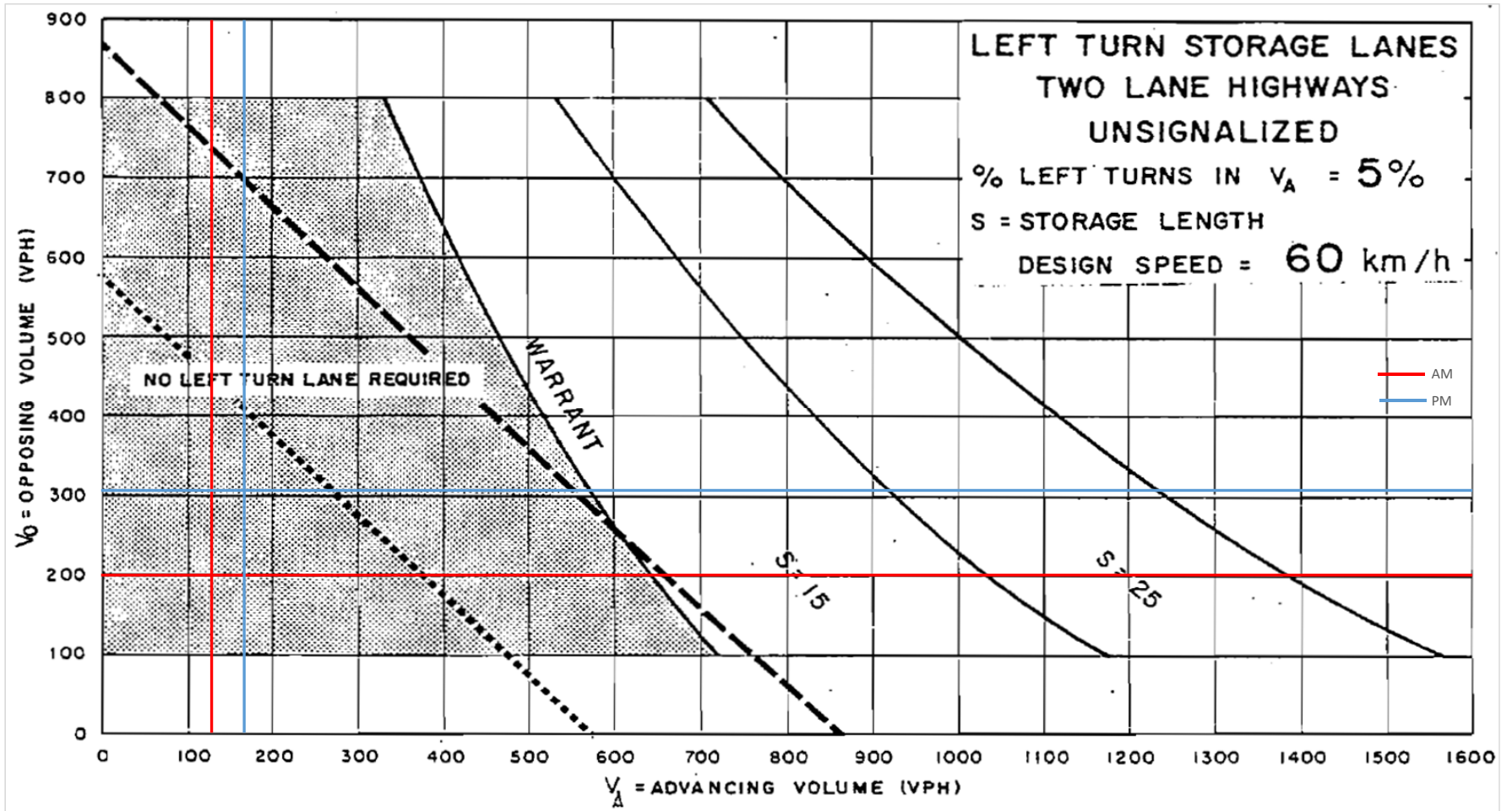
Access #2 at Burnhamthorpe Road Eastbound Left



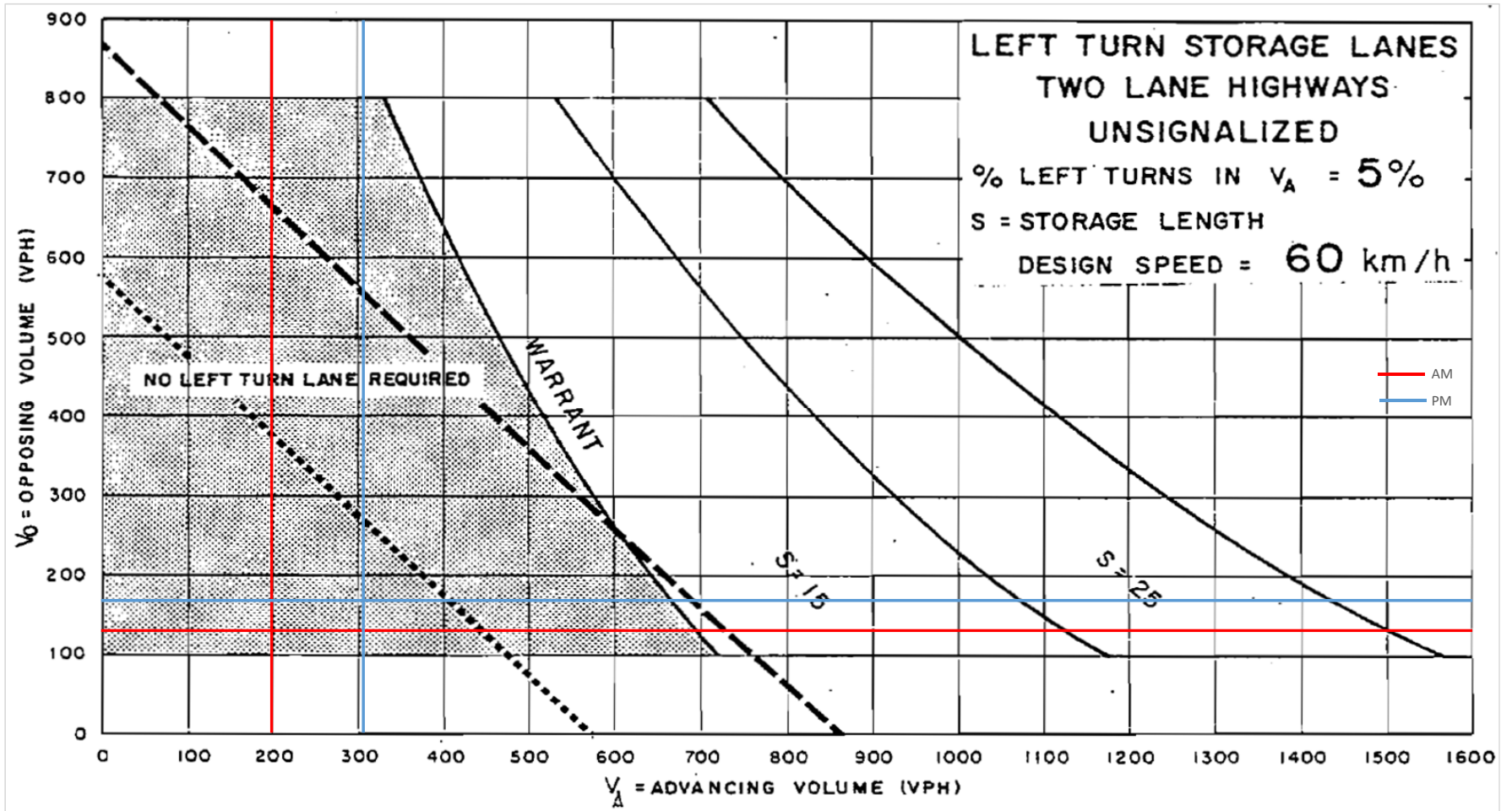
Access #2 at Burnhamthorpe Road Westbound Left



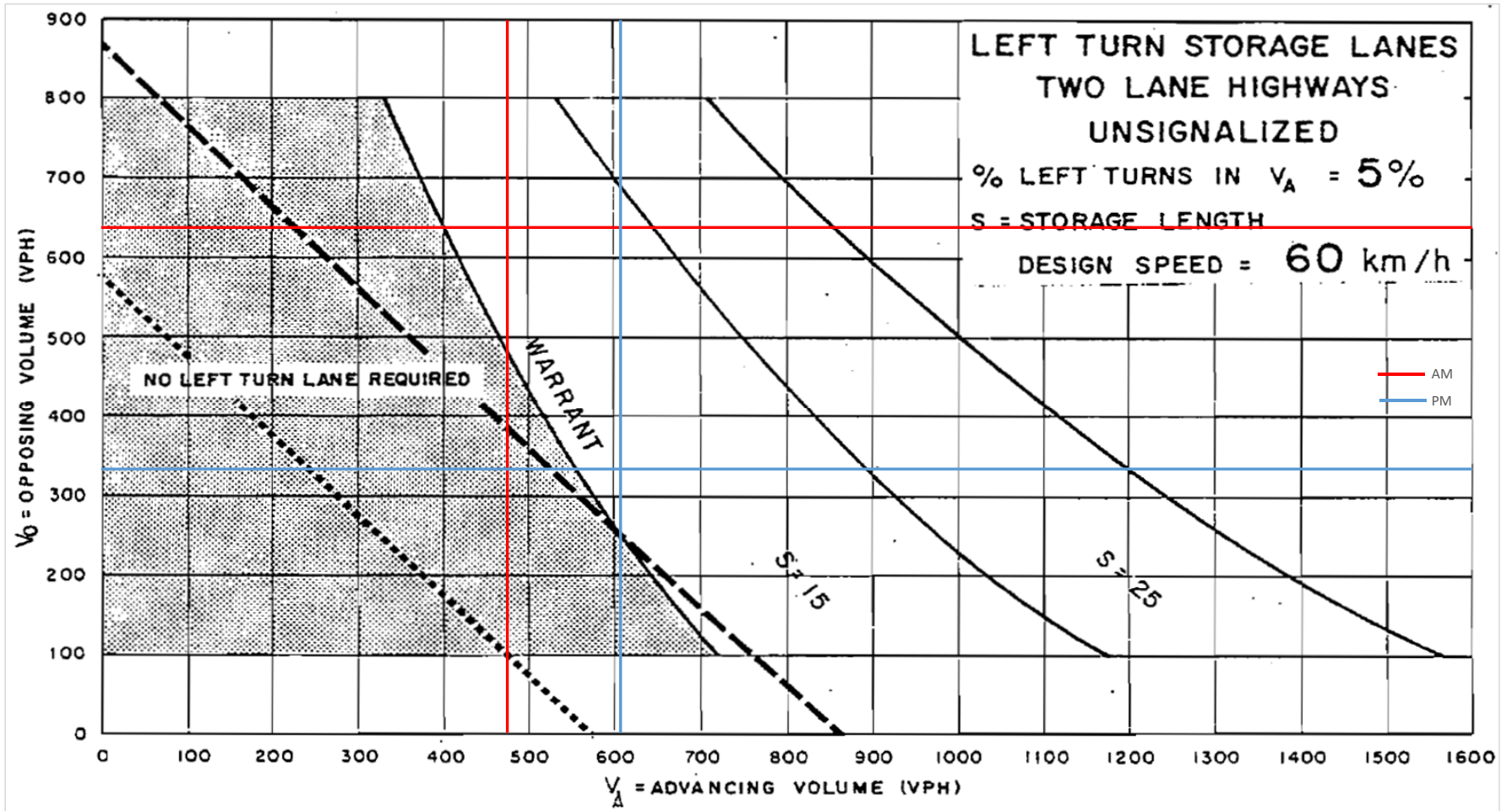
Access #3 at Burnhamthorpe Road Eastbound Left



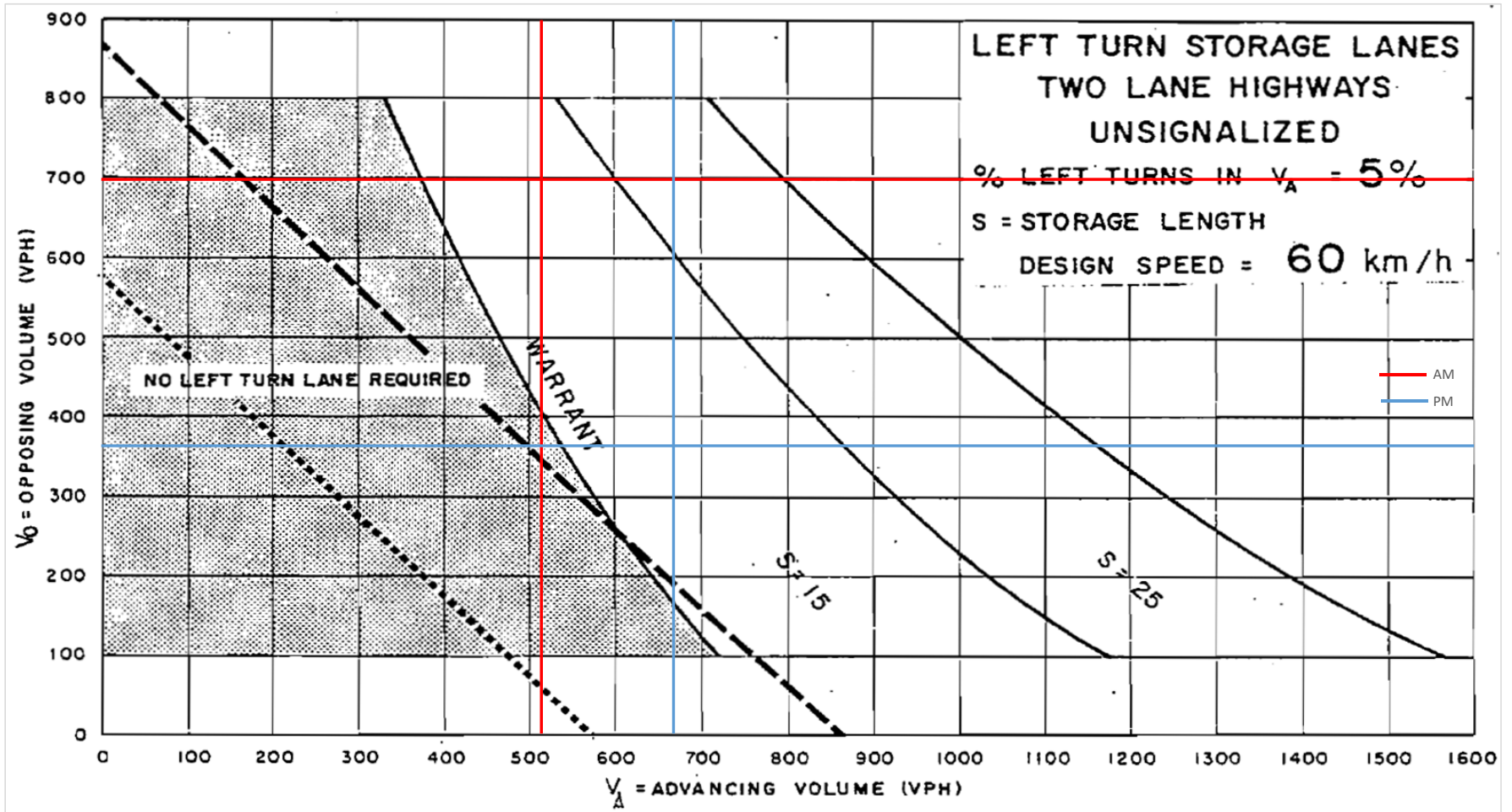
Access #3 at Burnhamthorpe Road Westbound Left



Access #8 at Burnhamthorpe Road Westbound Left



Access #9 at Burnhamthorpe Road Westbound Left



Appendix I

Traffic Control Signals Warrants

Access #1 @ Burnhamthorpe Road
2024 Total Future

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance		Signal	
		1 Lane Highway		2 or More Lanes		Sectional			Entire %
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	317	44%	15%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	25	15%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	420	600	900	292	70%	18%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	120	170	14	18%		

Notes

1. Refer to OTM Book 12, pg 88, Nov 2007
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, $AHV = PM/2$ or $(AM + PM) / 4$

Access #2 @ Burnhamthorpe Road
2024 Total Future

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance		Entire %	Signal
		1 Lane Highway		2 or More Lanes		Sectional			
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	296	41%	19%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	32	19%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	420	600	900	264	63%	25%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	120	170	19	25%		

Notes

1. Refer to OTM Book 12, pg 88, Nov 2007
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, $AHV = PM/2$ or $(AM + PM) / 4$

Access #3 @ Burnhamthorpe Road
2024 Total Future

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance		Signal	
		1 Lane Highway		2 or More Lanes		Sectional			Entire %
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	254	35%	31%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	54	31%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	420	600	900	200	48%	48%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	120	170	46	61%		

Notes

1. Refer to OTM Book 12, pg 88, Nov 2007
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, $AHV = PM/2$ or $(AM + PM) / 4$

Access #4 @ William Halton Parkway
2024 Total Future

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance		Entire %	Signal
		1 Lane Highway		2 or More Lanes		Sectional			
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	2134	237%	11%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	19	11%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	420	600	900	2115	235%	12%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	120	170	9	12%		

Notes

1. Refer to OTM Book 12, pg 88, Nov 2007
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, $AHV = PM/2$ or $(AM + PM) / 4$

Access #5 @ Sixth Line
2024 Total Future

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance		Signal	
		1 Lane Highway		2 or More Lanes		Sectional			Entire %
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	1134	126%	60%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	102	60%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	420	600	900	1031	115%	54%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	120	170	40	54%		

Notes

1. Refer to OTM Book 12, pg 88, Nov 2007
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, $AHV = PM/2$ or $(AM + PM) / 4$

Access #6 @ Sixth Line
2024 Total Future

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance		Entire %	Signal
		1 Lane Highway		2 or More Lanes		Sectional			
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	1466	163%	163%	Yes
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	293	172%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	420	600	900	1174	130%	122%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	120	170	92	122%		

Notes

1. Refer to OTM Book 12, pg 88, Nov 2007
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, $AHV = PM/2$ or $(AM + PM) / 4$

Access #7 @ Sixth Line
2024 Total Future

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance		Entire %	Signal
		1 Lane Highway		2 or More Lanes		Sectional			
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	1284	143%	10%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	17	10%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	420	600	900	1267	141%	9%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	120	170	7	9%		

Notes

1. Refer to OTM Book 12, pg 88, Nov 2007
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, $AHV = PM/2$ or $(AM + PM) / 4$

Access #8 @ Burnhamthorpe Road
2024 Total Future

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance		Entire %	Signal
		1 Lane Highway		2 or More Lanes		Sectional			
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	536	74%	14%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	23	14%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	420	600	900	513	122%	19%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	120	170	14	19%		

Notes

1. Refer to OTM Book 12, pg 88, Nov 2007
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, $AHV = PM/2$ or $(AM + PM) / 4$

Access #5 @ Sixth Line
 2024 Future Background

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance		Signal	
		1 Lane Highway		2 or More Lanes		Sectional			Entire %
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	1098	122%	64%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	110	64%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	420	600	900	989	110%	73%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	120	170	55	73%		

Notes

1. Refer to OTM Book 12, pg 88, Nov 2007
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, $AHV = PM/2$ or $(AM + PM) / 4$

Access #9 @ Burnhamthorpe Road
 2024 Total Future

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance		Entire %	Signal
		1 Lane Highway		2 or More Lanes		Sectional			
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	595	83%	20%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	35	20%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	420	600	900	561	133%	23%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	120	170	17	23%		

Notes

1. Refer to OTM Book 12, pg 88, Nov 2007
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, $AHV = PM/2$ or $(AM + PM) / 4$

Burnhamthorpe Road @ William Halton Parkway
2024 Total Future

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance		Signal	
		1 Lane Highway		2 or More Lanes		Sectional			Entire %
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	2524	280%	180%	Yes
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	306	180%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	420	600	900	2218	246%	246%	Yes
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	120	170	203	270%		

Notes

1. Refer to OTM Book 12, pg 88, Nov 2007
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, $AHV = PM/2$ or $(AM + PM) / 4$

Appendix J

2024 Total Future Conditions Synchro Worksheets

Lanes, Volumes, Timings
1: Neyagawa Boulevard & William Halton Parkway

2024 Future Total AM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	2139	156	430	2224	35	172	507	485	56	192	65
Future Volume (vph)	38	2139	156	430	2224	35	172	507	485	56	192	65
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	3433	5085	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.058			0.950			0.546			0.176		
Satd. Flow (perm)	108	5085	1583	3433	5085	1583	1017	3539	1583	328	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			98			57			57			87
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		433.0			261.8			285.2			280.3	
Travel Time (s)		31.2			18.8			20.5			20.2	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	46	2609	190	524	2712	43	210	618	591	68	234	79
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	2609	190	524	2712	43	210	618	591	68	234	79
Enter Blocked Intersection	No	No	No	No	No	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	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	Perm	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases		2		1	6		3	8	1	7	4	
Permitted Phases	2		2			6	8		8	4		4

Lanes, Volumes, Timings
1: Neyagawa Boulevard & William Halton Parkway

2024 Future Total AM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2	2	1	6	6	3	8	1	7	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	5.0	15.0	7.0	5.0	15.0	15.0
Minimum Split (s)	40.4	40.4	40.4	11.0	40.4	40.4	9.5	37.4	11.0	9.5	37.4	37.4
Total Split (s)	76.1	76.1	76.1	27.0	103.1	103.1	9.5	37.4	27.0	9.5	37.4	37.4
Total Split (%)	50.7%	50.7%	50.7%	18.0%	68.7%	68.7%	6.3%	24.9%	18.0%	6.3%	24.9%	24.9%
Maximum Green (s)	69.7	69.7	69.7	23.0	96.7	96.7	5.0	31.0	23.0	5.0	31.0	31.0
Yellow Time (s)	3.7	3.7	3.7	3.0	3.7	3.7	3.5	3.7	3.0	3.5	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	1.0	2.7	2.7	1.0	2.7	1.0	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	4.0	6.4	6.4	4.5	6.4	4.0	4.5	6.4	6.4
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	None	C-Max	C-Max	None	Max	None	None	Max	Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)	27.0	27.0	27.0		27.0	27.0		24.0			24.0	24.0
Pedestrian Calls (#/hr)	0	0	0		0	0		0			0	0
Act Effect Green (s)	69.7	69.7	69.7	23.0	96.7	96.7	38.8	32.9	62.3	37.9	31.0	31.0
Actuated g/C Ratio	0.46	0.46	0.46	0.15	0.64	0.64	0.26	0.22	0.42	0.25	0.21	0.21
v/c Ratio	0.92	1.10	0.24	1.00	0.83	0.04	0.73	0.80	0.86	0.52	0.32	0.20
Control Delay	147.8	92.0	12.1	100.8	23.2	1.4	64.6	64.5	49.9	56.6	52.0	8.9
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	147.8	92.0	12.1	100.8	23.2	1.4	64.6	64.5	49.9	56.6	52.0	8.9
LOS	F	F	B	F	C	A	E	E	D	E	D	A
Approach Delay		87.6			35.3			58.4				43.9
Approach LOS		F			D			E				D
Queue Length 50th (m)	13.2	~339.4	16.1	85.6	223.9	0.0	53.8	98.8	157.2	16.0	33.1	0.0
Queue Length 95th (m)	#37.6	#308.0	27.6	#106.3	199.7	2.3	71.3	109.4	183.1	26.5	42.2	9.5
Internal Link Dist (m)		409.0			237.8			261.2				256.3
Turn Bay Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Base Capacity (vph)	50	2362	788	526	3278	1040	288	776	690	130	731	396
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	1.10	0.24	1.00	0.83	0.04	0.73	0.80	0.86	0.52	0.32	0.20

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 64 (43%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.10
 Intersection Signal Delay: 58.6 Intersection LOS: E
 Intersection Capacity Utilization 93.4% ICU Level of Service F
 Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Lanes, Volumes, Timings
 1: Neyagawa Boulevard & William Halton Parkway

2024 Future Total AM
 Neighbourhood 10

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

























Queue shown is maximum after two cycles.

Splits and Phases: 1: Neyagawa Boulevard & William Halton Parkway

27 s	76.1 s	9.5 s	37.4 s
103.1 s		9.5 s	37.4 s

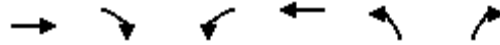
HCM 2010 Signalized Intersection Summary
 1: Neyagawa Boulevard & William Halton Parkway

2024 Future Total AM
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	2139	156	430	2224	35	172	507	485	56	192	65
Future Volume (veh/h)	38	2139	156	430	2224	35	172	507	485	56	192	65
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	46	2609	190	524	2712	43	210	618	591	68	234	79
Adj No. of Lanes	1	3	1	2	3	1	1	2	1	1	2	1
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	72	2363	736	528	3278	1021	267	731	570	125	731	327
Arrive On Green	0.46	0.46	0.46	0.15	0.64	0.64	0.03	0.21	0.21	0.03	0.21	0.21
Sat Flow, veh/h	101	5085	1583	3442	5085	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	46	2609	190	524	2712	43	210	618	591	68	234	79
Grp Sat Flow(s),veh/h/ln	101	1695	1583	1721	1695	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	35.8	69.7	11.0	22.8	60.9	1.5	5.0	25.2	31.0	4.5	8.4	6.2
Cycle Q Clear(g_c), s	69.7	69.7	11.0	22.8	60.9	1.5	5.0	25.2	31.0	4.5	8.4	6.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	72	2363	736	528	3278	1021	267	731	570	125	731	327
V/C Ratio(X)	0.64	1.10	0.26	0.99	0.83	0.04	0.79	0.84	1.04	0.54	0.32	0.24
Avail Cap(c_a), veh/h	72	2363	736	528	3278	1021	267	731	570	125	731	327
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.6	40.2	24.4	63.4	20.3	9.7	57.0	57.2	48.0	47.5	50.5	49.7
Incr Delay (d2), s/veh	36.0	53.9	0.8	37.3	2.5	0.1	14.4	11.5	47.6	4.8	1.2	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	44.4	4.9	13.6	29.1	0.7	7.2	13.4	31.1	2.4	4.2	2.9
LnGrp Delay(d),s/veh	101.6	94.0	25.3	100.7	22.8	9.8	71.4	68.7	95.6	52.3	51.7	51.4
LnGrp LOS	F	F	C	F	C	A	E	E	F	D	D	D
Approach Vol, veh/h		2845			3279			1419			381	
Approach Delay, s/veh		89.6			35.1			80.3			51.8	
Approach LOS		F			D			F			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s	27.0	76.1	9.5	37.4		103.1	9.5	37.4				
Change Period (Y+Rc), s	4.0	6.4	4.5	6.4		6.4	4.5	6.4				
Max Green Setting (Gmax), s	23.0	69.7	5.0	31.0		96.7	5.0	31.0				
Max Q Clear Time (g_c+I1), s	24.8	71.7	7.0	10.4		62.9	6.5	33.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	2.0		30.8	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			63.5									
HCM 2010 LOS			E									

Lanes, Volumes, Timings
2: Burnhamthorpe Road & William Halton Parkway

2024 Future Total AM
Neighbourhood 10



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	2105	161	2	2115	393	6
Future Volume (vph)	2105	161	2	2115	393	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		75.0	75.0		0.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			75.0		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted			0.061		0.950	
Satd. Flow (perm)	3539	1583	114	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		159				7
Link Speed (k/h)	50			50	50	
Link Distance (m)	217.7			610.7	181.6	
Travel Time (s)	15.7			44.0	13.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2288	175	2	2299	427	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2288	175	2	2299	427	7
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)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8

Lanes, Volumes, Timings
 2: Burnhamthorpe Road & William Halton Parkway

2024 Future Total AM
 Neighbourhood 10



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.1	23.1	26.0	26.0	23.5	23.5
Total Split (s)	71.0	71.0	71.0	71.0	29.0	29.0
Total Split (%)	71.0%	71.0%	71.0%	71.0%	29.0%	29.0%
Maximum Green (s)	65.9	65.9	65.9	65.9	23.5	23.5
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.4	1.4	1.4	1.4	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effect Green (s)	65.9	65.9	65.9	65.9	23.5	23.5
Actuated g/C Ratio	0.66	0.66	0.66	0.66	0.24	0.24
v/c Ratio	0.98	0.16	0.03	0.99	1.03	0.02
Control Delay	32.1	1.7	8.5	19.8	90.8	17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.1	1.7	8.5	19.8	90.8	17.0
LOS	C	A	A	B	F	B
Approach Delay	29.9			19.8	89.6	
Approach LOS	C			B	F	
Queue Length 50th (m)	213.1	1.0	0.1	66.4	~93.5	0.0
Queue Length 95th (m)	#296.1	7.8	m0.1	#294.5	#153.7	3.7
Internal Link Dist (m)	193.7			586.7	157.6	
Turn Bay Length (m)		75.0	75.0			
Base Capacity (vph)	2332	1097	75	2332	415	377
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	0.98	0.16	0.03	0.99	1.03	0.02

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	51 (51%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle:	110
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.03
Intersection Signal Delay:	30.4
Intersection LOS:	C
Intersection Capacity Utilization:	89.1%
ICU Level of Service:	E
Analysis Period (min):	15

~ Volume exceeds capacity, queue is theoretically infinite.

Lanes, Volumes, Timings
 2: Burnhamthorpe Road & William Halton Parkway

2024 Future Total AM
 Neighbourhood 10







- Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
- Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Burnhamthorpe Road & William Halton Parkway

 Ø2 (R) 71 s	 Ø8 29 s
 Ø6 (R) 71 s	

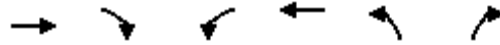
HCM 2010 Signalized Intersection Summary
 2: Burnhamthorpe Road & William Halton Parkway

2024 Future Total AM
 Neighbourhood 10

								
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑		
Traffic Volume (veh/h)	2105	161	2	2115	393	6		
Future Volume (veh/h)	2105	161	2	2115	393	6		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	2288	175	2	2299	427	7		
Adj No. of Lanes	2	1	1	2	1	1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	2332	1043	77	2332	417	372		
Arrive On Green	0.66	0.66	0.66	0.66	0.23	0.23		
Sat Flow, veh/h	3632	1583	136	3632	1774	1583		
Grp Volume(v), veh/h	2288	175	2	2299	427	7		
Grp Sat Flow(s),veh/h/ln	1770	1583	136	1770	1774	1583		
Q Serve(g_s), s	62.4	4.2	1.4	63.2	23.5	0.3		
Cycle Q Clear(g_c), s	62.4	4.2	63.8	63.2	23.5	0.3		
Prop In Lane		1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	2332	1043	77	2332	417	372		
V/C Ratio(X)	0.98	0.17	0.03	0.99	1.02	0.02		
Avail Cap(c_a), veh/h	2332	1043	77	2332	417	372		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	16.4	6.5	47.2	16.6	38.3	29.4		
Incr Delay (d2), s/veh	14.7	0.3	0.6	15.6	50.4	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	34.6	1.9	0.1	35.4	17.3	0.1		
LnGrp Delay(d),s/veh	31.1	6.9	47.8	32.2	88.6	29.4		
LnGrp LOS	C	A	D	C	F	C		
Approach Vol, veh/h	2463			2301	434			
Approach Delay, s/veh	29.4			32.2	87.7			
Approach LOS	C			C	F			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		71.0				71.0		29.0
Change Period (Y+Rc), s		* 5.1				* 5.1		5.5
Max Green Setting (Gmax), s		* 66				* 66		23.5
Max Q Clear Time (g_c+I1), s		64.4				65.8		25.5
Green Ext Time (p_c), s		1.5				0.1		0.0
Intersection Summary								
HCM 2010 Ctrl Delay			35.5					
HCM 2010 LOS			D					
Notes								

Lanes, Volumes, Timings
4: Access #4 & William Halton Parkway

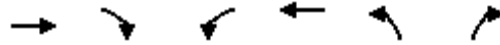
2024 Future Total AM
Neighbourhood 10



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (vph)	2106	5	5	2102	15	15
Future Volume (vph)	2106	5	5	2102	15	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	75.0		0.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			75.0		7.5	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	0	1770	3539	1770	1583
Flt Permitted			0.056		0.950	
Satd. Flow (perm)	3539	0	104	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	1					13
Link Speed (k/h)	50			50	50	
Link Distance (m)	610.7			274.6	171.9	
Travel Time (s)	44.0			19.8	12.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2289	5	5	2285	16	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2294	0	5	2285	16	16
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)		15	25		25	15
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6		2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8

Lanes, Volumes, Timings
4: Access #4 & William Halton Parkway

2024 Future Total AM
Neighbourhood 10

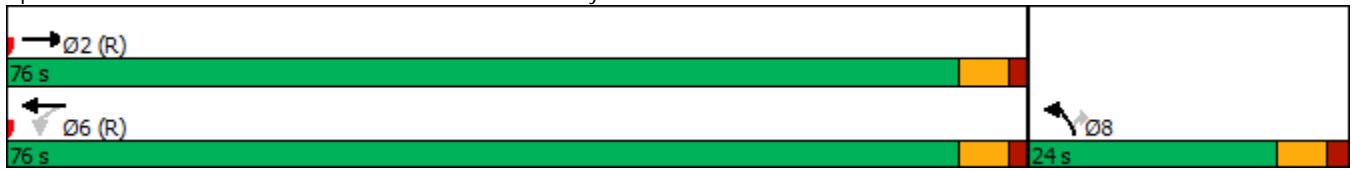













Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2		6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	23.1		23.1	23.1	23.5	23.5
Total Split (s)	76.0		76.0	76.0	24.0	24.0
Total Split (%)	76.0%		76.0%	76.0%	24.0%	24.0%
Maximum Green (s)	70.9		70.9	70.9	18.5	18.5
Yellow Time (s)	3.7		3.7	3.7	3.7	3.7
All-Red Time (s)	1.4		1.4	1.4	1.8	1.8
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1		5.1	5.1	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		C-Max	C-Max	Max	Max
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effect Green (s)	70.9		70.9	70.9	18.5	18.5
Actuated g/C Ratio	0.71		0.71	0.71	0.18	0.18
v/c Ratio	0.91		0.07	0.91	0.05	0.05
Control Delay	31.9		6.8	19.1	34.1	19.2
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	31.9		6.8	19.1	34.1	19.2
LOS	C		A	B	C	B
Approach Delay	31.9			19.1	26.7	
Approach LOS	C			B	C	
Queue Length 50th (m)	0.0		0.3	174.6	2.7	0.5
Queue Length 95th (m)	m0.0		1.6	225.0	8.6	6.4
Internal Link Dist (m)	586.7			250.6	147.9	
Turn Bay Length (m)			75.0			
Base Capacity (vph)	2509		73	2509	327	303
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.91		0.07	0.91	0.05	0.05

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 24 (24%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 25.5
 Intersection LOS: C
 Intersection Capacity Utilization 71.4%
 ICU Level of Service C
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Access #4 & William Halton Parkway

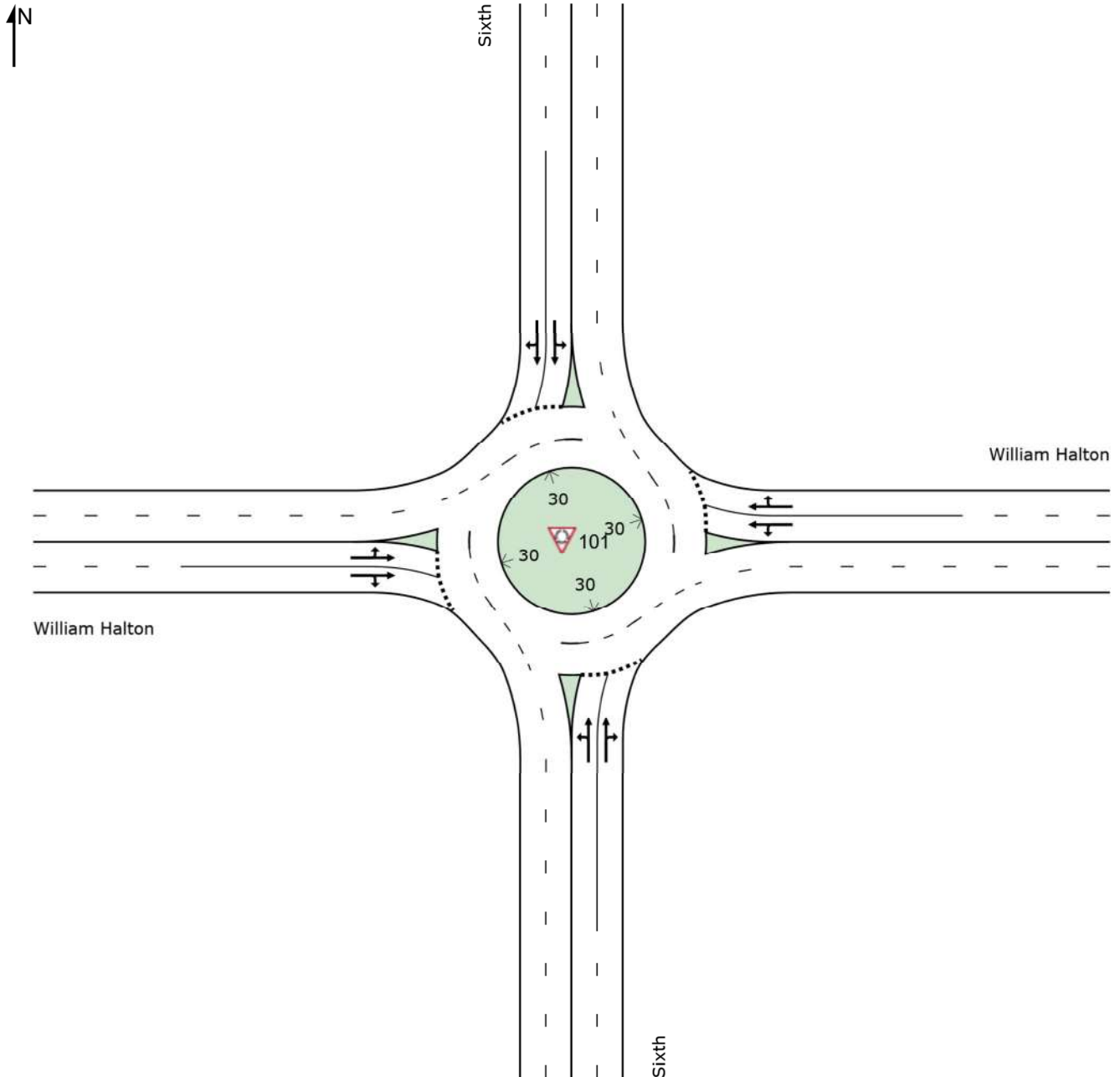


								
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations								
Traffic Volume (veh/h)	2106	5	5	2102	15	15		
Future Volume (veh/h)	2106	5	5	2102	15	15		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1863		
Adj Flow Rate, veh/h	2289	5	5	2285	16	16		
Adj No. of Lanes	2	0	1	2	1	1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	2569	6	93	2509	328	293		
Arrive On Green	0.48	0.48	0.71	0.71	0.19	0.19		
Sat Flow, veh/h	3716	8	160	3632	1774	1583		
Grp Volume(v), veh/h	1118	1176	5	2285	16	16		
Grp Sat Flow(s),veh/h/ln	1770	1861	160	1770	1774	1583		
Q Serve(g_s), s	57.5	57.5	2.8	53.0	0.7	0.8		
Cycle Q Clear(g_c), s	57.5	57.5	60.3	53.0	0.7	0.8		
Prop In Lane		0.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	1255	1320	93	2509	328	293		
V/C Ratio(X)	0.89	0.89	0.05	0.91	0.05	0.05		
Avail Cap(c_a), veh/h	1255	1320	93	2509	328	293		
HCM Platoon Ratio	0.67	0.67	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	22.7	22.7	38.7	11.9	33.5	33.6		
Incr Delay (d2), s/veh	9.8	9.4	1.1	6.3	0.3	0.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	31.3	32.8	0.2	27.6	0.4	0.4		
LnGrp Delay(d),s/veh	32.5	32.1	39.8	18.3	33.8	33.9		
LnGrp LOS	C	C	D	B	C	C		
Approach Vol, veh/h	2294			2290	32			
Approach Delay, s/veh	32.3			18.3	33.8			
Approach LOS	C			B	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		76.0				76.0		24.0
Change Period (Y+Rc), s		* 5.1				* 5.1		5.5
Max Green Setting (Gmax), s		* 71				* 71		18.5
Max Q Clear Time (g_c+I1), s		59.5				62.3		2.8
Green Ext Time (p_c), s		10.7				8.1		0.1
Intersection Summary								
HCM 2010 Ctrl Delay			25.4					
HCM 2010 LOS			C					
Notes								

SITE LAYOUT

 Site: 101 [WH & 6th - 2024 AM FB]

New Site
Site Category: (None)
Roundabout



MOVEMENT SUMMARY

 Site: 101 [WH & 6th - 2024 AM Future]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Sixth												
1	L2	116	2.0	1.455	432.0	LOS F	112.2	798.7	1.00	5.49	15.40	7.7
2	T1	1057	2.0	1.455	424.7	LOS F	157.7	1122.6	1.00	6.25	17.04	7.7
3	R2	102	2.0	1.455	423.7	LOS F	157.7	1122.6	1.00	6.73	18.07	7.7
Approach		1275	2.0	1.455	425.3	LOS F	157.7	1122.6	1.00	6.22	16.97	7.7
East: William Halton												
4	L2	32	2.0	1.539	500.1	LOS F	243.4	1732.8	1.00	8.93	23.68	6.8
5	T1	2218	2.0	1.539	493.7	LOS F	300.6	2140.3	1.00	9.59	24.83	6.8
6	R2	120	2.0	1.539	493.2	LOS F	300.6	2140.3	1.00	10.16	25.82	6.7
Approach		2369	2.0	1.539	493.8	LOS F	300.6	2140.3	1.00	9.61	24.87	6.8
North: Sixth												
7	L2	156	2.0	1.516	484.6	LOS F	136.7	973.2	1.00	6.24	17.66	7.0
8	T1	1084	2.0	1.516	477.7	LOS F	189.3	1347.5	1.00	7.05	19.37	7.0
9	R2	193	2.0	1.516	476.9	LOS F	189.3	1347.5	1.00	7.60	20.55	6.9
Approach		1433	2.0	1.516	478.3	LOS F	189.3	1347.5	1.00	7.03	19.35	7.0
West: William Halton												
10	L2	180	2.0	1.541	502.2	LOS F	253.6	1805.5	1.00	9.13	23.72	6.8
11	T1	2233	2.0	1.541	495.8	LOS F	309.4	2202.9	1.00	9.81	24.85	6.8
12	R2	33	2.0	1.541	495.4	LOS F	309.4	2202.9	1.00	10.28	25.64	6.7
Approach		2445	2.0	1.541	496.3	LOS F	309.4	2202.9	1.00	9.76	24.78	6.8
All Vehicles		7522	2.0	1.541	480.0	LOS F	309.4	2202.9	1.00	8.60	22.45	6.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Organisation: CGH TRANSPORTATION | Processed: February 22, 2019 10:49:54 AM

Project: C:\Users\AndrewHarte\CGH TRANSPORTATION\CGH Working - Documents\Projects\2018-23 Mattamy Neighbourhood 10\DATA\Sidra WH & 6.sip8

Lanes, Volumes, Timings
6: Trafalgar Road & William Halton Parkway

2024 Future Total AM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↶↶↶		↶	↶↶↶		↶	↶↶		↶	↶↶	
Traffic Volume (vph)	123	2180	90	12	2126	15	101	1590	17	20	1678	94
Future Volume (vph)	123	2180	90	12	2126	15	101	1590	17	20	1678	94
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	180.0		0.0	180.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	75.0			75.0			75.0			75.0		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.994			0.999			0.998			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5055	0	1770	5080	0	1770	3532	0	1770	3511	0
Flt Permitted	0.084			0.092			0.079			0.086		
Satd. Flow (perm)	156	5055	0	171	5080	0	147	3532	0	160	3511	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			1			1			5	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		423.9			380.3			358.0			447.7	
Travel Time (s)		30.5			27.4			25.8			32.2	
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)	134	2370	98	13	2311	16	110	1728	18	22	1824	102
Shared Lane Traffic (%)												
Lane Group Flow (vph)	134	2468	0	13	2327	0	110	1746	0	22	1926	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	pm+pt	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	5	2		6	6		3	8		4	4	
Permitted Phases	2			6			8			4		

Lanes, Volumes, Timings
6: Trafalgar Road & William Halton Parkway

2024 Future Total AM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		6	6		3	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0		5.0	20.0		20.0	20.0	
Minimum Split (s)	9.5	39.6		39.6	39.6		9.5	39.6		39.6	39.6	
Total Split (s)	9.5	58.5		49.0	49.0		9.5	61.5		52.0	52.0	
Total Split (%)	7.9%	48.8%		40.8%	40.8%		7.9%	51.3%		43.3%	43.3%	
Maximum Green (s)	5.0	52.9		43.4	43.4		5.0	55.9		46.4	46.4	
Yellow Time (s)	3.5	3.7		3.7	3.7		3.5	3.7		3.7	3.7	
All-Red Time (s)	1.0	1.9		1.9	1.9		1.0	1.9		1.9	1.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	5.6		5.6	5.6		4.5	5.6		5.6	5.6	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max		None	Max		Max	Max	
Walk Time (s)		7.0		7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)		27.0		27.0	27.0			27.0		27.0	27.0	
Pedestrian Calls (#/hr)		0		0	0			0		0	0	
Act Effct Green (s)	54.0	52.9		43.4	43.4		57.0	55.9		46.4	46.4	
Actuated g/C Ratio	0.45	0.44		0.36	0.36		0.48	0.47		0.39	0.39	
v/c Ratio	0.98	1.11		0.21	1.27		0.80	1.06		0.36	1.42	
Control Delay	97.9	87.4		37.2	158.3		59.5	72.3		46.3	222.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	97.9	87.4		37.2	158.3		59.5	72.3		46.3	222.4	
LOS	F	F		D	F		E	E		D	F	
Approach Delay		88.0			157.7			71.6			220.4	
Approach LOS		F			F			E			F	
Queue Length 50th (m)	19.3	~255.7		2.2	~267.5		14.9	~250.9		3.8	~340.3	
Queue Length 95th (m)	#58.6	#285.7		8.5	#298.0		#42.9	#296.2		13.7	#385.3	
Internal Link Dist (m)		399.9			356.3			334.0			423.7	
Turn Bay Length (m)	30.0			30.0			180.0			180.0		
Base Capacity (vph)	137	2232		61	1837		137	1645		61	1360	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.98	1.11		0.21	1.27		0.80	1.06		0.36	1.42	

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	150
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.42
Intersection Signal Delay:	132.6
Intersection LOS:	F
Intersection Capacity Utilization:	132.3%
ICU Level of Service:	H
Analysis Period (min):	15

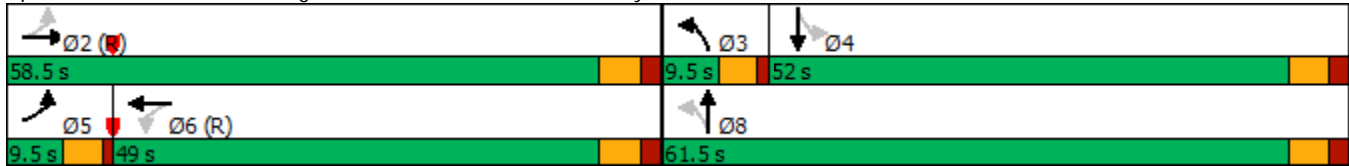
~ Volume exceeds capacity, queue is theoretically infinite.

Lanes, Volumes, Timings
 6: Trafalgar Road & William Halton Parkway

2024 Future Total AM
 Neighbourhood 10

























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

Splits and Phases: 6: Trafalgar Road & William Halton Parkway



HCM 2010 Signalized Intersection Summary
6: Trafalgar Road & William Halton Parkway

2024 Future Total AM
Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (veh/h)	123	2180	90	12	2126	15	101	1590	17	20	1678	94
Future Volume (veh/h)	123	2180	90	12	2126	15	101	1590	17	20	1678	94
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	134	2370	98	13	2311	16	110	1728	18	22	1824	102
Adj No. of Lanes	1	3	0	1	3	0	1	2	0	1	2	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	134	2209	91	60	1884	13	134	1672	17	60	1319	73
Arrive On Green	0.04	0.44	0.44	0.36	0.36	0.36	0.04	0.47	0.47	0.39	0.39	0.39
Sat Flow, veh/h	1774	5011	206	135	5211	36	1774	3588	37	275	3410	189
Grp Volume(v), veh/h	134	1599	869	13	1503	824	110	851	895	22	939	987
Grp Sat Flow(s),veh/h/ln	1774	1695	1826	135	1695	1856	1774	1770	1856	275	1770	1829
Q Serve(g_s), s	5.0	52.9	52.9	0.0	43.4	43.4	4.4	55.9	55.9	0.0	46.4	46.4
Cycle Q Clear(g_c), s	5.0	52.9	52.9	43.4	43.4	43.4	4.4	55.9	55.9	46.4	46.4	46.4
Prop In Lane	1.00		0.11	1.00		0.02	1.00		0.02	1.00		0.10
Lane Grp Cap(c), veh/h	134	1495	805	60	1226	671	134	824	865	60	684	707
V/C Ratio(X)	1.00	1.07	1.08	0.22	1.23	1.23	0.82	1.03	1.03	0.37	1.37	1.40
Avail Cap(c_a), veh/h	134	1495	805	60	1226	671	134	824	865	60	684	707
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.6	33.5	33.6	60.0	38.3	38.3	29.5	32.0	32.1	60.0	36.8	36.8
Incr Delay (d2), s/veh	77.9	44.4	55.5	8.1	109.0	115.1	31.9	40.0	40.0	16.4	176.5	186.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	33.9	39.0	0.6	38.8	43.7	3.3	36.4	38.2	1.0	56.2	60.1
LnGrp Delay(d),s/veh	111.5	78.0	89.0	68.1	147.3	153.4	61.3	72.1	72.0	76.4	213.3	223.5
LnGrp LOS	F	F	F	E	F	F	E	F	F	E	F	F
Approach Vol, veh/h		2602			2340			1856			1948	
Approach Delay, s/veh		83.4			149.1			71.4			216.9	
Approach LOS		F			F			E			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		58.5	9.5	52.0	9.5	49.0		61.5				
Change Period (Y+Rc), s		* 5.6	4.5	* 5.6	4.5	* 5.6		* 5.6				
Max Green Setting (Gmax), s		* 53	5.0	* 46	5.0	* 43		* 56				
Max Q Clear Time (g_c+I1), s		54.9	6.4	48.4	7.0	45.4		57.9				
Green Ext Time (p_c), s		0.0	0.0	0.0	0.0	0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				128.2								
HCM 2010 LOS				F								
Notes												

Lanes, Volumes, Timings
7: Access #1 & Burnhamthorpe Road

2024 Future Total AM
Neighbourhood 10



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	155	11	5	366	33	6
Future Volume (vph)	155	11	5	366	33	6
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	0.991			0.978		
Flt Protected				0.999	0.960	
Satd. Flow (prot)	1846	0	0	1861	1749	0
Flt Permitted				0.999	0.960	
Satd. Flow (perm)	1846	0	0	1861	1749	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.6			137.0	150.8	
Travel Time (s)	13.1			9.9	10.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	168	12	5	398	36	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	180	0	0	403	43	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	33.3%
Analysis Period (min)	15
	ICU Level of Service A

Intersection

Int Delay, s/veh 0.9

Movement EBT EBR WBL WBT NBL NBR

Lane Configurations						
Traffic Vol, veh/h	155	11	5	366	33	6
Future Vol, veh/h	155	11	5	366	33	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	168	12	5	398	36	7

Major/Minor Major1 Major2 Minor1

Conflicting Flow All	0	0	180	0	582	174
Stage 1	-	-	-	-	174	-
Stage 2	-	-	-	-	408	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1396	-	475	869
Stage 1	-	-	-	-	856	-
Stage 2	-	-	-	-	671	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1396	-	473	869
Mov Cap-2 Maneuver	-	-	-	-	473	-
Stage 1	-	-	-	-	852	-
Stage 2	-	-	-	-	671	-

Approach EB WB NB

















HCM Control Delay, s	0	0.1	12.7
HCM LOS			B

Minor Lane/Major Mvmt NBLn1 EBT EBR WBL WBT

Capacity (veh/h)	509	-	-	1396	-
HCM Lane V/C Ratio	0.083	-	-	0.004	-
HCM Control Delay (s)	12.7	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Lanes, Volumes, Timings
8: Access #2 & Burnhamthorpe Road

2024 Future Total AM
Neighbourhood 10

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	141	10	4	320	5	31	5	12	8	5	15
Future Volume (vph)	5	141	10	4	320	5	31	5	12	8	5	15
Ideal Flow (vphp)	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			0.998			0.966			0.928	
Flt Protected		0.999			0.999			0.968			0.985	
Satd. Flow (prot)	0	1844	0	0	1857	0	0	1742	0	0	1703	0
Flt Permitted		0.999			0.999			0.968			0.985	
Satd. Flow (perm)	0	1844	0	0	1857	0	0	1742	0	0	1703	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		137.0			214.2			120.1			128.7	
Travel Time (s)		9.9			15.4			8.6			9.3	
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)	5	153	11	4	348	5	34	5	13	9	5	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	169	0	0	357	0	0	52	0	0	30	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	31.0%					ICU Level of Service A						
Analysis Period (min)	15											

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	141	10	4	320	5	31	5	12	8	5	15
Future Vol, veh/h	5	141	10	4	320	5	31	5	12	8	5	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	153	11	4	348	5	34	5	13	9	5	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	353	0	0	164	0	0	538	530	159	537	533	351
Stage 1	-	-	-	-	-	-	169	169	-	359	359	-
Stage 2	-	-	-	-	-	-	369	361	-	178	174	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1206	-	-	1414	-	-	454	455	886	455	453	692
Stage 1	-	-	-	-	-	-	833	759	-	659	627	-
Stage 2	-	-	-	-	-	-	651	626	-	824	755	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1206	-	-	1414	-	-	436	451	886	441	449	692
Mov Cap-2 Maneuver	-	-	-	-	-	-	436	451	-	441	449	-
Stage 1	-	-	-	-	-	-	829	755	-	656	624	-
Stage 2	-	-	-	-	-	-	628	623	-	802	751	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.1			13			11.9		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	501	1206	-	-	1414	-	-	550
HCM Lane V/C Ratio	0.104	0.005	-	-	0.003	-	-	0.055
HCM Control Delay (s)	13	8	0	-	7.6	0	-	11.9
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.2

Lanes, Volumes, Timings
9: Access #3 & Burnhamthorpe Road

2024 Future Total AM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	1	100	28	9	185	5	85	5	10	19	5	4
Future Volume (vph)	1	100	28	9	185	5	85	5	10	19	5	4
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		0.971			0.997			0.986			0.982	
Flt Protected					0.998			0.959			0.966	
Satd. Flow (prot)	0	1809	0	0	1853	0	0	1761	0	0	1767	0
Flt Permitted					0.998			0.959			0.966	
Satd. Flow (perm)	0	1809	0	0	1853	0	0	1761	0	0	1767	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		214.2			214.1			129.7			115.6	
Travel Time (s)		15.4			15.4			9.3			8.3	
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)	1	109	30	10	201	5	92	5	11	21	5	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	140	0	0	216	0	0	108	0	0	30	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	29.7%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	3.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	100	28	9	185	5	85	5	10	19	5	4
Future Vol, veh/h	1	100	28	9	185	5	85	5	10	19	5	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	109	30	10	201	5	92	5	11	21	5	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	206	0	0	139	0	0	354	352	124	358	365	204
Stage 1	-	-	-	-	-	-	126	126	-	224	224	-
Stage 2	-	-	-	-	-	-	228	226	-	134	141	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1365	-	-	1445	-	-	601	573	927	597	563	837
Stage 1	-	-	-	-	-	-	878	792	-	779	718	-
Stage 2	-	-	-	-	-	-	775	717	-	869	780	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1365	-	-	1445	-	-	590	568	927	581	558	837
Mov Cap-2 Maneuver	-	-	-	-	-	-	590	568	-	581	558	-
Stage 1	-	-	-	-	-	-	877	791	-	778	712	-
Stage 2	-	-	-	-	-	-	759	711	-	852	779	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.3			12.2			11.3		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	611	1365	-	-	1445	-	-	603
HCM Lane V/C Ratio	0.178	0.001	-	-	0.007	-	-	0.05
HCM Control Delay (s)	12.2	7.6	0	-	7.5	0	-	11.3
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.6	0	-	-	0	-	-	0.2

Lanes, Volumes, Timings
10: Sixth Line & Burnhamthorpe Road

2024 Future Total AM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	64	30	206	102	201	65	782	323	252	604	47
Future Volume (vph)	42	64	30	206	102	201	65	782	323	252	604	47
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	50.0		40.0	50.0		20.0	60.0		15.0
Storage Lanes	1		0	1		0	1		0	1		0
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	0.95	0.95	1.00	0.95	0.95
Frt		0.952			0.901			0.956			0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1773	0	1770	1678	0	1770	3383	0	1770	3500	0
Flt Permitted	0.189			0.692			0.388			0.098		
Satd. Flow (perm)	352	1773	0	1289	1678	0	723	3383	0	183	3500	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			93			71			13	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		202.3			162.5			109.6			208.3	
Travel Time (s)		14.6			11.7			7.9			15.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	45	68	32	219	109	214	69	832	344	268	643	50
Shared Lane Traffic (%)												
Lane Group Flow (vph)	45	100	0	219	323	0	69	1176	0	268	693	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	1		1	1		1	1		1	1	
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	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
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	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		8	8		2	2		1	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)	9.5	29.6		29.6	29.6		38.1	38.1		10.1	38.1	
Total Split (s)	9.6	39.2		29.6	29.6		41.8	41.8		19.0	60.8	

Lanes, Volumes, Timings
10: Sixth Line & Burnhamthorpe Road

2024 Future Total AM
Neighbourhood 10

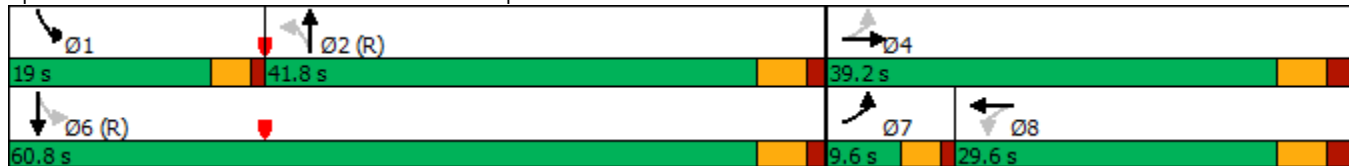


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	9.6%	39.2%		29.6%	29.6%		41.8%	41.8%		19.0%	60.8%	
Maximum Green (s)	5.6	33.6		24.0	24.0		36.7	36.7		15.0	55.7	
Yellow Time (s)	3.0	3.7		3.7	3.7		3.7	3.7		3.0	3.7	
All-Red Time (s)	1.0	1.9		1.9	1.9		1.4	1.4		1.0	1.4	
Lost Time Adjust (s)	0.7	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.7	5.6		5.6	5.6		5.1	5.1		4.0	5.1	
Lead/Lag	Lead			Lag			Lag		Lag		Lead	
Lead-Lag Optimize?	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	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)		7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)		17.0		17.0	17.0		26.0	26.0			26.0	
Pedestrian Calls (#/hr)		0		0	0		0	0			0	
Act Effct Green (s)	27.3	26.4		20.7	20.7		45.5	45.5		64.0	62.9	
Actuated g/C Ratio	0.27	0.26		0.21	0.21		0.46	0.46		0.64	0.63	
v/c Ratio	0.27	0.21		0.82	0.77		0.21	0.75		0.82	0.31	
Control Delay	27.7	19.6		62.0	38.7		23.1	27.3		40.6	10.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	27.7	19.6		62.0	38.7		23.1	27.3		40.6	10.1	
LOS	C	B		E	D		C	C		D	B	
Approach Delay		22.1			48.1			27.1			18.6	
Approach LOS		C			D			C			B	

Intersection Summary






















Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.82
Intersection Signal Delay:	28.0
Intersection LOS:	C
Intersection Capacity Utilization:	83.9%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 10: Sixth Line & Burnhamthorpe Road



HCM 2010 Signalized Intersection Summary
 10: Sixth Line & Burnhamthorpe Road

2024 Future Total AM
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	64	30	206	102	201	65	782	323	252	604	47
Future Volume (veh/h)	42	64	30	206	102	201	65	782	323	252	604	47
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	45	68	32	219	109	214	69	832	344	268	643	50
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	148	353	166	354	123	241	415	1122	462	335	1993	155
Arrive On Green	0.03	0.29	0.29	0.22	0.22	0.22	0.46	0.46	0.46	0.10	0.60	0.60
Sat Flow, veh/h	1774	1199	564	1290	563	1105	748	2446	1008	1774	3328	259
Grp Volume(v), veh/h	45	0	100	219	0	323	69	601	575	268	342	351
Grp Sat Flow(s),veh/h/ln	1774	0	1763	1290	0	1668	748	1770	1685	1774	1770	1817
Q Serve(g_s), s	1.9	0.0	4.2	16.0	0.0	18.8	5.5	27.9	28.0	7.5	9.6	9.6
Cycle Q Clear(g_c), s	1.9	0.0	4.2	16.0	0.0	18.8	5.5	27.9	28.0	7.5	9.6	9.6
Prop In Lane	1.00		0.32	1.00		0.66	1.00		0.60	1.00		0.14
Lane Grp Cap(c), veh/h	148	0	519	354	0	364	415	811	773	335	1060	1088
V/C Ratio(X)	0.30	0.00	0.19	0.62	0.00	0.89	0.17	0.74	0.74	0.80	0.32	0.32
Avail Cap(c_a), veh/h	184	0	592	382	0	400	415	811	773	423	1060	1088
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.3	0.0	26.4	36.8	0.0	37.9	16.1	22.2	22.3	19.1	10.0	10.0
Incr Delay (d2), s/veh	1.1	0.0	0.2	2.7	0.0	19.5	0.9	6.0	6.4	8.4	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	2.1	5.9	0.0	10.6	1.2	14.9	14.3	4.4	4.9	5.0
LnGrp Delay(d),s/veh	31.5	0.0	26.6	39.5	0.0	57.3	17.0	28.2	28.7	27.5	10.8	10.8
LnGrp LOS	C		C	D		E	B	C	C	C	B	B
Approach Vol, veh/h		145			542			1245			961	
Approach Delay, s/veh		28.1			50.1			27.8			15.4	
Approach LOS		C			D			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6	7	8				
Phs Duration (G+Y+Rc), s	14.0	51.0		35.0		65.0	7.6	27.4				
Change Period (Y+Rc), s	4.0	* 5.1		* 5.6		* 5.1	4.0	* 5.6				
Max Green Setting (Gmax), s	15.0	* 37		* 34		* 56	5.6	* 24				
Max Q Clear Time (g_c+I1), s	9.5	30.0		6.2		11.6	3.9	20.8				
Green Ext Time (p_c), s	0.5	4.6		0.6		6.1	0.0	1.1				
Intersection Summary												
HCM 2010 Ctrl Delay				27.9								
HCM 2010 LOS				C								
Notes												

Lanes, Volumes, Timings
 11: Access #8 & Burnhamthorpe Road

2024 Future Total AM
 Neighbourhood 10



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	635	3	8	470	39	24
Future Volume (vph)	635	3	8	470	39	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	30.0		0.0	0.0
Storage Lanes		0	0		1	0
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.999				0.948	
Flt Protected				0.999	0.970	
Satd. Flow (prot)	1861	0	0	1861	1713	0
Flt Permitted				0.999	0.970	
Satd. Flow (perm)	1861	0	0	1861	1713	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	162.5			162.0	143.2	
Travel Time (s)	11.7			11.7	10.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	690	3	9	511	42	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	693	0	0	520	68	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)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	43.9%
ICU Level of Service	A
Analysis Period (min)	15

Intersection						
Int Delay, s/veh	1.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	635	3	8	470	39	24
Future Vol, veh/h	635	3	8	470	39	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	690	3	9	511	42	26

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	693	0	1221 692
Stage 1	-	-	-	-	692 -
Stage 2	-	-	-	-	529 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	902	-	199 444
Stage 1	-	-	-	-	497 -
Stage 2	-	-	-	-	591 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	902	-	196 444
Mov Cap-2 Maneuver	-	-	-	-	196 -
Stage 1	-	-	-	-	490 -
Stage 2	-	-	-	-	591 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	24.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	249	-	-	902	-
HCM Lane V/C Ratio	0.275	-	-	0.01	-
HCM Control Delay (s)	24.9	-	-	9	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.1	-	-	0	-

Lanes, Volumes, Timings
 12: Access #9 & Burnhamthorpe Road

2024 Future Total AM - Mitigation
 Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	711	5	15	497	5	26	5	47	15	5	6
Future Volume (vph)	2	711	5	15	497	5	26	5	47	15	5	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			7.5			7.5		
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		0.999			0.999			0.918				0.966
Flt Protected	0.950			0.950				0.984				0.972
Satd. Flow (prot)	1770	1861	0	1770	1861	0	0	1683	0	0	1749	0
Flt Permitted	0.950			0.950				0.984				0.972
Satd. Flow (perm)	1770	1861	0	1770	1861	0	0	1683	0	0	1749	0
Link Speed (k/h)		50			50			50				50
Link Distance (m)		162.0			583.2			156.1				86.4
Travel Time (s)		11.7			42.0			11.2				6.2
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)	2	773	5	16	540	5	28	5	51	16	5	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	778	0	16	545	0	0	84	0	0	28	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			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	49.3%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷			↕			↕	
Traffic Vol, veh/h	2	711	5	15	497	5	26	5	47	15	5	6
Future Vol, veh/h	2	711	5	15	497	5	26	5	47	15	5	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	300	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	773	5	16	540	5	28	5	51	16	5	7

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	545	0	0	778	0	0	1361	1357	776	1383	1357	543
Stage 1	-	-	-	-	-	-	780	780	-	575	575	-
Stage 2	-	-	-	-	-	-	581	577	-	808	782	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1024	-	-	839	-	-	125	149	397	121	149	540
Stage 1	-	-	-	-	-	-	388	406	-	503	503	-
Stage 2	-	-	-	-	-	-	499	502	-	375	405	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1024	-	-	839	-	-	118	146	397	101	146	540
Mov Cap-2 Maneuver	-	-	-	-	-	-	118	146	-	101	146	-
Stage 1	-	-	-	-	-	-	387	405	-	502	493	-
Stage 2	-	-	-	-	-	-	478	492	-	322	404	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.3			33.5			38.9		
HCM LOS							D			E		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	209	1024	-	-	839	-	-	134
HCM Lane V/C Ratio	0.406	0.002	-	-	0.019	-	-	0.211
HCM Control Delay (s)	33.5	8.5	-	-	9.4	-	-	38.9
HCM Lane LOS	D	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	1.8	0	-	-	0.1	-	-	0.8

Lanes, Volumes, Timings
13: Trafalgar Road & Burnhamthorpe Road

2024 Future Total AM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	463	162	65	244	97	135	1434	129	280	1287	117
Future Volume (vph)	113	463	162	65	244	97	135	1434	129	280	1287	117
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		30.0	30.0		0.0	180.0		0.0	180.0		0.0
Storage Lanes	1		1	1		0	1		1	2		0
Taper Length (m)	75.0			75.0			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	0.95
Frt			0.850		0.957				0.850		0.988	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1783	0	1770	3539	1583	3433	3497	0
Flt Permitted	0.467			0.111			0.950			0.950		
Satd. Flow (perm)	870	1863	1583	207	1783	0	1770	3539	1583	3433	3497	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109		18				109		10	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		338.3			414.4			579.3			233.9	
Travel Time (s)		24.4			29.8			41.7			16.8	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	115	472	165	66	249	99	138	1463	132	286	1313	119
Shared Lane Traffic (%)												
Lane Group Flow (vph)	115	472	165	66	348	0	138	1463	132	286	1432	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			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	1	1	1	1		1	1	1	1	1	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0	2.0	10.0	
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	
Turn Type	Perm	NA	Perm	pm+pt	NA		Prot	NA	Perm	Prot	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8					2			
Detector Phase	4	4	4	3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		5.0	20.0	20.0	5.0	20.0	
Minimum Split (s)	24.0	24.0	24.0	9.5	23.8		9.5	26.0	26.0	9.5	26.0	
Total Split (s)	37.0	37.0	37.0	9.5	46.5		16.8	58.0	58.0	15.5	56.7	

Lanes, Volumes, Timings
13: Trafalgar Road & Burnhamthorpe Road

2024 Future Total AM
Neighbourhood 10

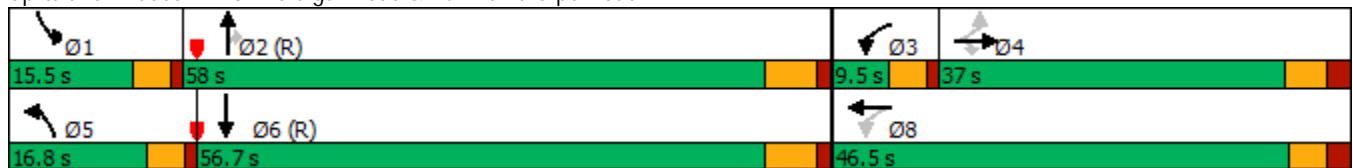


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	30.8%	30.8%	30.8%	7.9%	38.8%		14.0%	48.3%	48.3%	12.9%	47.3%	
Maximum Green (s)	31.0	31.0	31.0	5.0	40.7		12.3	52.0	52.0	11.0	50.7	
Yellow Time (s)	3.7	3.7	3.7	3.5	3.5		3.5	4.6	4.6	3.5	4.6	
All-Red Time (s)	2.3	2.3	2.3	1.0	2.3		1.0	1.4	1.4	1.0	1.4	
Lost Time Adjust (s)	0.0	0.0	0.0	1.3	0.0		1.5	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	5.8	5.8		6.0	6.0	6.0	4.5	6.0	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0		7.0			7.0	7.0		7.0	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0	0		0			0	0		0	
Act Effct Green (s)	31.4	31.4	31.4	39.2	39.2		10.5	53.2	53.2	11.3	52.5	
Actuated g/C Ratio	0.26	0.26	0.26	0.33	0.33		0.09	0.44	0.44	0.09	0.44	
v/c Ratio	0.51	0.97	0.33	0.57	0.59		0.89	0.93	0.17	0.89	0.93	
Control Delay	47.1	78.2	15.4	48.6	36.0		102.2	44.1	6.1	82.0	44.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	47.1	78.2	15.4	48.6	36.0		102.2	44.1	6.1	82.0	44.6	
LOS	D	E	B	D	D		F	D	A	F	D	
Approach Delay		59.6			38.1			45.8			50.8	
Approach LOS		E			D			D			D	

Intersection Summary
























Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	114.2 (95%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle:	110
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.97
Intersection Signal Delay:	49.2
Intersection LOS:	D
Intersection Capacity Utilization:	95.1%
ICU Level of Service:	F
Analysis Period (min):	15

Splits and Phases: 13: Trafalgar Road & Burnhamthorpe Road

























HCM 2010 Signalized Intersection Summary
 13: Trafalgar Road & Burnhamthorpe Road

2024 Future Total AM
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	113	463	162	65	244	97	135	1434	129	280	1287	117
Future Volume (veh/h)	113	463	162	65	244	97	135	1434	129	280	1287	117
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	115	472	165	66	249	99	138	1463	132	286	1313	119
Adj No. of Lanes	1	1	1	1	1	0	1	2	1	2	2	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	238	481	409	110	425	169	144	1543	690	315	1425	129
Arrive On Green	0.26	0.26	0.26	0.03	0.33	0.33	0.08	0.44	0.44	0.09	0.43	0.43
Sat Flow, veh/h	1029	1863	1583	1774	1269	505	1774	3539	1583	3442	3283	297
Grp Volume(v), veh/h	115	472	165	66	0	348	138	1463	132	286	706	726
Grp Sat Flow(s),veh/h/ln	1029	1863	1583	1774	0	1774	1774	1770	1583	1721	1770	1810
Q Serve(g_s), s	12.5	30.2	10.4	3.3	0.0	19.5	9.3	47.7	6.2	9.9	45.0	45.5
Cycle Q Clear(g_c), s	22.8	30.2	10.4	3.3	0.0	19.5	9.3	47.7	6.2	9.9	45.0	45.5
Prop In Lane	1.00		1.00	1.00		0.28	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	238	481	409	110	0	594	144	1543	690	315	768	786
V/C Ratio(X)	0.48	0.98	0.40	0.60	0.00	0.59	0.96	0.95	0.19	0.91	0.92	0.92
Avail Cap(c_a), veh/h	238	481	409	115	0	602	160	1543	690	315	768	786
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.2	44.2	36.8	35.4	0.0	33.0	54.9	32.5	20.8	54.0	32.0	32.1
Incr Delay (d2), s/veh	1.5	35.9	0.6	7.8	0.0	1.4	56.6	13.5	0.6	28.3	17.8	18.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	20.3	4.6	1.8	0.0	9.8	6.8	26.1	2.8	5.9	25.8	26.6
LnGrp Delay(d),s/veh	47.8	80.1	37.5	43.2	0.0	34.5	111.6	46.1	21.4	82.2	49.8	50.4
LnGrp LOS	D	F	D	D		C	F	D	C	F	D	D
Approach Vol, veh/h		752			414			1733			1718	
Approach Delay, s/veh		65.8			35.8			49.4			55.5	
Approach LOS		E			D			D			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	15.5	58.3	9.2	37.0	15.7	58.1		46.2				
Change Period (Y+Rc), s	4.5	* 6	4.5	6.0	4.5	* 6		* 6				
Max Green Setting (Gmax), s	11.0	* 52	5.0	31.0	12.3	* 51		* 41				
Max Q Clear Time (g_c+I1), s	11.9	49.7	5.3	32.2	11.3	47.5		21.5				
Green Ext Time (p_c), s	0.0	2.0	0.0	0.0	0.0	2.6		2.4				
Intersection Summary												
HCM 2010 Ctrl Delay			53.1									
HCM 2010 LOS			D									
Notes												

Lanes, Volumes, Timings
14: Sixth Line & Access #5/Settlers Road

2024 Future Total AM
Neighbourhood 10

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	5	42	80	5	20	13	1037	27	7	799	3
Future Volume (vph)	11	5	42	80	5	20	13	1037	27	7	799	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		0.0	75.0		0.0	75.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			75.0			75.0		
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		0.865			0.878			0.996			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1611	0	1770	1635	0	1770	3525	0	1770	3536	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1611	0	1770	1635	0	1770	3525	0	1770	3536	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		149.3			127.0			436.9			330.3	
Travel Time (s)		10.7			9.1			31.5			23.8	
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	5	46	87	5	22	14	1127	29	8	868	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	51	0	87	27	0	14	1156	0	8	871	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
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	47.3%
Analysis Period (min)	15
	ICU Level of Service A

Intersection												
Int Delay, s/veh	18.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕		↖	↕	
Traffic Vol, veh/h	11	5	42	80	5	20	13	1037	27	7	799	3
Future Vol, veh/h	11	5	42	80	5	20	13	1037	27	7	799	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	750	-	-	750	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	5	46	87	5	22	14	1127	29	8	868	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1480	2070	436	1623	2057	578	871	0	0	1156	0	0
Stage 1	886	886	-	1170	1170	-	-	-	-	-	-	-
Stage 2	594	1184	-	453	887	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	87	53	568	~ 68	54	459	770	-	-	600	-	-
Stage 1	306	361	-	205	265	-	-	-	-	-	-	-
Stage 2	458	261	-	556	360	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	74	51	568	~ 56	52	459	770	-	-	600	-	-
Mov Cap-2 Maneuver	74	51	-	~ 56	52	-	-	-	-	-	-	-
Stage 1	300	356	-	201	260	-	-	-	-	-	-	-
Stage 2	419	256	-	497	355	-	-	-	-	-	-	-























Approach	EB	WB	NB	SB
HCM Control Delay, s	29.1	\$ 341.6	0.1	0.1
HCM LOS	D	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	770	-	-	74	273	56	179	600	-	-
HCM Lane V/C Ratio	0.018	-	-	0.162	0.187	1.553	0.152	0.013	-	-
HCM Control Delay (s)	9.8	-	-	62.8	21.2	\$ 439.4	28.7	11.1	-	-
HCM Lane LOS	A	-	-	F	C	F	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0.7	8	0.5	0	-	-

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lanes, Volumes, Timings
15: Sixth Line & Access #6/Marvin Avenue

2024 Future Total AM
Neighbourhood 10

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	5	199	131	5	45	64	944	44	16	948	26
Future Volume (vph)	83	5	199	131	5	45	64	944	44	16	948	26
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	30.0		0.0	30.0		50.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			50.0			50.0		
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		0.853			0.864			0.993			0.996	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1589	0	1770	1609	0	1770	3514	0	1770	3525	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1589	0	1770	1609	0	1770	3514	0	1770	3525	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		121.7			112.6			226.5			436.9	
Travel Time (s)		8.8			8.1			16.3			31.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	90	5	216	142	5	49	70	1026	48	17	1030	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	221	0	142	54	0	70	1074	0	17	1058	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
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	64.0%						ICU Level of Service B					
Analysis Period (min)	15											

Intersection												
Int Delay, s/veh	162.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕		↖	↕	
Traffic Vol, veh/h	83	5	199	131	5	45	64	944	44	16	948	26
Future Vol, veh/h	83	5	199	131	5	45	64	944	44	16	948	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	300	-	-	300	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	90	5	216	142	5	49	70	1026	48	17	1030	28

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1734	2292	529	1742	2282	537	1058	0	0	1074	0	0
Stage 1	1078	1078	-	1190	1190	-	-	-	-	-	-	-
Stage 2	656	1214	-	552	1092	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 56	39	494	~ 55	39	488	654	-	-	645	-	-
Stage 1	233	293	-	199	259	-	-	-	-	-	-	-
Stage 2	421	253	-	486	289	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 40	34	494	~ 24	34	488	654	-	-	645	-	-
Mov Cap-2 Maneuver	~ 40	34	-	~ 24	34	-	-	-	-	-	-	-
Stage 1	208	285	-	178	231	-	-	-	-	-	-	-
Stage 2	330	226	-	261	281	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	248.8		\$ 1848		0.7		0.2	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	654	-	-	40	371	24	209	645	-	-
HCM Lane V/C Ratio	0.106	-	-	2.255	0.598	5.933	0.26	0.027	-	-
HCM Control Delay (s)	11.2	-	-	\$ 791.2	28.1	\$ 2542.6	28.2	10.7	-	-
HCM Lane LOS	B	-	-	F	D	F	D	B	-	-
HCM 95th %tile Q(veh)	0.4	-	-	9.7	3.7	17.8	1	0.1	-	-

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lanes, Volumes, Timings
 16: Sixth Line & Access #7/Carnegie Drive

2024 Future Total AM
 Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	5	11	7	5	7	4	1050	1	1	1278	1
Future Volume (vph)	2	5	11	7	5	7	4	1050	1	1	1278	1
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	30.0		0.0	75.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			50.0			75.0		
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		0.894			0.908							
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1665	0	1770	1691	0	1770	3539	0	1770	3539	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1665	0	1770	1691	0	1770	3539	0	1770	3539	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		113.1			103.4			184.0			226.5	
Travel Time (s)		8.1			7.4			13.2			16.3	
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)	2	5	12	8	5	8	4	1141	1	1	1389	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	17	0	8	13	0	4	1142	0	1	1390	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
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	47.8%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↵		↵	↵		↵	↕↕		↵	↕↕	
Traffic Vol, veh/h	2	5	11	7	5	7	4	1050	1	1	1278	1
Future Vol, veh/h	2	5	11	7	5	7	4	1050	1	1	1278	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	300	-	-	750	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	5	12	8	5	8	4	1141	1	1	1389	1






























Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1973	2542	695	1849	2542	571	1390	0	0	1142	0	0
Stage 1	1392	1392	-	1150	1150	-	-	-	-	-	-	-
Stage 2	581	1150	-	699	1392	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	37	27	385	46	27	464	488	-	-	608	-	-
Stage 1	149	207	-	211	271	-	-	-	-	-	-	-
Stage 2	467	271	-	397	207	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	31	27	385	37	27	464	488	-	-	608	-	-
Mov Cap-2 Maneuver	31	27	-	37	27	-	-	-	-	-	-	-
Stage 1	148	207	-	209	269	-	-	-	-	-	-	-
Stage 2	446	269	-	374	207	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	73.9		97.5		0		0	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	488	-	-	31	75	37	60	608	-	-
HCM Lane V/C Ratio	0.009	-	-	0.07	0.232	0.206	0.217	0.002	-	-
HCM Control Delay (s)	12.4	-	-	129.7	66.9	125.9	80.9	10.9	-	-
HCM Lane LOS	B	-	-	F	F	F	F	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.8	0.7	0.7	0	-	-

Lanes, Volumes, Timings
17: Sixth Line & Dundas Street

2024 Future Total AM
Neighbourhood 10

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (vph)	88	2040	201	151	946	224	160	186	300	585	352	184
Future Volume (vph)	88	2040	201	151	946	224	160	186	300	585	352	184
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		80.0	35.0		0.0	80.0		0.0	45.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.971				0.850		0.948	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	1770	4938	0	1770	3539	1583	1770	3355	0
Flt Permitted	0.159			0.065			0.331			0.618		
Satd. Flow (perm)	296	5085	1583	121	4938	0	617	3539	1583	1151	3355	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			159		59				122		82	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		409.7			323.7			341.1			842.1	
Travel Time (s)		29.5			23.3			24.6			60.6	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	91	2103	207	156	975	231	165	192	309	603	363	190
Shared Lane Traffic (%)												
Lane Group Flow (vph)	91	2103	207	156	1206	0	165	192	309	603	553	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	1	1	1	1		1	1	1	1	1	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0	2.0	10.0	
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	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8				4
Permitted Phases	2		2	6			8		8	4		
Detector Phase	5	2	2	1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	11.5	37.2	37.2	11.5	34.2		40.5	40.5	40.5	40.5	40.5	
Total Split (s)	11.5	67.0	67.0	12.0	67.5		51.0	51.0	51.0	51.0	51.0	

Lanes, Volumes, Timings
17: Sixth Line & Dundas Street

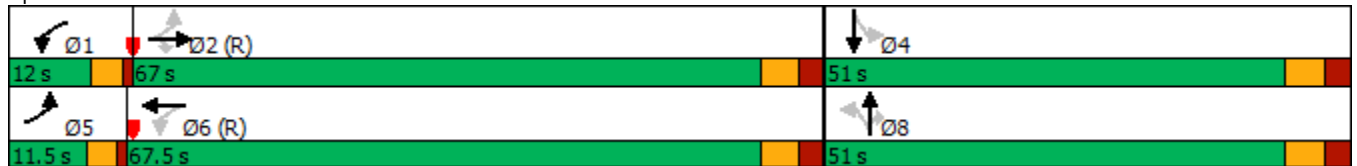
2024 Future Total AM
Neighbourhood 10

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	8.8%	51.5%	51.5%	9.2%	51.9%		39.2%	39.2%	39.2%	39.2%	39.2%	
Maximum Green (s)	7.5	60.8	60.8	8.0	61.3		44.5	44.5	44.5	44.5	44.5	
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5		2.8	2.8	2.8	2.8	2.8	
Lost Time Adjust (s)	0.0	-2.2	-2.2	0.0	-2.2		-2.5	-2.5	-2.5	-2.5	-2.5	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	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	C-Max	C-Max	None	C-Max		Max	Max	Max	Max	Max	
Walk Time (s)		7.0	7.0		7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		24.0	24.0		21.0		27.0	27.0	27.0	27.0	27.0	
Pedestrian Calls (#/hr)		0	0		0		0	0	0	0	0	
Act Effct Green (s)	70.4	63.0	63.0	71.6	63.6		47.0	47.0	47.0	47.0	47.0	
Actuated g/C Ratio	0.54	0.48	0.48	0.55	0.49		0.36	0.36	0.36	0.36	0.36	
v/c Ratio	0.37	0.85	0.24	0.93	0.49		0.74	0.15	0.48	1.45	0.44	
Control Delay	16.9	33.8	5.9	81.4	22.0		57.9	28.4	21.4	248.0	27.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	16.9	33.8	5.9	81.4	22.0		57.9	28.4	21.4	248.0	27.7	
LOS	B	C	A	F	C		E	C	C	F	C	
Approach Delay		30.8			28.8			32.5			142.6	
Approach LOS		C			C			C			F	

Intersection Summary
























Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.45
 Intersection Signal Delay: 53.6
 Intersection LOS: D
 Intersection Capacity Utilization 101.9%
 ICU Level of Service G
 Analysis Period (min) 15

Splits and Phases: 17: Sixth Line & Dundas Street



HCM 2010 Signalized Intersection Summary
 17: Sixth Line & Dundas Street

2024 Future Total AM
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	2040	201	151	946	224	160	186	300	585	352	184
Future Volume (veh/h)	88	2040	201	151	946	224	160	186	300	585	352	184
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	91	2103	207	156	975	231	165	192	309	603	363	190
Adj No. of Lanes	1	3	1	1	3	0	1	2	1	1	2	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	294	2466	768	181	2032	480	256	1280	572	346	818	421
Arrive On Green	0.05	0.48	0.48	0.06	0.49	0.48	0.36	0.36	0.36	0.36	0.36	0.34
Sat Flow, veh/h	1774	5085	1583	1774	4110	972	852	3539	1583	894	2262	1165
Grp Volume(v), veh/h	91	2103	207	156	804	402	165	192	309	603	283	270
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1691	852	1770	1583	894	1770	1657
Q Serve(g_s), s	3.4	47.2	10.1	6.0	20.4	20.8	23.9	4.8	20.1	42.2	15.8	16.4
Cycle Q Clear(g_c), s	3.4	47.2	10.1	6.0	20.4	20.8	40.3	4.8	20.1	47.0	15.8	16.4
Prop In Lane	1.00		1.00	1.00		0.57	1.00		1.00	1.00		0.70
Lane Grp Cap(c), veh/h	294	2466	768	181	1676	836	256	1280	572	346	640	599
V/C Ratio(X)	0.31	0.85	0.27	0.86	0.48	0.48	0.64	0.15	0.54	1.74	0.44	0.45
Avail Cap(c_a), veh/h	304	2466	768	181	1676	836	256	1280	572	346	640	599
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.6	29.4	19.8	29.8	21.8	22.3	47.1	28.0	32.9	47.3	31.5	32.4
Incr Delay (d2), s/veh	0.6	4.0	0.9	32.4	1.0	2.0	11.9	0.2	3.6	346.6	2.2	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	22.9	4.6	7.1	9.7	10.2	6.5	2.4	9.3	45.7	8.1	7.9
LnGrp Delay(d),s/veh	18.2	33.4	20.7	62.2	22.8	24.3	59.0	28.3	36.5	393.9	33.7	34.8
LnGrp LOS	B	C	C	E	C	C	E	C	D	F	C	C
Approach Vol, veh/h		2401			1362			666			1156	
Approach Delay, s/veh		31.7			27.7			39.7			221.9	
Approach LOS		C			C			D			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	67.0		51.0	10.7	68.3		51.0				
Change Period (Y+Rc), s	4.0	* 6.2		6.5	4.0	* 6.2		6.5				
Max Green Setting (Gmax), s	8.0	* 61		44.5	7.5	* 61		44.5				
Max Q Clear Time (g_c+I1), s	8.0	49.2		49.0	5.4	22.8		42.3				
Green Ext Time (p_c), s	0.0	10.4		0.0	0.0	13.1		0.9				
Intersection Summary												
HCM 2010 Ctrl Delay			71.1									
HCM 2010 LOS			E									
Notes												

Lanes, Volumes, Timings
 18: Sixth Line & Right In / Right Out

2024 Future Total AM
 Neighbourhood 10



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕↗			↕↕
Traffic Volume (vph)	0	4	1058	13	0	809
Future Volume (vph)	0	4	1058	13	0	809
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.865	0.998			
Flt Protected						
Satd. Flow (prot)	0	1611	3532	0	0	3539
Flt Permitted						
Satd. Flow (perm)	0	1611	3532	0	0	3539
Link Speed (k/h)	50		50			50
Link Distance (m)	86.4		330.3			109.6
Travel Time (s)	6.2		23.8			7.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	4	1150	14	0	879
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	4	1164	0	0	879
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		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		15	25	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	39.7%
Analysis Period (min)	15
	ICU Level of Service A

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕			↕
Traffic Vol, veh/h	0	4	1058	13	0	809
Future Vol, veh/h	0	4	1058	13	0	809
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	4	1150	14	0	879

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	582	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-
Pot Cap-1 Maneuver	0	456	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	-	456	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	456
HCM Lane V/C Ratio	-	-	0.01
HCM Control Delay (s)	-	-	13
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0

Lanes, Volumes, Timings
 19: Sixth Line & Threshing Mill Boulevard

2024 Future Total AM
 Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	5	7	9	4	7	2	1002	3	2	1305	1
Future Volume (vph)	2	5	7	9	4	7	2	1002	3	2	1305	1
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	75.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			75.0			50.0		
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		0.908			0.900							
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1691	0	1770	1676	0	1770	3539	0	1770	3539	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1691	0	1770	1676	0	1770	3539	0	1770	3539	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		114.7			120.9			842.1			184.0	
Travel Time (s)		8.3			8.7			60.6			13.2	
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)	2	5	8	10	4	8	2	1089	3	2	1418	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	13	0	10	12	0	2	1092	0	2	1419	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
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	49.9%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↵		↵	↵		↵	↕↕		↵	↕↕	
Traffic Vol, veh/h	2	5	7	9	4	7	2	1002	3	2	1305	1
Future Vol, veh/h	2	5	7	9	4	7	2	1002	3	2	1305	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	750	-	-	300	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	5	8	10	4	8	2	1089	3	2	1418	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1974	2519	710	1811	2518	546	1419	0	0	1092	0	0
Stage 1	1423	1423	-	1095	1095	-	-	-	-	-	-	-
Stage 2	551	1096	-	716	1423	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	37	28	376	49	28	482	476	-	-	635	-	-
Stage 1	143	200	-	228	288	-	-	-	-	-	-	-
Stage 2	486	287	-	387	200	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	32	28	376	41	28	482	476	-	-	635	-	-
Mov Cap-2 Maneuver	32	28	-	41	28	-	-	-	-	-	-	-
Stage 1	142	199	-	227	287	-	-	-	-	-	-	-
Stage 2	469	286	-	368	199	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB			
HCM Control Delay, s	86		90		0		0			
HCM LOS	F		F							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	476	-	-	32	61	41	70	635	-	-
HCM Lane V/C Ratio	0.005	-	-	0.068	0.214	0.239	0.171	0.003	-	-
HCM Control Delay (s)	12.6	-	-	125.5	79.4	118.4	66.7	10.7	-	-
HCM Lane LOS	B	-	-	F	F	F	F	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.7	0.8	0.6	0	-	-

Lanes, Volumes, Timings
 14: Sixth Line & Access #5/Settlers Road

2024 Future Total AM - Mitigation
 Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	5	42	80	5	20	13	1037	27	7	799	3
Future Volume (vph)	11	5	42	80	5	20	13	1037	27	7	799	3
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	75.0		0.0	75.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			75.0			75.0		
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		0.865			0.878			0.996			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1611	0	1770	1635	0	1770	3525	0	1770	3536	0
Flt Permitted	0.740			0.724			0.316			0.219		
Satd. Flow (perm)	1378	1611	0	1349	1635	0	589	3525	0	408	3536	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		46			22			4			1	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		149.3			115.8			436.9			320.1	
Travel Time (s)		10.7			8.3			31.5			23.0	
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	5	46	87	5	22	14	1127	29	8	868	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	51	0	87	27	0	14	1156	0	8	871	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	1		1	1	
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	10.0		2.0	10.0	
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							
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	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings
 14: Sixth Line & Access #5/Settlers Road

2024 Future Total AM - Mitigation
 Neighbourhood 10

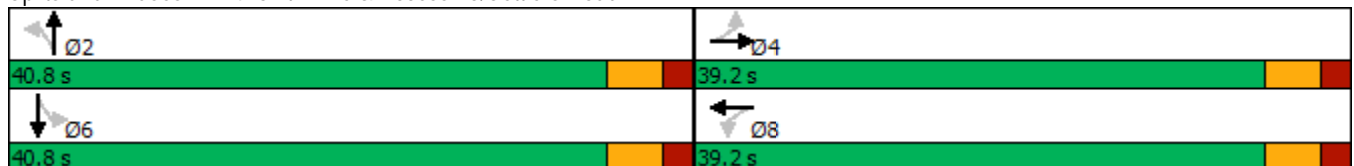


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	33.2	33.2		39.2	39.2		33.2	33.2		39.2	39.2	
Total Split (s)	39.2	39.2		39.2	39.2		40.8	40.8		40.8	40.8	
Total Split (%)	49.0%	49.0%		49.0%	49.0%		51.0%	51.0%		51.0%	51.0%	
Maximum Green (s)	34.0	34.0		34.0	34.0		35.6	35.6		35.6	35.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.9	1.9		1.9	1.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2		5.2	5.2		5.2	5.2	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		27.0	27.0		21.0	21.0		27.0	27.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	10.6	10.6		10.6	10.6		43.0	43.0		43.0	43.0	
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.72	0.72		0.72	0.72	
v/c Ratio	0.05	0.16		0.36	0.09		0.03	0.46		0.03	0.34	
Control Delay	19.5	9.1		25.9	10.9		4.5	5.7		4.6	4.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	19.5	9.1		25.9	10.9		4.5	5.7		4.6	4.9	
LOS	B	A		C	B		A	A		A	A	
Approach Delay		11.0			22.3			5.7			4.9	
Approach LOS		B			C			A			A	

Intersection Summary





















Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	59.7
Natural Cycle:	80
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.46
Intersection Signal Delay:	6.4
Intersection LOS:	A
Intersection Capacity Utilization:	49.3%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 14: Sixth Line & Access #5/Settlers Road



HCM 2010 Signalized Intersection Summary
 14: Sixth Line & Access #5/Settlers Road

2024 Future Total AM - Mitigation
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	5	42	80	5	20	13	1037	27	7	799	3
Future Volume (veh/h)	11	5	42	80	5	20	13	1037	27	7	799	3
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	12	5	46	87	5	22	14	1127	29	8	868	3
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	343	27	245	321	51	224	466	2268	58	360	2327	8
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.64	0.64	0.64	0.64	0.64	0.64
Sat Flow, veh/h	1378	158	1449	1348	302	1327	633	3526	91	484	3618	13
Grp Volume(v), veh/h	12	0	51	87	0	27	14	566	590	8	425	446
Grp Sat Flow(s),veh/h/ln	1378	0	1607	1348	0	1629	633	1770	1847	484	1770	1861
Q Serve(g_s), s	0.4	0.0	1.5	3.3	0.0	0.8	0.6	9.3	9.3	0.5	6.2	6.2
Cycle Q Clear(g_c), s	1.2	0.0	1.5	4.8	0.0	0.8	6.8	9.3	9.3	9.8	6.2	6.2
Prop In Lane	1.00		0.90	1.00		0.81	1.00		0.05	1.00		0.01
Lane Grp Cap(c), veh/h	343	0	271	321	0	275	466	1138	1188	360	1138	1197
V/C Ratio(X)	0.03	0.00	0.19	0.27	0.00	0.10	0.03	0.50	0.50	0.02	0.37	0.37
Avail Cap(c_a), veh/h	957	0	987	922	0	1001	466	1138	1188	360	1138	1197
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.9	0.0	19.7	21.8	0.0	19.4	6.2	5.2	5.2	7.7	4.6	4.6
Incr Delay (d2), s/veh	0.0	0.0	0.3	0.5	0.0	0.2	0.1	1.6	1.5	0.1	0.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.7	1.2	0.0	0.4	0.1	4.9	5.1	0.1	3.2	3.4
LnGrp Delay(d),s/veh	20.0	0.0	20.1	22.2	0.0	19.6	6.4	6.7	6.7	7.8	5.6	5.5
LnGrp LOS	B		C	C		B	A	A	A	A	A	A
Approach Vol, veh/h		63			114			1170			879	
Approach Delay, s/veh		20.1			21.6			6.7			5.6	
Approach LOS		C			C			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		40.8		14.5		40.8		14.5				
Change Period (Y+Rc), s		* 5.2		* 5.2		* 5.2		* 5.2				
Max Green Setting (Gmax), s		* 36		* 34		* 36		* 34				
Max Q Clear Time (g_c+I1), s		11.3		3.5		11.8		6.8				
Green Ext Time (p_c), s		10.5		0.3		7.2		0.5				
Intersection Summary												
HCM 2010 Ctrl Delay				7.4								
HCM 2010 LOS				A								
Notes												

Lanes, Volumes, Timings
15: Sixth Line & Access #6/Marvin Avenue

2024 Future Total AM - Mitigation
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	5	199	131	5	45	64	944	44	16	948	26
Future Volume (vph)	83	5	199	131	5	45	64	944	44	16	948	26
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	30.0		50.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			50.0			50.0		
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		0.853			0.864			0.993			0.996	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1589	0	1770	1609	0	1770	3514	0	1770	3525	0
Flt Permitted	0.722			0.555			0.231			0.225		
Satd. Flow (perm)	1345	1589	0	1034	1609	0	430	3514	0	419	3525	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		49			49			8			4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		121.7			102.5			226.5			436.9	
Travel Time (s)		8.8			7.4			16.3			31.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	90	5	216	142	5	49	70	1026	48	17	1030	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	221	0	142	54	0	70	1074	0	17	1058	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	1		1	1	
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	10.0		2.0	10.0	
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							
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	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings
15: Sixth Line & Access #6/Marvin Avenue

2024 Future Total AM - Mitigation
Neighbourhood 10

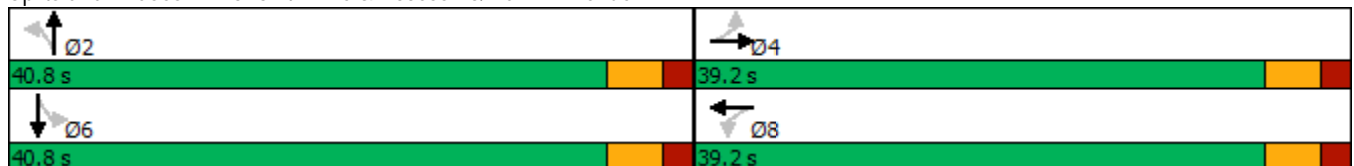


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	33.2	33.2		39.2	39.2		33.2	33.2		39.2	39.2	
Total Split (s)	39.2	39.2		39.2	39.2		40.8	40.8		40.8	40.8	
Total Split (%)	49.0%	49.0%		49.0%	49.0%		51.0%	51.0%		51.0%	51.0%	
Maximum Green (s)	34.0	34.0		34.0	34.0		35.6	35.6		35.6	35.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.9	1.9		1.9	1.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2		5.2	5.2		5.2	5.2	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		27.0	27.0		21.0	21.0		27.0	27.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	13.2	13.2		13.2	13.2		36.6	36.6		36.6	36.6	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.61	0.61		0.61	0.61	
v/c Ratio	0.31	0.57		0.63	0.14		0.27	0.50		0.07	0.49	
Control Delay	21.7	21.9		33.7	7.7		10.3	8.2		7.1	8.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.7	21.9		33.7	7.7		10.3	8.2		7.1	8.2	
LOS	C	C		C	A		B	A		A	A	
Approach Delay		21.8			26.5			8.4			8.2	
Approach LOS		C			C			A			A	

Intersection Summary






















Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	60.3
Natural Cycle:	80
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.63
Intersection Signal Delay:	11.1
Intersection LOS:	B
Intersection Capacity Utilization:	82.4%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 15: Sixth Line & Access #6/Marvin Avenue



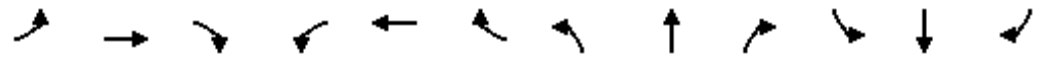
HCM 2010 Signalized Intersection Summary
 15: Sixth Line & Access #6/Marvin Avenue

2024 Future Total AM - Mitigation
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	5	199	131	5	45	64	944	44	16	948	26
Future Volume (veh/h)	83	5	199	131	5	45	64	944	44	16	948	26
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	90	5	216	142	5	49	70	1026	48	17	1030	28
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	455	10	435	302	42	408	311	1919	90	306	1962	53
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.56	0.56	0.56	0.56	0.56	0.56
Sat Flow, veh/h	1345	36	1553	1155	149	1457	531	3443	161	523	3520	96
Grp Volume(v), veh/h	90	0	221	142	0	54	70	527	547	17	518	540
Grp Sat Flow(s),veh/h/ln	1345	0	1589	1155	0	1606	531	1770	1834	523	1770	1846
Q Serve(g_s), s	3.4	0.0	7.4	7.5	0.0	1.6	6.1	12.0	12.0	1.4	11.7	11.7
Cycle Q Clear(g_c), s	5.0	0.0	7.4	14.9	0.0	1.6	17.8	12.0	12.0	13.4	11.7	11.7
Prop In Lane	1.00		0.98	1.00		0.91	1.00		0.09	1.00		0.05
Lane Grp Cap(c), veh/h	455	0	445	302	0	449	311	986	1022	306	986	1029
V/C Ratio(X)	0.20	0.00	0.50	0.47	0.00	0.12	0.22	0.53	0.53	0.06	0.53	0.53
Avail Cap(c_a), veh/h	795	0	846	593	0	855	311	986	1022	306	986	1029
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.0	0.0	19.2	25.5	0.0	17.1	14.4	8.9	8.9	13.1	8.8	8.8
Incr Delay (d2), s/veh	0.2	0.0	0.9	1.1	0.0	0.1	1.7	2.1	2.0	0.3	2.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	3.4	2.5	0.0	0.7	1.0	6.3	6.5	0.2	6.2	6.4
LnGrp Delay(d),s/veh	19.2	0.0	20.1	26.6	0.0	17.3	16.1	11.0	10.9	13.5	10.8	10.8
LnGrp LOS	B		C	C		B	B	B	B	B	B	B
Approach Vol, veh/h		311			196			1144			1075	
Approach Delay, s/veh		19.8			24.0			11.3			10.8	
Approach LOS		B			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		40.8		23.1		40.8		23.1				
Change Period (Y+Rc), s		* 5.2		* 5.2		* 5.2		* 5.2				
Max Green Setting (Gmax), s		* 36		* 34		* 36		* 34				
Max Q Clear Time (g_c+I1), s		19.8		9.4		15.4		16.9				
Green Ext Time (p_c), s		8.2		2.1		8.7		1.0				
Intersection Summary												
HCM 2010 Ctrl Delay			13.0									
HCM 2010 LOS			B									
Notes												

Lanes, Volumes, Timings
1: Neyagawa Boulevard & William Halton Parkway

2024 Future Total PM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	2235	59	487	2181	53	29	203	339	56	502	28
Future Volume (vph)	28	2235	59	487	2181	53	29	203	339	56	502	28
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	3433	5085	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.062			0.950			0.252			0.598		
Satd. Flow (perm)	115	5085	1583	3433	5085	1583	469	3539	1583	1114	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			58			56			292			58
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		433.0			261.8			285.2			280.3	
Travel Time (s)		31.2			18.8			20.5			20.2	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	30	2378	63	518	2320	56	31	216	361	60	534	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	2378	63	518	2320	56	31	216	361	60	534	30
Enter Blocked Intersection	No	No	No	No	No	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	1	1	1	1	1	1	1	1	1	1	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	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	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
Turn Type	Perm	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2			6	8		8	4		4
Detector Phase	2	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	15.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	40.4	40.4	40.4	11.0	40.4	40.4	37.4	37.4	37.4	37.4	37.4	37.4
Total Split (s)	74.0	74.0	74.0	28.6	102.6	102.6	37.4	37.4	37.4	37.4	37.4	37.4

Lanes, Volumes, Timings
 1: Neyagawa Boulevard & William Halton Parkway

2024 Future Total PM
 Neighbourhood 10

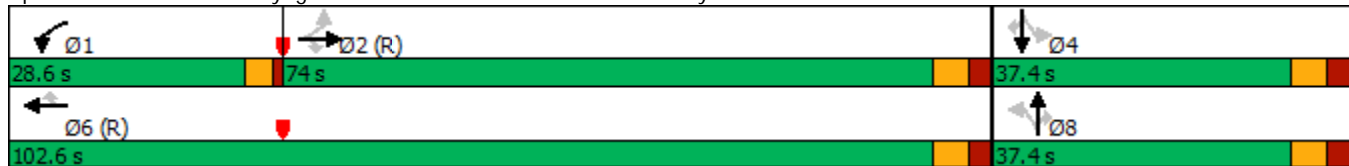


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	52.9%	52.9%	52.9%	20.4%	73.3%	73.3%	26.7%	26.7%	26.7%	26.7%	26.7%	26.7%
Maximum Green (s)	67.6	67.6	67.6	24.6	96.2	96.2	31.0	31.0	31.0	31.0	31.0	31.0
Yellow Time (s)	3.7	3.7	3.7	3.0	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	1.0	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	4.0	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
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	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	None	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	27.0	27.0	27.0		27.0	27.0	24.0	24.0	24.0	24.0	24.0	24.0
Pedestrian Calls (#/hr)	0	0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	68.4	68.4	68.4	23.8	96.2	96.2	31.0	31.0	31.0	31.0	31.0	31.0
Actuated g/C Ratio	0.49	0.49	0.49	0.17	0.69	0.69	0.22	0.22	0.22	0.22	0.22	0.22
v/c Ratio	0.54	0.96	0.08	0.89	0.66	0.05	0.30	0.28	0.63	0.24	0.68	0.08
Control Delay	65.4	45.2	5.6	74.8	13.8	1.8	54.8	46.3	15.6	48.1	55.1	2.6
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	65.4	45.2	5.6	74.8	13.8	1.8	54.8	46.3	15.6	48.1	55.1	2.6
LOS	E	D	A	E	B	A	D	D	B	D	E	A
Approach Delay		44.4			24.5			28.5			51.9	
Approach LOS		D			C			C			D	

Intersection Summary

























Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 66 (47%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.96
 Intersection Signal Delay: 34.9
 Intersection LOS: C
 Intersection Capacity Utilization 102.8%
 ICU Level of Service G
 Analysis Period (min) 15

Splits and Phases: 1: Neyagawa Boulevard & William Halton Parkway



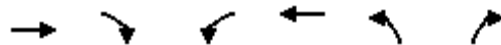
HCM 2010 Signalized Intersection Summary
 1: Neyagawa Boulevard & William Halton Parkway

2024 Future Total PM
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	2235	59	487	2181	53	29	203	339	56	502	28
Future Volume (veh/h)	28	2235	59	487	2181	53	29	203	339	56	502	28
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	30	2378	63	518	2320	56	31	216	361	60	534	30
Adj No. of Lanes	1	3	1	2	3	1	1	2	1	1	2	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	114	2505	780	571	3494	1088	121	784	351	194	784	351
Arrive On Green	0.49	0.49	0.49	0.17	0.69	0.69	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	148	5085	1583	3442	5085	1583	843	3539	1583	833	3539	1583
Grp Volume(v), veh/h	30	2378	63	518	2320	56	31	216	361	60	534	30
Grp Sat Flow(s),veh/h/ln	148	1695	1583	1721	1695	1583	843	1770	1583	833	1770	1583
Q Serve(g_s), s	20.5	62.4	2.9	20.7	36.7	1.6	4.9	7.1	31.0	9.0	19.4	2.1
Cycle Q Clear(g_c), s	30.0	62.4	2.9	20.7	36.7	1.6	24.3	7.1	31.0	16.1	19.4	2.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	114	2505	780	571	3494	1088	121	784	351	194	784	351
V/C Ratio(X)	0.26	0.95	0.08	0.91	0.66	0.05	0.26	0.28	1.03	0.31	0.68	0.09
Avail Cap(c_a), veh/h	114	2505	780	605	3494	1088	121	784	351	194	784	351
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.1	33.9	18.8	57.3	12.6	7.1	61.1	45.2	54.5	51.9	50.0	43.3
Incr Delay (d2), s/veh	5.5	9.5	0.2	16.9	1.0	0.1	5.0	0.9	55.9	4.1	4.8	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	31.3	1.3	11.2	17.3	0.7	1.3	3.6	19.0	2.3	10.0	1.0
LnGrp Delay(d),s/veh	34.6	43.4	19.0	74.2	13.6	7.2	66.1	46.1	110.4	56.0	54.7	43.7
LnGrp LOS	C	D	B	E	B	A	E	D	F	E	D	D
Approach Vol, veh/h		2471			2894			608			624	
Approach Delay, s/veh		42.6			24.3			85.3			54.3	
Approach LOS		D			C			F			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	27.2	75.4		37.4		102.6		37.4				
Change Period (Y+Rc), s	4.0	6.4		6.4		6.4		6.4				
Max Green Setting (Gmax), s	24.6	67.6		31.0		96.2		31.0				
Max Q Clear Time (g_c+I1), s	22.7	64.4		21.4		38.7		33.0				
Green Ext Time (p_c), s	0.6	3.1		3.2		42.3		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				39.6								
HCM 2010 LOS				D								

Lanes, Volumes, Timings
2: Burnhamthorpe Road & William Halton Parkway

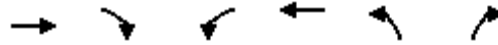
2024 Future Total PM
Neighbourhood 10



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	2116	244	7	2110	375	4
Future Volume (vph)	2116	244	7	2110	375	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		75.0	75.0		0.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			75.0		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted			0.061		0.950	
Satd. Flow (perm)	3539	1583	114	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		241				4
Link Speed (k/h)	50			50	50	
Link Distance (m)	217.7			610.7	181.6	
Travel Time (s)	15.7			44.0	13.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2300	265	8	2293	408	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2300	265	8	2293	408	4
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)		15	25		25	15
Number of Detectors	1	1	1	1	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	10.0	2.0	2.0	10.0	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.9	22.9	23.5	23.5	23.5	23.5
Total Split (s)	71.0	71.0	71.0	71.0	29.0	29.0

Lanes, Volumes, Timings
2: Burnhamthorpe Road & William Halton Parkway

2024 Future Total PM
Neighbourhood 10



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Total Split (%)	71.0%	71.0%	71.0%	71.0%	29.0%	29.0%
Maximum Green (s)	66.1	66.1	66.1	66.1	23.5	23.5
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.2	1.2	1.2	1.2	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effect Green (s)	66.1	66.1	66.1	66.1	23.5	23.5
Actuated g/C Ratio	0.66	0.66	0.66	0.66	0.24	0.24
v/c Ratio	0.98	0.23	0.11	0.98	0.98	0.01
Control Delay	32.4	1.7	5.7	27.2	79.7	18.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.4	1.7	5.7	27.2	79.7	18.8
LOS	C	A	A	C	E	B
Approach Delay	29.2			27.2	79.1	
Approach LOS	C			C	E	

Intersection Summary







Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 51 (51%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 32.2
 Intersection Capacity Utilization 87.9%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service E

Splits and Phases: 2: Burnhamthorpe Road & William Halton Parkway



HCM 2010 Signalized Intersection Summary
 2: Burnhamthorpe Road & William Halton Parkway

2024 Future Total PM
 Neighbourhood 10

								
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑		
Traffic Volume (veh/h)	2116	244	7	2110	375	4		
Future Volume (veh/h)	2116	244	7	2110	375	4		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	2300	265	8	2293	408	4		
Adj No. of Lanes	2	1	1	2	1	1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	2339	1047	76	2339	417	372		
Arrive On Green	0.66	0.66	0.66	0.66	0.23	0.23		
Sat Flow, veh/h	3632	1583	122	3632	1774	1583		
Grp Volume(v), veh/h	2300	265	8	2293	408	4		
Grp Sat Flow(s),veh/h/ln	1770	1583	122	1770	1774	1583		
Q Serve(g_s), s	62.9	6.8	3.2	62.4	22.8	0.2		
Cycle Q Clear(g_c), s	62.9	6.8	66.1	62.4	22.8	0.2		
Prop In Lane		1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	2339	1047	76	2339	417	372		
V/C Ratio(X)	0.98	0.25	0.11	0.98	0.98	0.01		
Avail Cap(c_a), veh/h	2339	1047	76	2339	417	372		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	16.4	6.9	49.2	16.3	38.0	29.3		
Incr Delay (d2), s/veh	15.0	0.6	2.8	14.5	38.3	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	34.9	3.1	0.3	34.6	15.7	0.1		
LnGrp Delay(d),s/veh	31.5	7.5	52.0	30.8	76.3	29.3		
LnGrp LOS	C	A	D	C	E	C		
Approach Vol, veh/h	2565			2301	412			
Approach Delay, s/veh	29.0			30.9	75.9			
Approach LOS	C			C	E			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		71.0				71.0		29.0
Change Period (Y+Rc), s		4.9				4.9		5.5
Max Green Setting (Gmax), s		66.1				66.1		23.5
Max Q Clear Time (g_c+I1), s		64.9				68.1		24.8
Green Ext Time (p_c), s		1.2				0.0		0.0
Intersection Summary								
HCM 2010 Ctrl Delay			33.5					
HCM 2010 LOS			C					

Lanes, Volumes, Timings
4: Access #4 & William Halton Parkway

2024 Future Total PM
Neighbourhood 10



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↙	↑↑	↙	↗
Traffic Volume (vph)	2104	16	16	2107	10	10
Future Volume (vph)	2104	16	16	2107	10	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Fr _t	0.999					0.850
Fl _t Protected			0.950		0.950	
Satd. Flow (prot)	3536	0	1770	3539	1770	1583
Fl _t Permitted			0.059		0.950	
Satd. Flow (perm)	3536	0	110	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	2					11
Link Speed (k/h)	50			50	50	
Link Distance (m)	610.7			274.6	171.9	
Travel Time (s)	44.0			19.8	12.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2287	17	17	2290	11	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2304	0	17	2290	11	11
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)		15	25		25	15
Number of Detectors	1		1	1	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	10.0		2.0	10.0	2.0	2.0
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Detector Phase	2		6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5
Total Split (s)	77.5		77.5	77.5	22.5	22.5
Total Split (%)	77.5%		77.5%	77.5%	22.5%	22.5%
Maximum Green (s)	73.0		73.0	73.0	18.0	18.0
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5

Lanes, Volumes, Timings
 4: Access #4 & William Halton Parkway














Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.5		-0.5	-0.5	-0.5	0.0
Total Lost Time (s)	4.0		4.0	4.0	4.0	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		C-Max	C-Max	None	None
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effect Green (s)	93.8		93.8	93.8	6.7	6.2
Actuated g/C Ratio	0.94		0.94	0.94	0.07	0.06
v/c Ratio	0.69		0.17	0.69	0.09	0.10
Control Delay	1.8		5.0	3.2	45.0	24.3
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	1.8		5.0	3.2	45.0	24.3
LOS	A		A	A	D	C
Approach Delay	1.8			3.2	34.6	
Approach LOS	A			A	C	

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 2.7
 Intersection LOS: A
 Intersection Capacity Utilization 69.9%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 4: Access #4 & William Halton Parkway

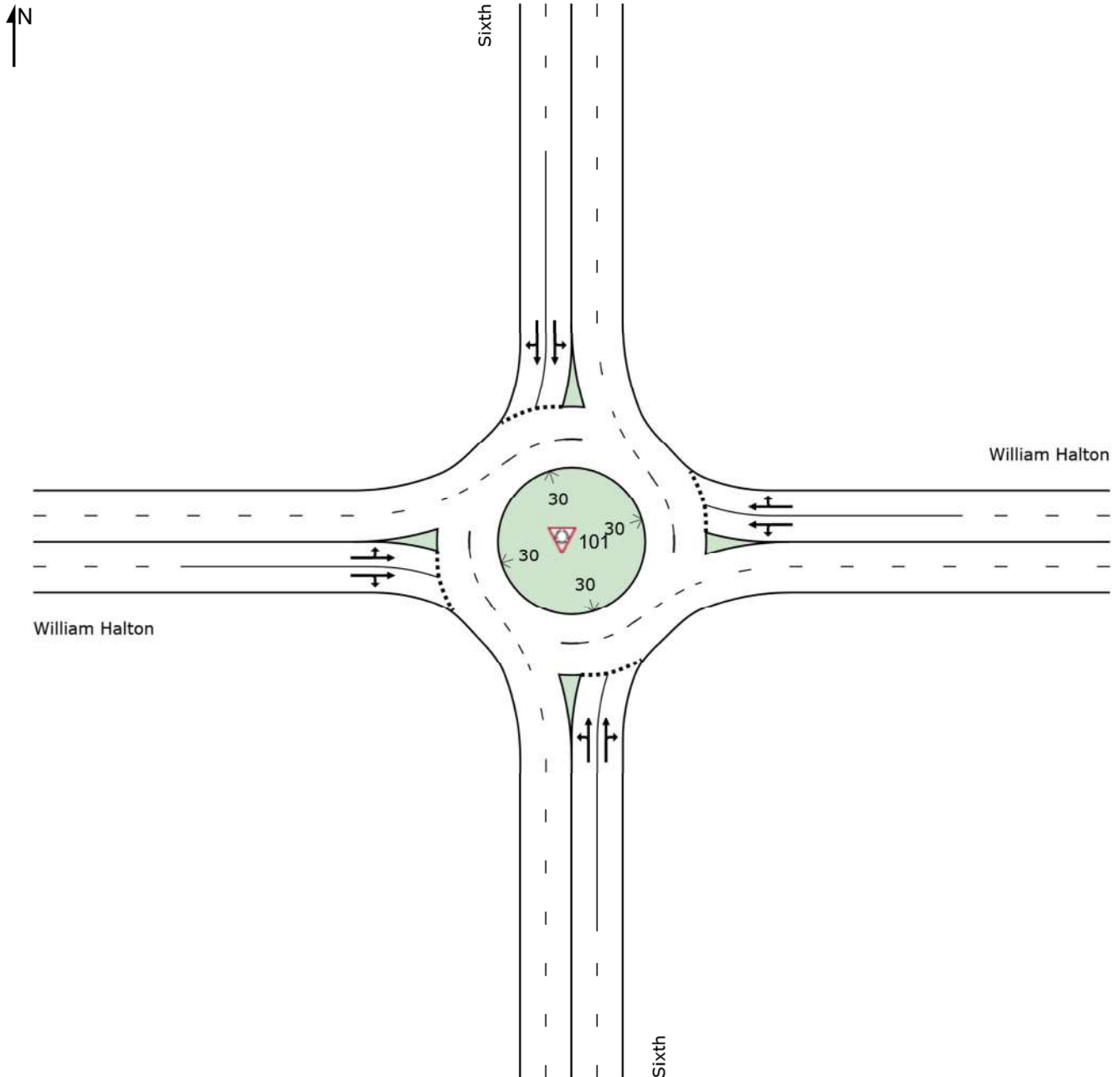


								
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations								
Traffic Volume (veh/h)	2104	16	16	2107	10	10		
Future Volume (veh/h)	2104	16	16	2107	10	10		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1863		
Adj Flow Rate, veh/h	2287	17	17	2290	11	11		
Adj No. of Lanes	2	0	1	2	1	1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	3212	24	143	3157	49	36		
Arrive On Green	0.60	0.59	0.89	0.89	0.03	0.02		
Sat Flow, veh/h	3694	27	159	3632	1774	1583		
Grp Volume(v), veh/h	1122	1182	17	2290	11	11		
Grp Sat Flow(s),veh/h/ln	1770	1858	159	1770	1774	1583		
Q Serve(g_s), s	44.4	44.6	6.6	19.8	0.6	0.7		
Cycle Q Clear(g_c), s	44.4	44.6	51.2	19.8	0.6	0.7		
Prop In Lane		0.01	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	1579	1658	143	3157	49	36		
V/C Ratio(X)	0.71	0.71	0.12	0.73	0.22	0.30		
Avail Cap(c_a), veh/h	1579	1658	143	3157	328	285		
HCM Platoon Ratio	0.67	0.67	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	11.1	11.1	17.2	1.6	47.5	48.1		
Incr Delay (d2), s/veh	2.7	2.6	1.7	1.5	2.2	4.6		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	22.8	23.9	0.4	9.6	0.3	0.3		
LnGrp Delay(d),s/veh	13.8	13.8	18.9	3.1	49.8	52.7		
LnGrp LOS	B	B	B	A	D	D		
Approach Vol, veh/h	2304			2307	22			
Approach Delay, s/veh	13.8			3.3	51.2			
Approach LOS	B			A	D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		93.2				93.2		6.8
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		73.0				73.0		18.0
Max Q Clear Time (g_c+I1), s		46.6				53.2		2.7
Green Ext Time (p_c), s		23.6				18.0		0.0
Intersection Summary								
HCM 2010 Ctrl Delay			8.7					
HCM 2010 LOS			A					

SITE LAYOUT

 Site: 101 [WH & 6th - 2024 AM FB]

New Site
Site Category: (None)
Roundabout



MOVEMENT SUMMARY

 Site: 101 [WH & 6th - 2024 PM Future]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Sixth												
1	L2	73	2.0	1.066	99.9	LOS F	29.2	208.0	1.00	2.40	5.40	24.2
2	T1	912	2.0	1.066	91.1	LOS F	38.0	270.3	1.00	2.56	5.70	24.7
3	R2	64	2.0	1.066	89.1	LOS F	38.0	270.3	1.00	2.67	5.90	24.7
Approach		1048	2.0	1.066	91.6	LOS F	38.0	270.3	1.00	2.55	5.69	24.7
East: William Halton												
4	L2	113	2.0	1.634	585.8	LOS F	275.0	1958.2	1.00	9.47	25.27	5.9
5	T1	2235	2.0	1.634	579.4	LOS F	339.5	2417.3	1.00	10.23	26.59	5.9
6	R2	78	2.0	1.634	579.0	LOS F	339.5	2417.3	1.00	10.80	27.60	5.9
Approach		2425	2.0	1.634	579.7	LOS F	339.5	2417.3	1.00	10.21	26.56	5.9
North: Sixth												
7	L2	67	2.0	1.022	72.6	LOS F	20.0	142.3	1.00	1.96	4.03	29.4
8	T1	879	2.0	1.022	63.2	LOS E	25.4	180.8	1.00	2.05	4.17	30.3
9	R2	35	2.0	1.022	60.9	LOS E	25.4	180.8	1.00	2.11	4.26	30.4
Approach		981	2.0	1.022	63.8	LOS E	25.4	180.8	1.00	2.04	4.16	30.2
West: William Halton												
10	L2	34	2.0	1.612	566.0	LOS F	257.0	1829.8	1.00	9.18	24.77	6.1
11	T1	2225	2.0	1.612	559.5	LOS F	320.3	2280.7	1.00	9.93	26.12	6.1
12	R2	67	2.0	1.612	559.0	LOS F	320.3	2280.7	1.00	10.54	27.21	6.0
Approach		2326	2.0	1.612	559.6	LOS F	320.3	2280.7	1.00	9.94	26.13	6.1
All Vehicles		6781	2.0	1.634	422.7	LOS F	339.5	2417.3	1.00	7.75	19.94	7.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Organisation: CGH TRANSPORTATION | Processed: February 22, 2019 10:49:54 AM

Project: C:\Users\AndrewHarte\CGH TRANSPORTATION\CGH Working - Documents\Projects\2018-23 Mattamy Neighbourhood 10\DATA\Sidra WH & 6.sip8

Lanes, Volumes, Timings
6: Trafalgar Road & William Halton Parkway

2024 Future Total PM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	2154	55	18	2184	15	81	1923	15	43	1486	104
Future Volume (vph)	99	2154	55	18	2184	15	81	1923	15	43	1486	104
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	180.0		0.0	180.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	75.0			75.0			75.0			75.0		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.996			0.999			0.999			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5065	0	1770	5080	0	1770	3536	0	1770	3504	0
Flt Permitted	0.078			0.086			0.074			0.075		
Satd. Flow (perm)	145	5065	0	160	5080	0	138	3536	0	140	3504	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			1			1			7	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		504.3			487.0			378.3			367.0	
Travel Time (s)		36.3			35.1			27.2			26.4	
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)	108	2341	60	20	2374	16	88	2090	16	47	1615	113
Shared Lane Traffic (%)												
Lane Group Flow (vph)	108	2401	0	20	2390	0	88	2106	0	47	1728	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	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2			6		3	8		7	4	
Permitted Phases	2			6			8			4		

Lanes, Volumes, Timings
6: Trafalgar Road & William Halton Parkway

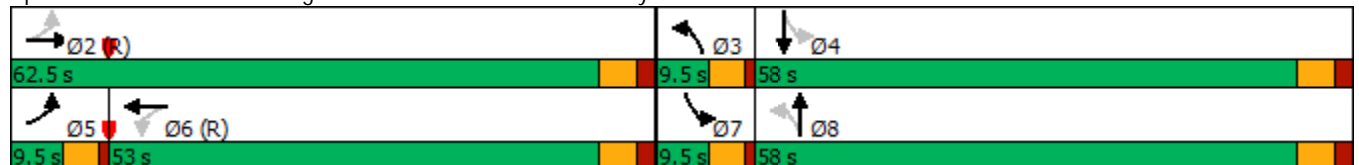
2024 Future Total PM
Neighbourhood 10

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Detector Phase	5	2		6	6		3	8		7	4		
Switch Phase													
Minimum Initial (s)	5.0	10.0		10.0	10.0		5.0	20.0		5.0	20.0		
Minimum Split (s)	9.5	39.6		39.6	39.6		9.5	39.6		9.5	39.6		
Total Split (s)	9.5	62.5		53.0	53.0		9.5	58.0		9.5	58.0		
Total Split (%)	7.3%	48.1%		40.8%	40.8%		7.3%	44.6%		7.3%	44.6%		
Maximum Green (s)	5.0	56.9		47.4	47.4		5.0	52.4		5.0	52.4		
Yellow Time (s)	3.5	3.7		3.7	3.7		3.5	3.7		3.5	3.7		
All-Red Time (s)	1.0	1.9		1.9	1.9		1.0	1.9		1.0	1.9		
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Total Lost Time (s)	4.5	5.6		5.6	5.6		4.5	5.6		4.5	5.6		
Lead/Lag	Lead			Lag			Lead		Lag		Lead		Lag
Lead-Lag Optimize?	Yes			Yes			Yes		Yes		Yes		Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None		
Walk Time (s)		7.0		7.0	7.0			7.0			7.0		
Flash Dont Walk (s)		27.0		27.0	27.0			27.0			27.0		
Pedestrian Calls (#/hr)		0		0	0			0			0		
Act Effect Green (s)	58.0	56.9		47.4	47.4		59.4	54.3		58.5	52.4		
Actuated g/C Ratio	0.45	0.44		0.36	0.36		0.46	0.42		0.45	0.40		
v/c Ratio	0.85	1.08		0.34	1.29		0.70	1.43		0.38	1.22		
Control Delay	73.6	80.9		49.9	170.1		49.6	226.8		26.5	140.5		
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Total Delay	73.6	80.9		49.9	170.1		49.6	226.8		26.5	140.5		
LOS	E	F		D	F		D	F		C	F		
Approach Delay		80.6			169.1			219.7			137.5		
Approach LOS		F			F			F			F		

Intersection Summary





















Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.43
 Intersection Signal Delay: 150.3
 Intersection LOS: F
 Intersection Capacity Utilization 126.7%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 6: Trafalgar Road & William Halton Parkway



HCM 2010 Signalized Intersection Summary
6: Trafalgar Road & William Halton Parkway

2024 Future Total PM
Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	2154	55	18	2184	15	81	1923	15	43	1486	104
Future Volume (veh/h)	99	2154	55	18	2184	15	81	1923	15	43	1486	104
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	108	2341	60	20	2374	16	88	2090	16	47	1615	113
Adj No. of Lanes	1	3	0	1	3	0	1	2	0	1	2	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	124	2232	57	55	1900	13	124	1476	11	111	1353	94
Arrive On Green	0.04	0.44	0.44	0.36	0.36	0.36	0.04	0.41	0.41	0.03	0.40	0.40
Sat Flow, veh/h	1774	5100	130	144	5212	35	1774	3600	28	1774	3358	233
Grp Volume(v), veh/h	108	1554	847	20	1544	846	88	1026	1080	47	846	882
Grp Sat Flow(s),veh/h/ln	1774	1695	1840	144	1695	1857	1774	1770	1858	1774	1770	1822
Q Serve(g_s), s	4.9	56.9	56.9	0.0	47.4	47.4	3.8	53.3	53.3	2.0	52.4	52.4
Cycle Q Clear(g_c), s	4.9	56.9	56.9	47.4	47.4	47.4	3.8	53.3	53.3	2.0	52.4	52.4
Prop In Lane	1.00		0.07	1.00		0.02	1.00		0.01	1.00		0.13
Lane Grp Cap(c), veh/h	124	1484	805	55	1236	677	124	726	762	111	713	734
V/C Ratio(X)	0.87	1.05	1.05	0.36	1.25	1.25	0.71	1.41	1.42	0.42	1.19	1.20
Avail Cap(c_a), veh/h	124	1484	805	55	1236	677	124	726	762	124	713	734
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.8	36.6	36.6	65.0	41.3	41.3	31.9	38.3	38.3	31.9	38.8	38.8
Incr Delay (d2), s/veh	45.1	36.7	46.4	17.3	118.8	124.7	17.4	194.3	195.5	2.5	97.4	103.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	34.2	39.2	1.0	42.5	47.7	2.4	65.2	68.7	1.0	44.9	47.4
LnGrp Delay(d),s/veh	77.8	73.3	82.9	82.3	160.1	166.0	49.3	232.6	233.9	34.5	136.2	142.3
LnGrp LOS	E	F	F	F	F	F	D	F	F	C	F	F
Approach Vol, veh/h		2509			2410			2194			1775	
Approach Delay, s/veh		76.7			161.5			225.9			136.5	
Approach LOS		E			F			F			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s		62.5	9.5	58.0	9.5	53.0	8.6	58.9				
Change Period (Y+Rc), s		* 5.6	4.5	* 5.6	4.5	* 5.6	4.5	* 5.6				
Max Green Setting (Gmax), s		* 57	5.0	* 52	5.0	* 47	5.0	* 52				
Max Q Clear Time (g_c+I1), s		58.9	5.8	54.4	6.9	49.4	4.0	55.3				
Green Ext Time (p_c), s		0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			148.5									
HCM 2010 LOS			F									
Notes												

Lanes, Volumes, Timings
7: Access #1 & Burnhamthorpe Road

2024 Future Total PM
Neighbourhood 10



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	224	36	6	356	22	6
Future Volume (vph)	224	36	6	356	22	6
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	0.981			0.970		
Flt Protected				0.999	0.963	
Satd. Flow (prot)	1827	0	0	1861	1740	0
Flt Permitted				0.999	0.963	
Satd. Flow (perm)	1827	0	0	1861	1740	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.6			137.0	150.8	
Travel Time (s)	13.1			9.9	10.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	243	39	7	387	24	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	282	0	0	394	31	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	33.5%
Analysis Period (min)	15
	ICU Level of Service A

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	224	36	6	356	22	6
Future Vol, veh/h	224	36	6	356	22	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	243	39	7	387	24	7

















Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	282	0	664 263
Stage 1	-	-	-	-	263 -
Stage 2	-	-	-	-	401 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1280	-	426 776
Stage 1	-	-	-	-	781 -
Stage 2	-	-	-	-	676 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1280	-	423 776
Mov Cap-2 Maneuver	-	-	-	-	423 -
Stage 1	-	-	-	-	776 -
Stage 2	-	-	-	-	676 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	13.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	469	-	-	1280	-
HCM Lane V/C Ratio	0.065	-	-	0.005	-
HCM Control Delay (s)	13.2	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Lanes, Volumes, Timings
8: Access #2 & Burnhamthorpe Road

2024 Future Total PM
Neighbourhood 10

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	175	34	14	327	5	20	5	8	5	5	10
Future Volume (vph)	16	175	34	14	327	5	20	5	8	5	5	10
Ideal Flow (vphp)	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		0.980			0.998			0.966			0.929	
Flt Protected		0.997			0.998			0.970			0.988	
Satd. Flow (prot)	0	1820	0	0	1855	0	0	1745	0	0	1710	0
Flt Permitted		0.997			0.998			0.970			0.988	
Satd. Flow (perm)	0	1820	0	0	1855	0	0	1745	0	0	1710	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		137.0			214.2			120.1			128.7	
Travel Time (s)		9.9			15.4			8.6			9.3	
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)	17	190	37	15	355	5	22	5	9	5	5	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	244	0	0	375	0	0	36	0	0	21	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	31.9%					ICU Level of Service A						
Analysis Period (min)	15											

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	175	34	14	327	5	20	5	8	5	5	10
Future Vol, veh/h	16	175	34	14	327	5	20	5	8	5	5	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	190	37	15	355	5	22	5	9	5	5	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	360	0	0	227	0	0	639	633	209	638	649	358
Stage 1	-	-	-	-	-	-	243	243	-	388	388	-
Stage 2	-	-	-	-	-	-	396	390	-	250	261	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1199	-	-	1341	-	-	389	397	831	389	389	686
Stage 1	-	-	-	-	-	-	761	705	-	636	609	-
Stage 2	-	-	-	-	-	-	629	608	-	754	692	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1199	-	-	1341	-	-	370	385	831	372	377	686
Mov Cap-2 Maneuver	-	-	-	-	-	-	370	385	-	372	377	-
Stage 1	-	-	-	-	-	-	749	694	-	626	600	-
Stage 2	-	-	-	-	-	-	605	599	-	728	681	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.6			0.3			14.1			12.8		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	430	1199	-	-	1341	-	-	484
HCM Lane V/C Ratio	0.083	0.015	-	-	0.011	-	-	0.045
HCM Control Delay (s)	14.1	8	0	-	7.7	0	-	12.8
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.1

Lanes, Volumes, Timings
9: Access #3 & Burnhamthorpe Road

2024 Future Total PM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	4	68	95	31	270	5	56	5	6	12	5	2
Future Volume (vph)	4	68	95	31	270	5	56	5	6	12	5	2
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		0.923			0.998			0.987			0.986	
Flt Protected		0.999			0.995			0.960			0.969	
Satd. Flow (prot)	0	1718	0	0	1850	0	0	1765	0	0	1780	0
Flt Permitted		0.999			0.995			0.960			0.969	
Satd. Flow (perm)	0	1718	0	0	1850	0	0	1765	0	0	1780	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		214.2			214.1			129.7			115.6	
Travel Time (s)		15.4			15.4			9.3			8.3	
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)	4	74	103	34	293	5	61	5	7	13	5	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	181	0	0	332	0	0	73	0	0	20	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	40.8%
Analysis Period (min)	15
	ICU Level of Service A

Intersection

Int Delay, s/veh 2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	68	95	31	270	5	56	5	6	12	5	2
Future Vol, veh/h	4	68	95	31	270	5	56	5	6	12	5	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	74	103	34	293	5	61	5	7	13	5	2

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	298	0	0	177	0	0	501	500	126	504	549	296
Stage 1	-	-	-	-	-	-	134	134	-	364	364	-
Stage 2	-	-	-	-	-	-	367	366	-	140	185	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1263	-	-	1399	-	-	480	473	924	478	443	743
Stage 1	-	-	-	-	-	-	869	785	-	655	624	-
Stage 2	-	-	-	-	-	-	653	623	-	863	747	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1263	-	-	1399	-	-	462	457	924	458	428	743
Mov Cap-2 Maneuver	-	-	-	-	-	-	462	457	-	458	428	-
Stage 1	-	-	-	-	-	-	866	782	-	652	606	-
Stage 2	-	-	-	-	-	-	627	605	-	848	744	-

Approach	EB		WB		NB		SB
HCM Control Delay, s	0.2		0.8		13.8		13
HCM LOS					B		B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	483	1263	-	-	1399	-	-	468
HCM Lane V/C Ratio	0.151	0.003	-	-	0.024	-	-	0.044
HCM Control Delay (s)	13.8	7.9	0	-	7.6	0	-	13
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.5	0	-	-	0.1	-	-	0.1

Lanes, Volumes, Timings
10: Sixth Line & Burnhamthorpe Road

2024 Future Total PM - Mitigation
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	40	42	310	185	127	86	812	167	118	798	42
Future Volume (vph)	14	40	42	310	185	127	86	812	167	118	798	42
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	50.0		40.0	50.0		20.0	60.0		15.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	75.0			75.0			75.0			75.0		
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		0.923			0.939			0.974			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1719	0	1770	1749	0	1770	3447	0	1770	3511	0
Flt Permitted	0.325			0.700			0.271			0.220		
Satd. Flow (perm)	605	1719	0	1304	1749	0	505	3447	0	410	3511	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		45			36			43			10	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		202.3			162.5			126.1			208.3	
Travel Time (s)		14.6			11.7			9.1			15.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	15	43	45	330	197	135	91	864	178	126	849	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	88	0	330	332	0	91	1042	0	126	894	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	1		1	1		1	1		1	1	
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	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
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	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	29.6	29.6		29.6	29.6		38.1	38.1		38.1	38.1	
Total Split (s)	36.0	36.0		36.0	36.0		64.0	64.0		64.0	64.0	

Lanes, Volumes, Timings
10: Sixth Line & Burnhamthorpe Road

2024 Future Total PM - Mitigation
Neighbourhood 10

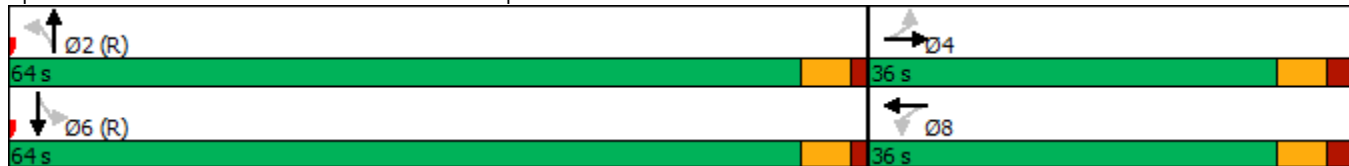


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	36.0%	36.0%		36.0%	36.0%		64.0%	64.0%		64.0%	64.0%	
Maximum Green (s)	30.4	30.4		30.4	30.4		58.9	58.9		58.9	58.9	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.7	3.7		3.7	3.7	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.4	1.4		1.4	1.4	
Lost Time Adjust (s)	-0.7	-1.6		-1.6	-1.6		-1.1	-1.1		-0.7	-1.1	
Total Lost Time (s)	4.9	4.0		4.0	4.0		4.0	4.0		4.4	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0		26.0	26.0		26.0	26.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	28.5	29.4		29.4	29.4		62.6	62.6		62.2	62.6	
Actuated g/C Ratio	0.28	0.29		0.29	0.29		0.63	0.63		0.62	0.63	
v/c Ratio	0.09	0.16		0.86	0.61		0.29	0.48		0.49	0.41	
Control Delay	26.2	14.2		55.4	31.9		12.5	10.9		19.8	10.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.2	14.2		55.4	31.9		12.5	10.9		19.8	10.4	
LOS	C	B		E	C		B	B		B	B	
Approach Delay		16.0			43.6			11.0			11.6	
Approach LOS		B			D			B			B	

Intersection Summary






















Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 88 (88%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 18.8
 Intersection Capacity Utilization 68.5%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 10: Sixth Line & Burnhamthorpe Road



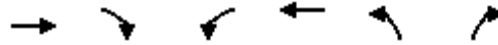
HCM 2010 Signalized Intersection Summary
 10: Sixth Line & Burnhamthorpe Road

2024 Future Total PM - Mitigation
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	40	42	310	185	127	86	812	167	118	798	42
Future Volume (veh/h)	14	40	42	310	185	127	86	812	167	118	798	42
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	15	43	45	330	197	135	91	864	178	126	849	45
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	227	266	278	438	328	225	363	1759	362	304	2057	109
Arrive On Green	0.31	0.32	0.30	0.32	0.32	0.32	0.60	0.60	0.60	0.60	0.60	0.60
Sat Flow, veh/h	1044	835	874	1304	1031	707	620	2924	602	539	3419	181
Grp Volume(v), veh/h	15	0	88	330	0	332	91	523	519	126	439	455
Grp Sat Flow(s),veh/h/ln	1044	0	1709	1304	0	1738	620	1770	1756	539	1770	1831
Q Serve(g_s), s	1.2	0.0	3.7	24.4	0.0	16.1	9.1	16.7	16.7	17.4	13.2	13.2
Cycle Q Clear(g_c), s	17.3	0.0	3.7	28.1	0.0	16.1	22.3	16.7	16.7	34.1	13.2	13.2
Prop In Lane	1.00		0.51	1.00		0.41	1.00		0.34	1.00		0.10
Lane Grp Cap(c), veh/h	227	0	544	438	0	553	363	1065	1057	304	1065	1101
V/C Ratio(X)	0.07	0.00	0.16	0.75	0.00	0.60	0.25	0.49	0.49	0.41	0.41	0.41
Avail Cap(c_a), veh/h	229	0	547	440	0	556	363	1065	1057	304	1065	1101
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.8	0.0	24.8	34.6	0.0	28.7	16.5	11.3	11.3	21.2	10.6	10.6
Incr Delay (d2), s/veh	0.1	0.0	0.1	7.1	0.0	1.8	1.6	1.6	1.6	4.1	1.2	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	1.8	9.7	0.0	8.0	1.7	8.6	8.6	2.9	6.7	6.9
LnGrp Delay(d),s/veh	36.9	0.0	24.9	41.7	0.0	30.5	18.1	12.9	12.9	25.3	11.7	11.7
LnGrp LOS	D		C	D		C	B	B	B	C	B	B
Approach Vol, veh/h		103			662			1133			1020	
Approach Delay, s/veh		26.7			36.1			13.3			13.4	
Approach LOS		C			D			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		64.2		35.8		64.2		35.8				
Change Period (Y+Rc), s		* 5.1		* 5.6		* 5.1		* 5.6				
Max Green Setting (Gmax), s		* 59		* 30		* 59		* 30				
Max Q Clear Time (g_c+I1), s		24.3		19.3		36.1		30.1				
Green Ext Time (p_c), s		12.0		0.4		9.1		0.1				
Intersection Summary												
HCM 2010 Ctrl Delay				19.0								
HCM 2010 LOS				B								
Notes												

Lanes, Volumes, Timings
 11: Access #8 & Burnhamthorpe Road

2024 Future Total PM - Mitigation
 Neighbourhood 10



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	323	10	26	601	22	15
Future Volume (vph)	323	10	26	601	22	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	30.0		0.0	0.0
Storage Lanes		0	0		1	0
Taper Length (m)			30.0		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.996				0.946	
Flt Protected				0.998	0.971	
Satd. Flow (prot)	1855	0	0	1859	1711	0
Flt Permitted				0.998	0.971	
Satd. Flow (perm)	1855	0	0	1859	1711	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	162.5			162.0	143.2	
Travel Time (s)	11.7			11.7	10.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	351	11	28	653	24	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	362	0	0	681	40	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)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	62.7%
ICU Level of Service	B
Analysis Period (min)	15

Intersection						
Int Delay, s/veh	0.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	323	10	26	601	22	15
Future Vol, veh/h	323	10	26	601	22	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	351	11	28	653	24	16

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	362	0	1066
Stage 1	-	-	-	-	357
Stage 2	-	-	-	-	709
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1197	-	246
Stage 1	-	-	-	-	708
Stage 2	-	-	-	-	488
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1197	-	237
Mov Cap-2 Maneuver	-	-	-	-	237
Stage 1	-	-	-	-	682
Stage 2	-	-	-	-	488

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	17.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	323	-	-	1197	-
HCM Lane V/C Ratio	0.125	-	-	0.024	-
HCM Control Delay (s)	17.7	-	-	8.1	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

Lanes, Volumes, Timings
 12: Access #9 & Burnhamthorpe Road

2024 Future Total PM - Mitigation
 Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	351	16	51	637	15	15	5	30	10	5	4
Future Volume (vph)	6	351	16	51	637	15	15	5	30	10	5	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			7.5			7.5		
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		0.994			0.997			0.917			0.973	
Flt Protected	0.950			0.950				0.985			0.973	
Satd. Flow (prot)	1770	1852	0	1770	1857	0	0	1683	0	0	1764	0
Flt Permitted	0.950			0.950				0.985			0.973	
Satd. Flow (perm)	1770	1852	0	1770	1857	0	0	1683	0	0	1764	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		162.0			627.0			156.1			97.7	
Travel Time (s)		11.7			45.1			11.2			7.0	
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)	7	382	17	55	692	16	16	5	33	11	5	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	399	0	55	708	0	0	54	0	0	20	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			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	51.1%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷			↕			↕	
Traffic Vol, veh/h	6	351	16	51	637	15	15	5	30	10	5	4
Future Vol, veh/h	6	351	16	51	637	15	15	5	30	10	5	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	300	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	382	17	55	692	16	16	5	33	11	5	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	708	0	0	399	0	0	1220	1223	391	1234	1223	700
Stage 1	-	-	-	-	-	-	405	405	-	810	810	-
Stage 2	-	-	-	-	-	-	815	818	-	424	413	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	891	-	-	1160	-	-	157	179	658	153	179	439
Stage 1	-	-	-	-	-	-	622	598	-	374	393	-
Stage 2	-	-	-	-	-	-	371	390	-	608	594	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	891	-	-	1160	-	-	145	169	658	136	169	439
Mov Cap-2 Maneuver	-	-	-	-	-	-	145	169	-	136	169	-
Stage 1	-	-	-	-	-	-	617	593	-	371	375	-
Stage 2	-	-	-	-	-	-	345	372	-	568	589	-

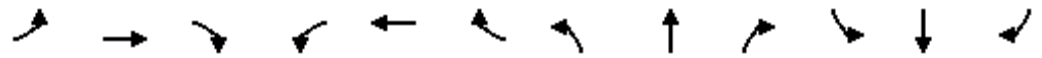
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.6			20.9			29.2		
HCM LOS							C			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	280	891	-	-	1160	-	-	169
HCM Lane V/C Ratio	0.194	0.007	-	-	0.048	-	-	0.122
HCM Control Delay (s)	20.9	9.1	-	-	8.3	-	-	29.2
HCM Lane LOS	C	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	0.7	0	-	-	0.1	-	-	0.4

Lanes, Volumes, Timings
13: Trafalgar Road & Burnhamthorpe Road

2024 Future Total PM - Mitigation

Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	218	65	109	361	240	166	1636	94	181	1165	140
Future Volume (vph)	78	218	65	109	361	240	166	1636	94	181	1165	140
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		30.0	15.0		30.0	180.0		30.0	180.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	75.0			75.0			75.0			75.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850			0.850			0.850		0.984	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3483	0
Flt Permitted	0.169			0.331			0.104			0.065		
Satd. Flow (perm)	315	1863	1583	617	1863	1583	194	3539	1583	121	3483	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109			120			109		16	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		294.5			414.4			579.3			233.9	
Travel Time (s)		21.2			29.8			41.7			16.8	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	80	222	66	111	368	245	169	1669	96	185	1189	143
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	222	66	111	368	245	169	1669	96	185	1332	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	1	1	1	1	1	1	1	1	1	1	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
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	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
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
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	20.0	20.0	7.0	20.0	
Minimum Split (s)	9.5	24.0	24.0	9.5	23.8	23.8	9.5	26.0	26.0	11.5	26.0	
Total Split (s)	9.5	28.7	28.7	11.8	31.0	31.0	13.4	65.5	65.5	14.0	66.1	

Lanes, Volumes, Timings
13: Trafalgar Road & Burnhamthorpe Road

2024 Future Total PM - Mitigation
Neighbourhood 10

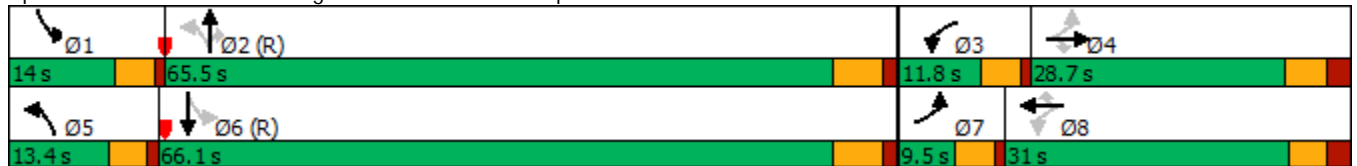


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	7.9%	23.9%	23.9%	9.8%	25.8%	25.8%	11.2%	54.6%	54.6%	11.7%	55.1%	
Maximum Green (s)	5.0	22.7	22.7	7.3	25.2	25.2	8.9	59.5	59.5	9.5	60.1	
Yellow Time (s)	3.5	3.7	3.7	3.5	3.5	3.5	3.5	4.6	4.6	3.5	4.6	
All-Red Time (s)	1.0	2.3	2.3	1.0	2.3	2.3	1.0	1.4	1.4	1.0	1.4	
Lost Time Adjust (s)	-2.0	-2.0	0.0	-1.8	-1.8	0.0	-2.0	-2.0	0.0	0.0	-2.0	
Total Lost Time (s)	2.5	4.0	6.0	2.7	4.0	5.8	2.5	4.0	6.0	4.5	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effct Green (s)	31.2	22.7	20.7	35.5	26.9	25.1	75.4	63.4	61.4	73.6	64.4	
Actuated g/C Ratio	0.26	0.19	0.17	0.30	0.22	0.21	0.63	0.53	0.51	0.61	0.54	
v/c Ratio	0.48	0.63	0.18	0.41	0.88	0.58	0.65	0.89	0.11	0.90	0.71	
Control Delay	39.8	52.9	2.8	35.6	68.1	27.2	26.1	33.4	2.6	69.8	23.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	39.8	52.9	2.8	35.6	68.1	27.2	26.1	33.4	2.6	69.8	23.8	
LOS	D	D	A	D	E	C	C	C	A	E	C	
Approach Delay		41.0			49.3			31.3			29.4	
Approach LOS		D			D			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: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 34.3
 Intersection LOS: C
 Intersection Capacity Utilization 92.3%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 13: Trafalgar Road & Burnhamthorpe Road



HCM 2010 Signalized Intersection Summary
 13: Trafalgar Road & Burnhamthorpe Road

2024 Future Total PM - Mitigation
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	218	65	109	361	240	166	1636	94	181	1165	140
Future Volume (veh/h)	78	218	65	109	361	240	166	1636	94	181	1165	140
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	80	222	66	111	368	245	169	1669	96	185	1189	143
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	191	384	300	300	417	330	298	1826	791	212	1691	203
Arrive On Green	0.06	0.21	0.19	0.08	0.22	0.21	0.08	0.52	0.50	0.08	0.53	0.51
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3183	382
Grp Volume(v), veh/h	80	222	66	111	368	245	169	1669	96	185	660	672
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1795
Q Serve(g_s), s	4.2	12.9	4.2	5.7	22.9	17.4	5.1	51.8	3.9	7.0	33.4	33.8
Cycle Q Clear(g_c), s	4.2	12.9	4.2	5.7	22.9	17.4	5.1	51.8	3.9	7.0	33.4	33.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	191	384	300	300	417	330	298	1826	791	212	940	953
V/C Ratio(X)	0.42	0.58	0.22	0.37	0.88	0.74	0.57	0.91	0.12	0.87	0.70	0.71
Avail Cap(c_a), veh/h	191	384	300	300	419	333	323	1826	791	219	940	953
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.0	42.9	41.1	32.9	45.1	44.4	18.3	26.6	16.0	31.1	21.0	21.3
Incr Delay (d2), s/veh	1.5	2.1	0.4	0.8	19.3	8.5	2.0	8.6	0.3	29.4	4.4	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	6.9	1.9	2.8	14.0	8.4	2.7	27.4	1.7	7.7	17.4	17.8
LnGrp Delay(d),s/veh	37.4	45.1	41.5	33.7	64.4	53.0	20.2	35.2	16.3	60.5	25.4	25.7
LnGrp LOS	D	D	D	C	E	D	C	D	B	E	C	C
Approach Vol, veh/h		368			724			1934			1517	
Approach Delay, s/veh		42.8			55.8			32.9			29.8	
Approach LOS		D			E			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.5	65.9	11.8	28.7	11.7	67.7	9.5	31.0				
Change Period (Y+Rc), s	4.5	* 6	4.5	6.0	4.5	* 6	4.5	* 6				
Max Green Setting (Gmax), s	9.5	* 60	7.3	22.7	8.9	* 60	5.0	* 25				
Max Q Clear Time (g_c+I1), s	9.0	53.8	7.7	14.9	7.1	35.8	6.2	24.9				
Green Ext Time (p_c), s	0.0	4.9	0.0	1.0	0.1	12.4	0.0	0.1				
Intersection Summary												
HCM 2010 Ctrl Delay			36.3									
HCM 2010 LOS			D									
Notes												

Lanes, Volumes, Timings
14: Sixth Line & Access #5/Settlers Road

2024 Future Total PM - Mitigation
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	5	27	53	5	13	46	1015	90	22	1055	11
Future Volume (vph)	7	5	27	53	5	13	46	1015	90	22	1055	11
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	75.0		0.0	75.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			75.0			75.0		
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		0.872			0.889			0.988			0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1624	0	1770	1656	0	1770	3497	0	1770	3532	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1624	0	1770	1656	0	1770	3497	0	1770	3532	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		149.3			138.8			436.9			313.8	
Travel Time (s)		10.7			10.0			31.5			22.6	
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)	8	5	29	58	5	14	50	1103	98	24	1147	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	34	0	58	19	0	50	1201	0	24	1159	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
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	53.9%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	17.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↵		↵	↵		↵	↕↕		↵	↕↕	
Traffic Vol, veh/h	7	5	27	53	5	13	46	1015	90	22	1055	11
Future Vol, veh/h	7	5	27	53	5	13	46	1015	90	22	1055	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	750	-	-	750	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	5	29	58	5	14	50	1103	98	24	1147	12

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1855	2502	580	1876	2459	601	1159	0	0	1201	0	0
Stage 1	1201	1201	-	1252	1252	-	-	-	-	-	-	-
Stage 2	654	1301	-	624	1207	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	46	28	458	~ 44	30	443	599	-	-	577	-	-
Stage 1	196	256	-	182	242	-	-	-	-	-	-	-
Stage 2	422	229	-	440	254	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	34	25	458	~ 31	26	443	599	-	-	577	-	-
Mov Cap-2 Maneuver	34	25	-	~ 31	26	-	-	-	-	-	-	-
Stage 1	180	245	-	167	222	-	-	-	-	-	-	-
Stage 2	365	210	-	386	243	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	61.9		\$ 524.3		0.5		0.2	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	599	-	-	34	124	31	81	577	-	-
HCM Lane V/C Ratio	0.083	-	-	0.224	0.281	1.858	0.242	0.041	-	-
HCM Control Delay (s)	11.6	-	-	139.1	45	680.9	63.1	11.5	-	-
HCM Lane LOS	B	-	-	F	E	F	F	B	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.7	1.1	6.6	0.9	0.1	-	-

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lanes, Volumes, Timings
15: Sixth Line & Access #6/Marvin Avenue

2024 Future Total PM - Mitigation
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	5	131	87	5	29	220	1134	147	61	1000	91
Future Volume (vph)	55	5	131	87	5	29	220	1134	147	61	1000	91
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	30.0		0.0	30.0		50.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			50.0			50.0		
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		0.855			0.870			0.983			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1593	0	1770	1621	0	1770	3479	0	1770	3493	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1593	0	1770	1621	0	1770	3479	0	1770	3493	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		121.7			108.4			226.5			436.9	
Travel Time (s)		8.8			7.8			16.3			31.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	5	142	95	5	32	239	1233	160	66	1087	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	147	0	95	37	0	239	1393	0	66	1186	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
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	69.2%
ICU Level of Service	C
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	1034.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Vol, veh/h	55	5	131	87	5	29	220	1134	147	61	1000	91
Future Vol, veh/h	55	5	131	87	5	29	220	1134	147	61	1000	91
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	300	-	-	300	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	60	5	142	95	5	32	239	1233	160	66	1087	99

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2366	3140	593	2469	3109	697	1186	0	0	1393	0	0
Stage 1	1269	1269	-	1791	1791	-	-	-	-	-	-	-
Stage 2	1097	1871	-	678	1318	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 18	11	449	~ 15	11	383	585	-	-	487	-	-
Stage 1	178	238	-	~ 84	132	-	-	-	-	-	-	-
Stage 2	227	120	-	408	225	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 2	6	449	~ 2	6	383	585	-	-	487	-	-
Mov Cap-2 Maneuver	~ 2	6	-	~ 2	6	-	-	-	-	-	-	-
Stage 1	105	206	-	~ 50	78	-	-	-	-	-	-	-
Stage 2	115	71	-	234	194	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, \$	4897.3		17582.6		2.2		0.7	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	585	-	-	2	121	2	37	487	-	-
HCM Lane V/C Ratio	0.409	-	-	29.891	1.222	47.283	0.999	0.136	-	-
HCM Control Delay (s)	15.3	-	-	\$ 16458.4	221.9	24332.3	\$ 311.2	13.6	-	-
HCM Lane LOS	C	-	-	F	F	F	F	B	-	-
HCM 95th %tile Q(veh)	2	-	-	9.6	9.3	14.1	3.7	0.5	-	-

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lanes, Volumes, Timings
 16: Sixth Line & Access #7/Carnegie Drive

2024 Future Total PM - Mitigation
 Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	5	7	6	5	6	12	1499	2	3	1215	2
Future Volume (vph)	1	5	7	6	5	6	12	1499	2	3	1215	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		0.0	30.0		0.0	75.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			50.0			75.0		
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		0.908			0.912							
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1691	0	1770	1699	0	1770	3539	0	1770	3539	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1691	0	1770	1699	0	1770	3539	0	1770	3539	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		113.1			125.7			173.3			226.5	
Travel Time (s)		8.1			9.1			12.5			16.3	
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)	1	5	8	7	5	7	13	1629	2	3	1321	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	13	0	7	12	0	13	1631	0	3	1323	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
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	53.2%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↵		↵	↵		↵	↕↕		↵	↕↕	
Traffic Vol, veh/h	1	5	7	6	5	6	12	1499	2	3	1215	2
Future Vol, veh/h	1	5	7	6	5	6	12	1499	2	3	1215	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	300	-	-	750	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	5	8	7	5	7	13	1629	2	3	1321	2

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2171	2985	662	2325	2985	816	1323	0	0	1631	0	0
Stage 1	1328	1328	-	1656	1656	-	-	-	-	-	-	-
Stage 2	843	1657	-	669	1329	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	26	14	404	20	14	320	518	-	-	394	-	-
Stage 1	164	223	-	102	154	-	-	-	-	-	-	-
Stage 2	325	154	-	413	222	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	17	14	404	13	14	320	518	-	-	394	-	-
Mov Cap-2 Maneuver	17	14	-	13	14	-	-	-	-	-	-	-
Stage 1	160	221	-	99	150	-	-	-	-	-	-	-
Stage 2	299	150	-	392	220	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	184.1		284.9		0.1		0	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	518	-	-	17	32	13	29	394	-	-
HCM Lane V/C Ratio	0.025	-	-	0.064	0.408	0.502	0.412	0.008	-	-
HCM Control Delay (s)	12.1	-	-	230.8	180.2	443.8	198.2	14.2	-	-
HCM Lane LOS	B	-	-	F	F	F	F	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	1.3	1.2	1.3	0	-	-

Lanes, Volumes, Timings
17: Sixth Line & Dundas Street

2024 Future Total PM - Mitigation
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	1415	165	207	2266	522	194	386	202	343	206	128
Future Volume (vph)	203	1415	165	207	2266	522	194	386	202	343	206	128
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		80.0	35.0		0.0	80.0		0.0	45.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	75.0			75.0			75.0			75.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.972				0.850		0.942	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	1770	4943	0	1770	3539	1583	1770	3334	0
Flt Permitted	0.062			0.105			0.480			0.427		
Satd. Flow (perm)	115	5085	1583	196	4943	0	894	3539	1583	795	3334	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			170		64				208		102	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		409.7			323.7			341.1			852.7	
Travel Time (s)		29.5			23.3			24.6			61.4	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	209	1459	170	213	2336	538	200	398	208	354	212	132
Shared Lane Traffic (%)												
Lane Group Flow (vph)	209	1459	170	213	2874	0	200	398	208	354	344	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	1	1	1	1		1	1	1	1	1	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0	2.0	10.0	
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	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8				4
Permitted Phases	2		2	6			8		8	4		
Detector Phase	5	2	2	1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	11.5	37.2	37.2	11.5	34.2		40.5	40.5	40.5	40.5	40.5	
Total Split (s)	11.6	62.0	62.0	26.8	77.2		41.2	41.2	41.2	41.2	41.2	

Lanes, Volumes, Timings
17: Sixth Line & Dundas Street

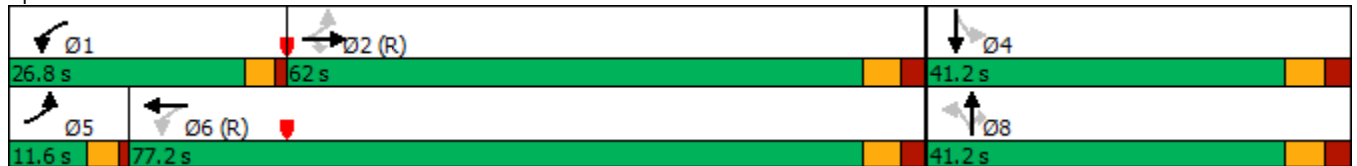


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	8.9%	47.7%	47.7%	20.6%	59.4%		31.7%	31.7%	31.7%	31.7%	31.7%	
Maximum Green (s)	7.6	55.8	55.8	22.8	71.0		34.7	34.7	34.7	34.7	34.7	
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5		2.8	2.8	2.8	2.8	2.8	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.2	6.2	4.0	6.2		6.5	6.5	6.5	6.5	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	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	C-Max	C-Max	None	C-Max		Max	Max	Max	Max	Max	
Walk Time (s)		7.0	7.0		7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		24.0	24.0		21.0		27.0	27.0	27.0	27.0	27.0	
Pedestrian Calls (#/hr)		0	0		0		0	0	0	0	0	
Act Effct Green (s)	73.8	64.0	64.0	84.1	71.0		34.7	34.7	34.7	34.7	34.7	
Actuated g/C Ratio	0.57	0.49	0.49	0.65	0.55		0.27	0.27	0.27	0.27	0.27	
v/c Ratio	1.29	0.58	0.20	0.70	1.05		0.84	0.42	0.36	1.67	0.36	
Control Delay	199.3	25.3	3.6	29.8	62.3		74.6	41.0	6.6	352.8	27.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	199.3	25.3	3.6	29.8	62.3		74.6	41.0	6.6	352.8	27.9	
LOS	F	C	A	C	E		E	D	A	F	C	
Approach Delay		43.1			60.0			40.5			192.6	
Approach LOS		D			E			D			F	

Intersection Summary
























Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.67
 Intersection Signal Delay: 67.1
 Intersection LOS: E
 Intersection Capacity Utilization 115.7%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 17: Sixth Line & Dundas Street



HCM 2010 Signalized Intersection Summary
 17: Sixth Line & Dundas Street

2024 Future Total PM - Mitigation
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	203	1415	165	207	2266	522	194	386	202	343	206	128
Future Volume (veh/h)	203	1415	165	207	2266	522	194	386	202	343	206	128
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	209	1459	170	213	2336	538	200	398	208	354	212	132
Adj No. of Lanes	1	3	1	1	3	0	1	2	1	1	2	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	159	2695	839	293	2289	493	243	945	423	197	570	340
Arrive On Green	0.06	0.53	0.53	0.07	0.55	0.55	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1774	5085	1583	1774	4191	903	1032	3539	1583	811	2134	1273
Grp Volume(v), veh/h	209	1459	170	213	1859	1015	200	398	208	354	174	170
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1703	1032	1770	1583	811	1770	1638
Q Serve(g_s), s	7.6	24.6	7.4	7.0	71.0	71.0	23.7	12.1	14.4	22.6	10.4	11.0
Cycle Q Clear(g_c), s	7.6	24.6	7.4	7.0	71.0	71.0	34.7	12.1	14.4	34.7	10.4	11.0
Prop In Lane	1.00		1.00	1.00		0.53	1.00		1.00	1.00		0.78
Lane Grp Cap(c), veh/h	159	2695	839	293	1852	930	243	945	423	197	472	437
V/C Ratio(X)	1.31	0.54	0.20	0.73	1.00	1.09	0.82	0.42	0.49	1.80	0.37	0.39
Avail Cap(c_a), veh/h	159	2695	839	471	1852	930	243	945	423	197	472	437
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.2	20.1	16.1	18.9	29.5	29.5	53.9	39.4	40.2	56.9	38.7	39.0
Incr Delay (d2), s/veh	178.6	0.8	0.5	3.4	21.8	57.6	25.8	1.4	4.1	380.2	2.2	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.6	11.7	3.3	4.4	38.5	48.0	8.9	6.1	6.8	27.8	5.4	5.3
LnGrp Delay(d),s/veh	219.8	20.9	16.6	22.4	51.3	87.1	79.6	40.7	44.3	437.0	41.0	41.6
LnGrp LOS	F	C	B	C	F	F	E	D	D	F	D	D
Approach Vol, veh/h		1838			3087			806			698	
Approach Delay, s/veh		43.2			61.1			51.3			242.0	
Approach LOS		D			E			D			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.7	75.1		41.2	11.6	77.2		41.2				
Change Period (Y+Rc), s	4.0	* 6.2		6.5	4.0	* 6.2		6.5				
Max Green Setting (Gmax), s	22.8	* 56		34.7	7.6	* 71		34.7				
Max Q Clear Time (g_c+I1), s	9.0	26.6		36.7	9.6	73.0		36.7				
Green Ext Time (p_c), s	0.7	16.5		0.0	0.0	0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				74.4								
HCM 2010 LOS				E								
Notes												

Lanes, Volumes, Timings
 18: Sixth Line & Right In / Right Out



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	2	994	41	0	1088
Future Volume (vph)	0	2	994	41	0	1088
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.865	0.994			
Flt Protected						
Satd. Flow (prot)	0	1611	3518	0	0	3539
Flt Permitted						
Satd. Flow (perm)	0	1611	3518	0	0	3539
Link Speed (k/h)	50		50			50
Link Distance (m)	89.3		313.8			126.1
Travel Time (s)	6.4		22.6			9.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2	1080	45	0	1183
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2	1125	0	0	1183
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		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		15	25	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	38.8% ICU Level of Service A
Analysis Period (min)	15

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕↗			↕↗
Traffic Vol, veh/h	0	2	994	41	0	1088
Future Vol, veh/h	0	2	994	41	0	1088
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	2	1080	45	0	1183

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	563	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-
Pot Cap-1 Maneuver	0	470	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	-	470	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	470
HCM Lane V/C Ratio	-	-	0.005
HCM Control Delay (s)	-	-	12.7
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0

Lanes, Volumes, Timings
 19: Sixth Line & Threshing Mill Boulevard

2024 Future Total PM - Mitigation
 Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	5	4	5	3	4	7	1414	9	7	1180	2
Future Volume (vph)	1	5	4	5	3	4	7	1414	9	7	1180	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		0.0	75.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			75.0			50.0		
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		0.933			0.914			0.999				
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1738	0	1770	1703	0	1770	3536	0	1770	3539	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1738	0	1770	1703	0	1770	3536	0	1770	3539	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		108.5			127.4			852.7			173.3	
Travel Time (s)		7.8			9.2			61.4			12.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	5	4	5	3	4	8	1537	10	8	1283	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	9	0	5	7	0	8	1547	0	8	1285	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
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	50.2%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↵		↵	↵		↵	↕↕		↵	↕↕	
Traffic Vol, veh/h	1	5	4	5	3	4	7	1414	9	7	1180	2
Future Vol, veh/h	1	5	4	5	3	4	7	1414	9	7	1180	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	750	-	-	300	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	5	4	5	3	4	8	1537	10	8	1283	2

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2086	2863	643	2218	2859	774	1285	0	0	1547	0	0
Stage 1	1300	1300	-	1558	1558	-	-	-	-	-	-	-
Stage 2	786	1563	-	660	1301	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	30	16	416	24	17	341	536	-	-	425	-	-
Stage 1	170	230	-	118	172	-	-	-	-	-	-	-
Stage 2	351	171	-	418	229	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	24	15	416	17	16	341	536	-	-	425	-	-
Mov Cap-2 Maneuver	24	15	-	17	16	-	-	-	-	-	-	-
Stage 1	167	226	-	116	169	-	-	-	-	-	-	-
Stage 2	335	168	-	396	225	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	205.9		201.7		0.1		0.1	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	536	-	-	24	26	17	35	425	-	-
HCM Lane V/C Ratio	0.014	-	-	0.045	0.376	0.32	0.217	0.018	-	-
HCM Control Delay (s)	11.8	-	-	162	210.8	295.8	134.4	13.6	-	-
HCM Lane LOS	B	-	-	F	F	F	F	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	1.2	0.9	0.7	0.1	-	-

Lanes, Volumes, Timings
10: Sixth Line & Burnhamthorpe Road

2024 Future Total PM - Mitigation
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	40	42	310	185	127	86	812	167	118	798	42
Future Volume (vph)	14	40	42	310	185	127	86	812	167	118	798	42
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	50.0		40.0	50.0		20.0	60.0		15.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	75.0			75.0			75.0			75.0		
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		0.923			0.939			0.974			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1719	0	1770	1749	0	1770	3447	0	1770	3511	0
Flt Permitted	0.325			0.700			0.271			0.220		
Satd. Flow (perm)	605	1719	0	1304	1749	0	505	3447	0	410	3511	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		45			36			43			10	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		202.3			162.5			126.1			208.3	
Travel Time (s)		14.6			11.7			9.1			15.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	15	43	45	330	197	135	91	864	178	126	849	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	88	0	330	332	0	91	1042	0	126	894	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	1		1	1		1	1		1	1	
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	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
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	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	29.6	29.6		29.6	29.6		38.1	38.1		38.1	38.1	
Total Split (s)	36.0	36.0		36.0	36.0		64.0	64.0		64.0	64.0	

Lanes, Volumes, Timings
10: Sixth Line & Burnhamthorpe Road

2024 Future Total PM - Mitigation
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	36.0%	36.0%		36.0%	36.0%		64.0%	64.0%		64.0%	64.0%	
Maximum Green (s)	30.4	30.4		30.4	30.4		58.9	58.9		58.9	58.9	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.7	3.7		3.7	3.7	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.4	1.4		1.4	1.4	
Lost Time Adjust (s)	-0.7	-1.6		-1.6	-1.6		-1.1	-1.1		-0.7	-1.1	
Total Lost Time (s)	4.9	4.0		4.0	4.0		4.0	4.0		4.4	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0		26.0	26.0		26.0	26.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	28.5	29.4		29.4	29.4		62.6	62.6		62.2	62.6	
Actuated g/C Ratio	0.28	0.29		0.29	0.29		0.63	0.63		0.62	0.63	
v/c Ratio	0.09	0.16		0.86	0.61		0.29	0.48		0.49	0.41	
Control Delay	26.2	14.2		55.4	31.9		12.5	10.9		19.8	10.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.2	14.2		55.4	31.9		12.5	10.9		19.8	10.4	
LOS	C	B		E	C		B	B		B	B	
Approach Delay		16.0			43.6			11.0			11.6	
Approach LOS		B			D			B			B	

Intersection Summary






















Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 88 (88%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 18.8
 Intersection Capacity Utilization 68.5%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 10: Sixth Line & Burnhamthorpe Road



HCM 2010 Signalized Intersection Summary
 10: Sixth Line & Burnhamthorpe Road

2024 Future Total PM - Mitigation
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	40	42	310	185	127	86	812	167	118	798	42
Future Volume (veh/h)	14	40	42	310	185	127	86	812	167	118	798	42
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	15	43	45	330	197	135	91	864	178	126	849	45
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	227	266	278	438	328	225	363	1759	362	304	2057	109
Arrive On Green	0.31	0.32	0.30	0.32	0.32	0.32	0.60	0.60	0.60	0.60	0.60	0.60
Sat Flow, veh/h	1044	835	874	1304	1031	707	620	2924	602	539	3419	181
Grp Volume(v), veh/h	15	0	88	330	0	332	91	523	519	126	439	455
Grp Sat Flow(s),veh/h/ln	1044	0	1709	1304	0	1738	620	1770	1756	539	1770	1831
Q Serve(g_s), s	1.2	0.0	3.7	24.4	0.0	16.1	9.1	16.7	16.7	17.4	13.2	13.2
Cycle Q Clear(g_c), s	17.3	0.0	3.7	28.1	0.0	16.1	22.3	16.7	16.7	34.1	13.2	13.2
Prop In Lane	1.00		0.51	1.00		0.41	1.00		0.34	1.00		0.10
Lane Grp Cap(c), veh/h	227	0	544	438	0	553	363	1065	1057	304	1065	1101
V/C Ratio(X)	0.07	0.00	0.16	0.75	0.00	0.60	0.25	0.49	0.49	0.41	0.41	0.41
Avail Cap(c_a), veh/h	229	0	547	440	0	556	363	1065	1057	304	1065	1101
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.8	0.0	24.8	34.6	0.0	28.7	16.5	11.3	11.3	21.2	10.6	10.6
Incr Delay (d2), s/veh	0.1	0.0	0.1	7.1	0.0	1.8	1.6	1.6	1.6	4.1	1.2	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	1.8	9.7	0.0	8.0	1.7	8.6	8.6	2.9	6.7	6.9
LnGrp Delay(d),s/veh	36.9	0.0	24.9	41.7	0.0	30.5	18.1	12.9	12.9	25.3	11.7	11.7
LnGrp LOS	D		C	D		C	B	B	B	C	B	B
Approach Vol, veh/h		103			662			1133			1020	
Approach Delay, s/veh		26.7			36.1			13.3			13.4	
Approach LOS		C			D			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		64.2		35.8		64.2		35.8				
Change Period (Y+Rc), s		* 5.1		* 5.6		* 5.1		* 5.6				
Max Green Setting (Gmax), s		* 59		* 30		* 59		* 30				
Max Q Clear Time (g_c+I1), s		24.3		19.3		36.1		30.1				
Green Ext Time (p_c), s		12.0		0.4		9.1		0.1				
Intersection Summary												
HCM 2010 Ctrl Delay				19.0								
HCM 2010 LOS				B								
Notes												

Lanes, Volumes, Timings
11: Access #8 & Burnhamthorpe Road

2024 Future Total PM - Mitigation
Neighbourhood 10



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	323	10	26	601	22	15
Future Volume (vph)	323	10	26	601	22	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	30.0		0.0	0.0
Storage Lanes		0	0		1	0
Taper Length (m)			30.0		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.996				0.946	
Flt Protected				0.998	0.971	
Satd. Flow (prot)	1855	0	0	1859	1711	0
Flt Permitted				0.998	0.971	
Satd. Flow (perm)	1855	0	0	1859	1711	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	162.5			162.0	143.2	
Travel Time (s)	11.7			11.7	10.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	351	11	28	653	24	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	362	0	0	681	40	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)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	62.7%
ICU Level of Service	B
Analysis Period (min)	15

Intersection						
Int Delay, s/veh	0.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	323	10	26	601	22	15
Future Vol, veh/h	323	10	26	601	22	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	351	11	28	653	24	16

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	362	0	1066 357
Stage 1	-	-	-	-	357 -
Stage 2	-	-	-	-	709 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1197	-	246 687
Stage 1	-	-	-	-	708 -
Stage 2	-	-	-	-	488 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1197	-	237 687
Mov Cap-2 Maneuver	-	-	-	-	237 -
Stage 1	-	-	-	-	682 -
Stage 2	-	-	-	-	488 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	17.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	323	-	-	1197	-
HCM Lane V/C Ratio	0.125	-	-	0.024	-
HCM Control Delay (s)	17.7	-	-	8.1	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

Lanes, Volumes, Timings
12: Access #9 & Burnhamthorpe Road

2024 Future Total PM - Mitigation
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	351	16	51	637	15	15	5	30	10	5	4
Future Volume (vph)	6	351	16	51	637	15	15	5	30	10	5	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			7.5			7.5		
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		0.994			0.997			0.917			0.973	
Flt Protected	0.950			0.950				0.985			0.973	
Satd. Flow (prot)	1770	1852	0	1770	1857	0	0	1683	0	0	1764	0
Flt Permitted	0.950			0.950				0.985			0.973	
Satd. Flow (perm)	1770	1852	0	1770	1857	0	0	1683	0	0	1764	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		162.0			627.0			156.1			97.7	
Travel Time (s)		11.7			45.1			11.2			7.0	
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)	7	382	17	55	692	16	16	5	33	11	5	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	399	0	55	708	0	0	54	0	0	20	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			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	51.1%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	6	351	16	51	637	15	15	5	30	10	5	4
Future Vol, veh/h	6	351	16	51	637	15	15	5	30	10	5	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	300	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	382	17	55	692	16	16	5	33	11	5	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	708	0	0	399	0	0	1220	1223	391	1234	1223	700
Stage 1	-	-	-	-	-	-	405	405	-	810	810	-
Stage 2	-	-	-	-	-	-	815	818	-	424	413	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	891	-	-	1160	-	-	157	179	658	153	179	439
Stage 1	-	-	-	-	-	-	622	598	-	374	393	-
Stage 2	-	-	-	-	-	-	371	390	-	608	594	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	891	-	-	1160	-	-	145	169	658	136	169	439
Mov Cap-2 Maneuver	-	-	-	-	-	-	145	169	-	136	169	-
Stage 1	-	-	-	-	-	-	617	593	-	371	375	-
Stage 2	-	-	-	-	-	-	345	372	-	568	589	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.6			20.9			29.2		
HCM LOS							C			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	280	891	-	-	1160	-	-	169
HCM Lane V/C Ratio	0.194	0.007	-	-	0.048	-	-	0.122
HCM Control Delay (s)	20.9	9.1	-	-	8.3	-	-	29.2
HCM Lane LOS	C	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	0.7	0	-	-	0.1	-	-	0.4

Lanes, Volumes, Timings
13: Trafalgar Road & Burnhamthorpe Road

2024 Future Total PM - Mitigation
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	218	65	109	361	240	166	1636	94	181	1165	140
Future Volume (vph)	78	218	65	109	361	240	166	1636	94	181	1165	140
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		30.0	15.0		30.0	180.0		30.0	180.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	75.0			75.0			75.0			75.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850			0.850			0.850		0.984	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3483	0
Flt Permitted	0.169			0.331			0.104			0.065		
Satd. Flow (perm)	315	1863	1583	617	1863	1583	194	3539	1583	121	3483	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109			120			109		16	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		294.5			414.4			579.3			233.9	
Travel Time (s)		21.2			29.8			41.7			16.8	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	80	222	66	111	368	245	169	1669	96	185	1189	143
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	222	66	111	368	245	169	1669	96	185	1332	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	1	1	1	1	1	1	1	1	1	1	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
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	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
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
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	20.0	20.0	7.0	20.0	
Minimum Split (s)	9.5	24.0	24.0	9.5	23.8	23.8	9.5	26.0	26.0	11.5	26.0	
Total Split (s)	9.5	28.7	28.7	11.8	31.0	31.0	13.4	65.5	65.5	14.0	66.1	

Lanes, Volumes, Timings
13: Trafalgar Road & Burnhamthorpe Road

2024 Future Total PM - Mitigation
Neighbourhood 10

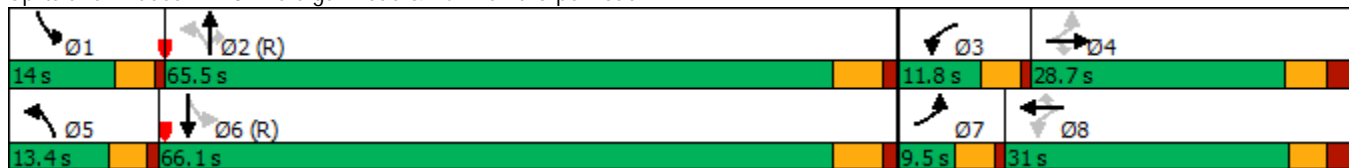


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	7.9%	23.9%	23.9%	9.8%	25.8%	25.8%	11.2%	54.6%	54.6%	11.7%	55.1%	
Maximum Green (s)	5.0	22.7	22.7	7.3	25.2	25.2	8.9	59.5	59.5	9.5	60.1	
Yellow Time (s)	3.5	3.7	3.7	3.5	3.5	3.5	3.5	4.6	4.6	3.5	4.6	
All-Red Time (s)	1.0	2.3	2.3	1.0	2.3	2.3	1.0	1.4	1.4	1.0	1.4	
Lost Time Adjust (s)	-2.0	-2.0	0.0	-1.8	-1.8	0.0	-2.0	-2.0	0.0	0.0	-2.0	
Total Lost Time (s)	2.5	4.0	6.0	2.7	4.0	5.8	2.5	4.0	6.0	4.5	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effect Green (s)	31.2	22.7	20.7	35.5	26.9	25.1	75.4	63.4	61.4	73.6	64.4	
Actuated g/C Ratio	0.26	0.19	0.17	0.30	0.22	0.21	0.63	0.53	0.51	0.61	0.54	
v/c Ratio	0.48	0.63	0.18	0.41	0.88	0.58	0.65	0.89	0.11	0.90	0.71	
Control Delay	39.8	52.9	2.8	35.6	68.1	27.2	26.1	33.4	2.6	69.8	23.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	39.8	52.9	2.8	35.6	68.1	27.2	26.1	33.4	2.6	69.8	23.8	
LOS	D	D	A	D	E	C	C	C	A	E	C	
Approach Delay		41.0			49.3			31.3			29.4	
Approach LOS		D			D			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: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 34.3
 Intersection LOS: C
 Intersection Capacity Utilization 92.3%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 13: Trafalgar Road & Burnhamthorpe Road



HCM 2010 Signalized Intersection Summary
 13: Trafalgar Road & Burnhamthorpe Road

2024 Future Total PM - Mitigation
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	218	65	109	361	240	166	1636	94	181	1165	140
Future Volume (veh/h)	78	218	65	109	361	240	166	1636	94	181	1165	140
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	80	222	66	111	368	245	169	1669	96	185	1189	143
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	191	384	300	300	417	330	298	1826	791	212	1691	203
Arrive On Green	0.06	0.21	0.19	0.08	0.22	0.21	0.08	0.52	0.50	0.08	0.53	0.51
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3539	1583	1774	3183	382
Grp Volume(v), veh/h	80	222	66	111	368	245	169	1669	96	185	660	672
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1795
Q Serve(g_s), s	4.2	12.9	4.2	5.7	22.9	17.4	5.1	51.8	3.9	7.0	33.4	33.8
Cycle Q Clear(g_c), s	4.2	12.9	4.2	5.7	22.9	17.4	5.1	51.8	3.9	7.0	33.4	33.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	191	384	300	300	417	330	298	1826	791	212	940	953
V/C Ratio(X)	0.42	0.58	0.22	0.37	0.88	0.74	0.57	0.91	0.12	0.87	0.70	0.71
Avail Cap(c_a), veh/h	191	384	300	300	419	333	323	1826	791	219	940	953
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.0	42.9	41.1	32.9	45.1	44.4	18.3	26.6	16.0	31.1	21.0	21.3
Incr Delay (d2), s/veh	1.5	2.1	0.4	0.8	19.3	8.5	2.0	8.6	0.3	29.4	4.4	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	6.9	1.9	2.8	14.0	8.4	2.7	27.4	1.7	7.7	17.4	17.8
LnGrp Delay(d),s/veh	37.4	45.1	41.5	33.7	64.4	53.0	20.2	35.2	16.3	60.5	25.4	25.7
LnGrp LOS	D	D	D	C	E	D	C	D	B	E	C	C
Approach Vol, veh/h		368			724			1934			1517	
Approach Delay, s/veh		42.8			55.8			32.9			29.8	
Approach LOS		D			E			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.5	65.9	11.8	28.7	11.7	67.7	9.5	31.0				
Change Period (Y+Rc), s	4.5	* 6	4.5	6.0	4.5	* 6	4.5	* 6				
Max Green Setting (Gmax), s	9.5	* 60	7.3	22.7	8.9	* 60	5.0	* 25				
Max Q Clear Time (g_c+I1), s	9.0	53.8	7.7	14.9	7.1	35.8	6.2	24.9				
Green Ext Time (p_c), s	0.0	4.9	0.0	1.0	0.1	12.4	0.0	0.1				
Intersection Summary												
HCM 2010 Ctrl Delay			36.3									
HCM 2010 LOS			D									
Notes												

Lanes, Volumes, Timings
14: Sixth Line & Access #5/Settlers Road

2024 Future Total PM - Mitigation
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	5	27	53	5	13	46	1015	90	22	1055	11
Future Volume (vph)	7	5	27	53	5	13	46	1015	90	22	1055	11
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	75.0		0.0	75.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			75.0			75.0		
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		0.872			0.889			0.988			0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1624	0	1770	1656	0	1770	3497	0	1770	3532	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1624	0	1770	1656	0	1770	3497	0	1770	3532	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		149.3			138.8			436.9			313.8	
Travel Time (s)		10.7			10.0			31.5			22.6	
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)	8	5	29	58	5	14	50	1103	98	24	1147	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	34	0	58	19	0	50	1201	0	24	1159	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
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	53.9%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	17.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕		↖	↕	
Traffic Vol, veh/h	7	5	27	53	5	13	46	1015	90	22	1055	11
Future Vol, veh/h	7	5	27	53	5	13	46	1015	90	22	1055	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	750	-	-	750	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	5	29	58	5	14	50	1103	98	24	1147	12

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1855	2502	580	1876	2459	601	1159	0	0	1201	0	0
Stage 1	1201	1201	-	1252	1252	-	-	-	-	-	-	-
Stage 2	654	1301	-	624	1207	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	46	28	458	~ 44	30	443	599	-	-	577	-	-
Stage 1	196	256	-	182	242	-	-	-	-	-	-	-
Stage 2	422	229	-	440	254	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	34	25	458	~ 31	26	443	599	-	-	577	-	-
Mov Cap-2 Maneuver	34	25	-	~ 31	26	-	-	-	-	-	-	-
Stage 1	180	245	-	167	222	-	-	-	-	-	-	-
Stage 2	365	210	-	386	243	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	61.9		\$ 524.3		0.5		0.2	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	599	-	-	34	124	31	81	577	-	-
HCM Lane V/C Ratio	0.083	-	-	0.224	0.281	1.858	0.242	0.041	-	-
HCM Control Delay (s)	11.6	-	-	139.1	45	680.9	63.1	11.5	-	-
HCM Lane LOS	B	-	-	F	E	F	F	B	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.7	1.1	6.6	0.9	0.1	-	-

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lanes, Volumes, Timings
15: Sixth Line & Access #6/Marvin Avenue

2024 Future Total PM - Mitigation
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	5	131	87	5	29	220	1134	147	61	1000	91
Future Volume (vph)	55	5	131	87	5	29	220	1134	147	61	1000	91
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	30.0		0.0	30.0		50.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			50.0			50.0		
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		0.855			0.870			0.983			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1593	0	1770	1621	0	1770	3479	0	1770	3493	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1593	0	1770	1621	0	1770	3479	0	1770	3493	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		121.7			108.4			226.5			436.9	
Travel Time (s)		8.8			7.8			16.3			31.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	5	142	95	5	32	239	1233	160	66	1087	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	147	0	95	37	0	239	1393	0	66	1186	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
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	69.2%
ICU Level of Service	C
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	1034.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Vol, veh/h	55	5	131	87	5	29	220	1134	147	61	1000	91
Future Vol, veh/h	55	5	131	87	5	29	220	1134	147	61	1000	91
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	300	-	-	300	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	60	5	142	95	5	32	239	1233	160	66	1087	99

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2366	3140	593	2469	3109	697	1186	0	0	1393	0	0
Stage 1	1269	1269	-	1791	1791	-	-	-	-	-	-	-
Stage 2	1097	1871	-	678	1318	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 18	11	449	~ 15	11	383	585	-	-	487	-	-
Stage 1	178	238	-	~ 84	132	-	-	-	-	-	-	-
Stage 2	227	120	-	408	225	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 2	6	449	~ 2	6	383	585	-	-	487	-	-
Mov Cap-2 Maneuver	~ 2	6	-	~ 2	6	-	-	-	-	-	-	-
Stage 1	105	206	-	~ 50	78	-	-	-	-	-	-	-
Stage 2	115	71	-	234	194	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, \$	4897.3	17582.6	2.2	0.7
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	585	-	-	2	121	2	37	487	-	-
HCM Lane V/C Ratio	0.409	-	-	29.891	1.222	47.283	0.999	0.136	-	-
HCM Control Delay (s)	15.3	-	-	\$ 16458.4	221.9	24332.3	\$ 311.2	13.6	-	-
HCM Lane LOS	C	-	-	F	F	F	F	B	-	-
HCM 95th %tile Q(veh)	2	-	-	9.6	9.3	14.1	3.7	0.5	-	-

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lanes, Volumes, Timings
 16: Sixth Line & Access #7/Carnegie Drive

2024 Future Total PM - Mitigation
 Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	5	7	6	5	6	12	1499	2	3	1215	2
Future Volume (vph)	1	5	7	6	5	6	12	1499	2	3	1215	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		0.0	30.0		0.0	75.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			50.0			75.0		
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		0.908			0.912							
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1691	0	1770	1699	0	1770	3539	0	1770	3539	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1691	0	1770	1699	0	1770	3539	0	1770	3539	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		113.1			125.7			173.3			226.5	
Travel Time (s)		8.1			9.1			12.5			16.3	
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)	1	5	8	7	5	7	13	1629	2	3	1321	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	13	0	7	12	0	13	1631	0	3	1323	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
Sign Control		Stop			Stop			Free			Free	

Intersection Summary
 Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 53.2% ICU Level of Service A
 Analysis Period (min) 15

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↵		↵	↵		↵	↵↵		↵	↵↵	
Traffic Vol, veh/h	1	5	7	6	5	6	12	1499	2	3	1215	2
Future Vol, veh/h	1	5	7	6	5	6	12	1499	2	3	1215	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	300	-	-	750	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	5	8	7	5	7	13	1629	2	3	1321	2

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2171	2985	662	2325	2985	816	1323	0	0	1631	0	0
Stage 1	1328	1328	-	1656	1656	-	-	-	-	-	-	-
Stage 2	843	1657	-	669	1329	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	26	14	404	20	14	320	518	-	-	394	-	-
Stage 1	164	223	-	102	154	-	-	-	-	-	-	-
Stage 2	325	154	-	413	222	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	17	14	404	13	14	320	518	-	-	394	-	-
Mov Cap-2 Maneuver	17	14	-	13	14	-	-	-	-	-	-	-
Stage 1	160	221	-	99	150	-	-	-	-	-	-	-
Stage 2	299	150	-	392	220	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	184.1		284.9		0.1		0	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	518	-	-	17	32	13	29	394	-	-
HCM Lane V/C Ratio	0.025	-	-	0.064	0.408	0.502	0.412	0.008	-	-
HCM Control Delay (s)	12.1	-	-	230.8	180.2	443.8	198.2	14.2	-	-
HCM Lane LOS	B	-	-	F	F	F	F	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	1.3	1.2	1.3	0	-	-

Lanes, Volumes, Timings
17: Sixth Line & Dundas Street

2024 Future Total PM - Mitigation
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	1415	165	207	2266	522	194	386	202	343	206	128
Future Volume (vph)	203	1415	165	207	2266	522	194	386	202	343	206	128
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		80.0	35.0		0.0	80.0		0.0	45.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	75.0			75.0			75.0			75.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.972				0.850		0.942	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	1770	4943	0	1770	3539	1583	1770	3334	0
Flt Permitted	0.062			0.105			0.480			0.427		
Satd. Flow (perm)	115	5085	1583	196	4943	0	894	3539	1583	795	3334	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			170		64				208		102	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		409.7			323.7			341.1			852.7	
Travel Time (s)		29.5			23.3			24.6			61.4	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	209	1459	170	213	2336	538	200	398	208	354	212	132
Shared Lane Traffic (%)												
Lane Group Flow (vph)	209	1459	170	213	2874	0	200	398	208	354	344	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	1	1	1	1		1	1	1	1	1	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0	2.0	10.0	
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	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8				4
Permitted Phases	2		2	6			8		8	4		
Detector Phase	5	2	2	1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	11.5	37.2	37.2	11.5	34.2		40.5	40.5	40.5	40.5	40.5	
Total Split (s)	11.6	62.0	62.0	26.8	77.2		41.2	41.2	41.2	41.2	41.2	

Lanes, Volumes, Timings
17: Sixth Line & Dundas Street

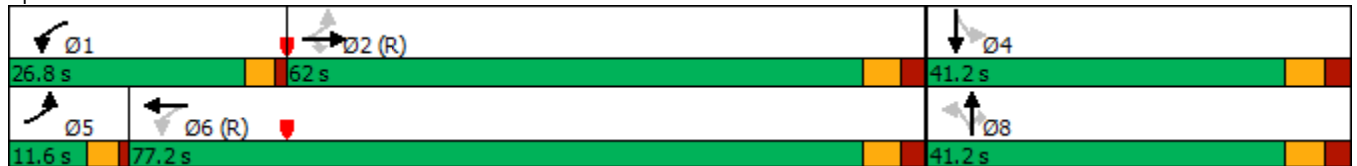


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	8.9%	47.7%	47.7%	20.6%	59.4%		31.7%	31.7%	31.7%	31.7%	31.7%	
Maximum Green (s)	7.6	55.8	55.8	22.8	71.0		34.7	34.7	34.7	34.7	34.7	
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5		2.8	2.8	2.8	2.8	2.8	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.2	6.2	4.0	6.2		6.5	6.5	6.5	6.5	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	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	C-Max	C-Max	None	C-Max		Max	Max	Max	Max	Max	
Walk Time (s)		7.0	7.0		7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		24.0	24.0		21.0		27.0	27.0	27.0	27.0	27.0	
Pedestrian Calls (#/hr)		0	0		0		0	0	0	0	0	
Act Effct Green (s)	73.8	64.0	64.0	84.1	71.0		34.7	34.7	34.7	34.7	34.7	
Actuated g/C Ratio	0.57	0.49	0.49	0.65	0.55		0.27	0.27	0.27	0.27	0.27	
v/c Ratio	1.29	0.58	0.20	0.70	1.05		0.84	0.42	0.36	1.67	0.36	
Control Delay	199.3	25.3	3.6	29.8	62.3		74.6	41.0	6.6	352.8	27.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	199.3	25.3	3.6	29.8	62.3		74.6	41.0	6.6	352.8	27.9	
LOS	F	C	A	C	E		E	D	A	F	C	
Approach Delay		43.1			60.0			40.5			192.6	
Approach LOS		D			E			D			F	

Intersection Summary
























Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.67
 Intersection Signal Delay: 67.1
 Intersection LOS: E
 Intersection Capacity Utilization 115.7%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 17: Sixth Line & Dundas Street














HCM 2010 Signalized Intersection Summary
 17: Sixth Line & Dundas Street

2024 Future Total PM - Mitigation
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	203	1415	165	207	2266	522	194	386	202	343	206	128
Future Volume (veh/h)	203	1415	165	207	2266	522	194	386	202	343	206	128
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	209	1459	170	213	2336	538	200	398	208	354	212	132
Adj No. of Lanes	1	3	1	1	3	0	1	2	1	1	2	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	159	2695	839	293	2289	493	243	945	423	197	570	340
Arrive On Green	0.06	0.53	0.53	0.07	0.55	0.55	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1774	5085	1583	1774	4191	903	1032	3539	1583	811	2134	1273
Grp Volume(v), veh/h	209	1459	170	213	1859	1015	200	398	208	354	174	170
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1703	1032	1770	1583	811	1770	1638
Q Serve(g_s), s	7.6	24.6	7.4	7.0	71.0	71.0	23.7	12.1	14.4	22.6	10.4	11.0
Cycle Q Clear(g_c), s	7.6	24.6	7.4	7.0	71.0	71.0	34.7	12.1	14.4	34.7	10.4	11.0
Prop In Lane	1.00		1.00	1.00		0.53	1.00		1.00	1.00		0.78
Lane Grp Cap(c), veh/h	159	2695	839	293	1852	930	243	945	423	197	472	437
V/C Ratio(X)	1.31	0.54	0.20	0.73	1.00	1.09	0.82	0.42	0.49	1.80	0.37	0.39
Avail Cap(c_a), veh/h	159	2695	839	471	1852	930	243	945	423	197	472	437
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.2	20.1	16.1	18.9	29.5	29.5	53.9	39.4	40.2	56.9	38.7	39.0
Incr Delay (d2), s/veh	178.6	0.8	0.5	3.4	21.8	57.6	25.8	1.4	4.1	380.2	2.2	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.6	11.7	3.3	4.4	38.5	48.0	8.9	6.1	6.8	27.8	5.4	5.3
LnGrp Delay(d),s/veh	219.8	20.9	16.6	22.4	51.3	87.1	79.6	40.7	44.3	437.0	41.0	41.6
LnGrp LOS	F	C	B	C	F	F	E	D	D	F	D	D
Approach Vol, veh/h		1838			3087			806			698	
Approach Delay, s/veh		43.2			61.1			51.3			242.0	
Approach LOS		D			E			D			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.7	75.1		41.2	11.6	77.2		41.2				
Change Period (Y+Rc), s	4.0	* 6.2		6.5	4.0	* 6.2		6.5				
Max Green Setting (Gmax), s	22.8	* 56		34.7	7.6	* 71		34.7				
Max Q Clear Time (g_c+I1), s	9.0	26.6		36.7	9.6	73.0		36.7				
Green Ext Time (p_c), s	0.7	16.5		0.0	0.0	0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				74.4								
HCM 2010 LOS				E								
Notes												

Lanes, Volumes, Timings
18: Sixth Line

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	0	2	994	41	0	1088
Future Volume (vph)	0	2	994	41	0	1088
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Fr _t		0.865	0.994			
Fl _t Protected						
Satd. Flow (prot)	0	1611	3518	0	0	3539
Fl _t Permitted						
Satd. Flow (perm)	0	1611	3518	0	0	3539
Link Speed (k/h)	50		50			50
Link Distance (m)	89.3		313.8			126.1
Travel Time (s)	6.4		22.6			9.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2	1080	45	0	1183
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2	1125	0	0	1183
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		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		15	25	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	38.8%		ICU Level of Service A			
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕↔			↕↔
Traffic Vol, veh/h	0	2	994	41	0	1088
Future Vol, veh/h	0	2	994	41	0	1088
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	2	1080	45	0	1183

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	563	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-
Pot Cap-1 Maneuver	0	470	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	-	470	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	470
HCM Lane V/C Ratio	-	-	0.005
HCM Control Delay (s)	-	-	12.7
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0

Lanes, Volumes, Timings
 19: Sixth Line & Threshing Mill Boulevard

2024 Future Total PM - Mitigation
 Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	5	4	5	3	4	7	1414	9	7	1180	2
Future Volume (vph)	1	5	4	5	3	4	7	1414	9	7	1180	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		0.0	75.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			75.0			50.0		
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		0.933			0.914			0.999				
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1738	0	1770	1703	0	1770	3536	0	1770	3539	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1738	0	1770	1703	0	1770	3536	0	1770	3539	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		108.5			127.4			852.7			173.3	
Travel Time (s)		7.8			9.2			61.4			12.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	5	4	5	3	4	8	1537	10	8	1283	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	9	0	5	7	0	8	1547	0	8	1285	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
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	50.2%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↵		↵	↵		↵	↵↵		↵	↵↵	
Traffic Vol, veh/h	1	5	4	5	3	4	7	1414	9	7	1180	2
Future Vol, veh/h	1	5	4	5	3	4	7	1414	9	7	1180	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	750	-	-	300	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	5	4	5	3	4	8	1537	10	8	1283	2

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2086	2863	643	2218	2859	774	1285	0	0	1547	0	0
Stage 1	1300	1300	-	1558	1558	-	-	-	-	-	-	-
Stage 2	786	1563	-	660	1301	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	30	16	416	24	17	341	536	-	-	425	-	-
Stage 1	170	230	-	118	172	-	-	-	-	-	-	-
Stage 2	351	171	-	418	229	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	24	15	416	17	16	341	536	-	-	425	-	-
Mov Cap-2 Maneuver	24	15	-	17	16	-	-	-	-	-	-	-
Stage 1	167	226	-	116	169	-	-	-	-	-	-	-
Stage 2	335	168	-	396	225	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	205.9		201.7		0.1		0.1	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	536	-	-	24	26	17	35	425	-	-
HCM Lane V/C Ratio	0.014	-	-	0.045	0.376	0.32	0.217	0.018	-	-
HCM Control Delay (s)	11.8	-	-	162	210.8	295.8	134.4	13.6	-	-
HCM Lane LOS	B	-	-	F	F	F	F	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	1.2	0.9	0.7	0.1	-	-

Lanes, Volumes, Timings
14: Sixth Line & Access #5/Settlers Road

2024 Future Total PM - Mitigation
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	5	27	53	5	13	46	1015	90	22	1055	11
Future Volume (vph)	7	5	27	53	5	13	46	1015	90	22	1055	11
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	75.0		0.0	75.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			75.0			75.0		
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		0.872			0.889			0.988			0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1624	0	1770	1656	0	1770	3497	0	1770	3532	0
Flt Permitted	0.745			0.735			0.227			0.215		
Satd. Flow (perm)	1388	1624	0	1369	1656	0	423	3497	0	400	3532	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		29			14			15				2
Link Speed (k/h)		50			50			50				50
Link Distance (m)		149.3			138.8			436.9				313.8
Travel Time (s)		10.7			10.0			31.5				22.6
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)	8	5	29	58	5	14	50	1103	98	24	1147	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	34	0	58	19	0	50	1201	0	24	1159	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	1		1	1	
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	10.0		2.0	10.0	
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							
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	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings
 14: Sixth Line & Access #5/Settlers Road

2024 Future Total PM - Mitigation
 Neighbourhood 10

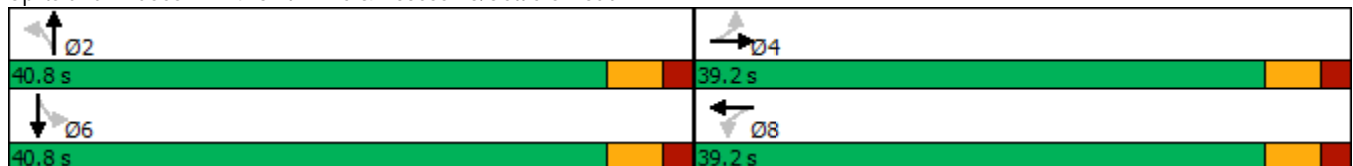


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	33.2	33.2		39.2	39.2		33.2	33.2		39.2	39.2	
Total Split (s)	39.2	39.2		39.2	39.2		40.8	40.8		40.8	40.8	
Total Split (%)	49.0%	49.0%		49.0%	49.0%		51.0%	51.0%		51.0%	51.0%	
Maximum Green (s)	34.0	34.0		34.0	34.0		35.6	35.6		35.6	35.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.9	1.9		1.9	1.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2		5.2	5.2		5.2	5.2	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		27.0	27.0		21.0	21.0		27.0	27.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	10.1	10.1		10.1	10.1		45.6	45.6		45.6	45.6	
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.79	0.79		0.79	0.79	
v/c Ratio	0.03	0.11		0.24	0.06		0.15	0.43		0.08	0.41	
Control Delay	20.0	10.7		23.6	13.1		5.3	4.5		4.6	4.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.0	10.7		23.6	13.1		5.3	4.5		4.6	4.4	
LOS	B	B		C	B		A	A		A	A	
Approach Delay		12.5			21.0			4.6			4.4	
Approach LOS		B			C			A			A	

Intersection Summary





















Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	57.7
Natural Cycle:	80
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.43
Intersection Signal Delay:	5.1
Intersection LOS:	A
Intersection Capacity Utilization:	56.5%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 14: Sixth Line & Access #5/Settlers Road



HCM 2010 Signalized Intersection Summary
 14: Sixth Line & Access #5/Settlers Road

2024 Future Total PM - Mitigation
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	5	27	53	5	13	46	1015	90	22	1055	11
Future Volume (veh/h)	7	5	27	53	5	13	46	1015	90	22	1055	11
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	8	5	29	58	5	14	50	1103	98	24	1147	12
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	332	37	212	318	67	186	371	2155	191	356	2351	25
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.66	0.66	0.66	0.66	0.66	0.66
Sat Flow, veh/h	1388	238	1381	1369	434	1215	483	3289	292	464	3588	38
Grp Volume(v), veh/h	8	0	34	58	0	19	50	593	608	24	566	593
Grp Sat Flow(s),veh/h/ln	1388	0	1619	1369	0	1648	483	1770	1811	464	1770	1856
Q Serve(g_s), s	0.3	0.0	1.0	2.1	0.0	0.5	3.2	9.4	9.5	1.5	8.8	8.8
Cycle Q Clear(g_c), s	0.8	0.0	1.0	3.1	0.0	0.5	12.0	9.4	9.5	11.0	8.8	8.8
Prop In Lane	1.00		0.85	1.00		0.74	1.00		0.16	1.00		0.02
Lane Grp Cap(c), veh/h	332	0	249	318	0	253	371	1159	1187	356	1159	1216
V/C Ratio(X)	0.02	0.00	0.14	0.18	0.00	0.08	0.13	0.51	0.51	0.07	0.49	0.49
Avail Cap(c_a), veh/h	987	0	1013	964	0	1031	371	1159	1187	356	1159	1216
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.0	0.0	19.9	21.2	0.0	19.7	7.8	4.9	4.9	7.7	4.7	4.8
Incr Delay (d2), s/veh	0.0	0.0	0.2	0.3	0.0	0.1	0.8	1.6	1.6	0.4	1.5	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.5	0.8	0.0	0.3	0.5	5.0	5.1	0.2	4.7	4.9
LnGrp Delay(d),s/veh	20.1	0.0	20.1	21.5	0.0	19.8	8.5	6.5	6.4	8.1	6.2	6.2
LnGrp LOS	C		C	C		B	A	A	A	A	A	A
Approach Vol, veh/h		42			77			1251			1183	
Approach Delay, s/veh		20.1			21.1			6.5			6.2	
Approach LOS		C			C			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		40.8		13.5		40.8		13.5				
Change Period (Y+Rc), s		* 5.2		* 5.2		* 5.2		* 5.2				
Max Green Setting (Gmax), s		* 36		* 34		* 36		* 34				
Max Q Clear Time (g_c+I1), s		14.0		3.0		13.0		5.1				
Green Ext Time (p_c), s		11.0		0.2		10.3		0.3				
Intersection Summary												
HCM 2010 Ctrl Delay				7.1								
HCM 2010 LOS				A								
Notes												

Lanes, Volumes, Timings
15: Sixth Line & Access #6/Marvin Avenue

2024 Future Total PM - Mitigation
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	5	131	87	5	29	220	1134	147	61	1000	91
Future Volume (vph)	55	5	131	87	5	29	220	1134	147	61	1000	91
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	30.0		50.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			50.0			50.0		
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		0.855			0.870			0.983			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1593	0	1770	1621	0	1770	3479	0	1770	3493	0
Flt Permitted	0.733			0.663			0.205			0.152		
Satd. Flow (perm)	1365	1593	0	1235	1621	0	382	3479	0	283	3493	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		50			32			21			14	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		121.7			108.4			226.5			436.9	
Travel Time (s)		8.8			7.8			16.3			31.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	5	142	95	5	32	239	1233	160	66	1087	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	147	0	95	37	0	239	1393	0	66	1186	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	1		1	1	
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	10.0		2.0	10.0	
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							
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	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings
15: Sixth Line & Access #6/Marvin Avenue

2024 Future Total PM - Mitigation
Neighbourhood 10

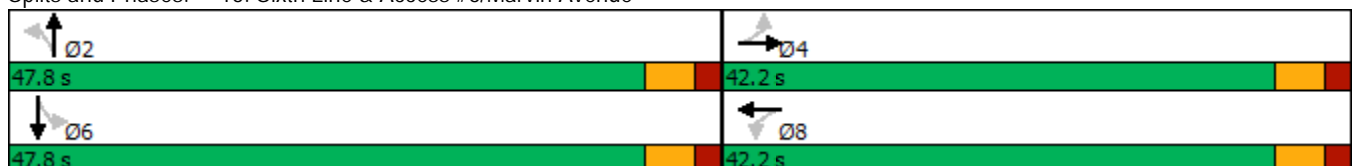


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	33.2	33.2		39.2	39.2		33.2	33.2		39.2	39.2	
Total Split (s)	42.2	42.2		42.2	42.2		47.8	47.8		47.8	47.8	
Total Split (%)	46.9%	46.9%		46.9%	46.9%		53.1%	53.1%		53.1%	53.1%	
Maximum Green (s)	37.0	37.0		37.0	37.0		42.6	42.6		42.6	42.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.9	1.9		1.9	1.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2		5.2	5.2		5.2	5.2	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		27.0	27.0		21.0	21.0		27.0	27.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	11.4	11.4		11.4	11.4		45.5	45.5		45.5	45.5	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.68	0.68		0.68	0.68	
v/c Ratio	0.26	0.47		0.46	0.12		0.93	0.59		0.35	0.50	
Control Delay	25.8	21.2		31.4	11.0		57.5	7.4		11.7	6.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	25.8	21.2		31.4	11.0		57.5	7.4		11.7	6.5	
LOS	C	C		C	B		E	A		B	A	
Approach Delay		22.5			25.7			14.7			6.7	
Approach LOS		C			C			B			A	

Intersection Summary























Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	67.3
Natural Cycle:	130
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.93
Intersection Signal Delay:	12.6
Intersection LOS:	B
Intersection Capacity Utilization:	86.7%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 15: Sixth Line & Access #6/Marvin Avenue



HCM 2010 Signalized Intersection Summary
 15: Sixth Line & Access #6/Marvin Avenue

2024 Future Total PM - Mitigation
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	5	131	87	5	29	220	1134	147	61	1000	91
Future Volume (veh/h)	55	5	131	87	5	29	220	1134	147	61	1000	91
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	60	5	142	95	5	32	239	1233	160	66	1087	99
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	351	11	301	250	43	273	331	2039	263	271	2122	193
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.65	0.65	0.65	0.65	0.65	0.65
Sat Flow, veh/h	1365	54	1537	1236	218	1398	470	3153	407	386	3281	299
Grp Volume(v), veh/h	60	0	147	95	0	37	239	690	703	66	586	600
Grp Sat Flow(s),veh/h/ln	1365	0	1591	1236	0	1616	470	1770	1791	386	1770	1810
Q Serve(g_s), s	2.5	0.0	5.4	4.9	0.0	1.2	31.1	14.9	15.1	7.9	11.5	11.5
Cycle Q Clear(g_c), s	3.7	0.0	5.4	10.3	0.0	1.2	42.6	14.9	15.1	23.0	11.5	11.5
Prop In Lane	1.00		0.97	1.00		0.86	1.00		0.23	1.00		0.16
Lane Grp Cap(c), veh/h	351	0	311	250	0	316	331	1144	1158	271	1144	1170
V/C Ratio(X)	0.17	0.00	0.47	0.38	0.00	0.12	0.72	0.60	0.61	0.24	0.51	0.51
Avail Cap(c_a), veh/h	850	0	894	702	0	908	331	1144	1158	271	1144	1170
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.4	0.0	23.5	28.0	0.0	21.8	18.5	6.7	6.8	13.5	6.1	6.2
Incr Delay (d2), s/veh	0.2	0.0	1.1	1.0	0.0	0.2	12.8	2.4	2.4	2.1	1.6	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	2.5	1.7	0.0	0.6	5.4	7.8	8.0	1.0	6.1	6.2
LnGrp Delay(d),s/veh	23.6	0.0	24.6	29.0	0.0	22.0	31.3	9.1	9.1	15.6	7.8	7.8
LnGrp LOS	C		C	C		C	C	A	A	B	A	A
Approach Vol, veh/h		207			132			1632			1252	
Approach Delay, s/veh		24.3			27.0			12.4			8.2	
Approach LOS		C			C			B			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		47.8		18.1		47.8		18.1				
Change Period (Y+Rc), s		* 5.2		* 5.2		* 5.2		* 5.2				
Max Green Setting (Gmax), s		* 43		* 37		* 43		* 37				
Max Q Clear Time (g_c+I1), s		44.6		7.4		25.0		12.3				
Green Ext Time (p_c), s		0.0		1.4		10.0		0.7				
Intersection Summary												
HCM 2010 Ctrl Delay				12.1								
HCM 2010 LOS				B								
Notes												

Appendix K

2030 Total Future Conditions Synchro Worksheets

Lanes, Volumes, Timings
1: Neyagawa Boulevard & William Halton Parkway

2030 Future Total AM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	2136	175	474	2215	34	194	571	543	62	216	73
Future Volume (vph)	42	2136	175	474	2215	34	194	571	543	62	216	73
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	3433	5085	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.057			0.950			0.523			0.129		
Satd. Flow (perm)	106	5085	1583	3433	5085	1583	974	3539	1583	240	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			110			57			57			87
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		433.0			261.8			285.2			280.3	
Travel Time (s)		31.2			18.8			20.5			20.2	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	51	2605	213	578	2701	41	237	696	662	76	263	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	2605	213	578	2701	41	237	696	662	76	263	89
Enter Blocked Intersection	No	No	No	No	No	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	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	Perm	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases		2		1	6		3	8	1	7	4	
Permitted Phases	2		2			6	8		8	4		4

Lanes, Volumes, Timings
 1: Neyagawa Boulevard & William Halton Parkway

2030 Future Total AM
 Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2	2	1	6	6	3	8	1	7	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	5.0	15.0	7.0	5.0	15.0	15.0
Minimum Split (s)	40.4	40.4	40.4	11.0	40.4	40.4	9.5	37.4	11.0	9.5	37.4	37.4
Total Split (s)	76.1	76.1	76.1	27.0	103.1	103.1	9.5	37.4	27.0	9.5	37.4	37.4
Total Split (%)	50.7%	50.7%	50.7%	18.0%	68.7%	68.7%	6.3%	24.9%	18.0%	6.3%	24.9%	24.9%
Maximum Green (s)	69.7	69.7	69.7	23.0	96.7	96.7	5.0	31.0	23.0	5.0	31.0	31.0
Yellow Time (s)	3.7	3.7	3.7	3.0	3.7	3.7	3.5	3.7	3.0	3.5	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	1.0	2.7	2.7	1.0	2.7	1.0	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	4.0	6.4	6.4	4.5	6.4	4.0	4.5	6.4	6.4
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	None	C-Max	C-Max	None	Max	None	None	Max	Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)	27.0	27.0	27.0		27.0	27.0		24.0			24.0	24.0
Pedestrian Calls (#/hr)	0	0	0		0	0		0			0	0
Act Effct Green (s)	69.7	69.7	69.7	23.0	96.7	96.7	37.9	31.0	60.4	37.9	31.0	31.0
Actuated g/C Ratio	0.46	0.46	0.46	0.15	0.64	0.64	0.25	0.21	0.40	0.25	0.21	0.21
v/c Ratio	1.04	1.10	0.27	1.10	0.82	0.04	0.87	0.95	0.99	0.68	0.36	0.22
Control Delay	182.8	91.4	12.3	126.0	23.0	1.2	80.9	81.8	71.9	72.8	52.7	11.1
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	182.8	91.4	12.3	126.0	23.0	1.2	80.9	81.8	71.9	72.8	52.7	11.1
LOS	F	F	B	F	C	A	F	F	E	E	D	B
Approach Delay		87.1			40.7			77.6			47.6	
Approach LOS		F			D			E			D	
Queue Length 50th (m)	~17.1	~338.4	18.2	~105.3	221.9	0.0	61.8	114.4	191.9	17.9	37.5	0.5
Queue Length 95th (m)	#41.8	#307.1	30.3	#123.7	198.3	2.0	#89.1	#129.5	#233.9	#31.9	47.0	12.4
Internal Link Dist (m)		409.0			237.8			261.2			256.3	
Turn Bay Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Base Capacity (vph)	49	2362	794	526	3278	1040	272	731	671	111	731	396
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	1.04	1.10	0.27	1.10	0.82	0.04	0.87	0.95	0.99	0.68	0.36	0.22

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 64 (43%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.10
 Intersection Signal Delay: 64.4
 Intersection LOS: E
 Intersection Capacity Utilization 95.8%
 ICU Level of Service F
 Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Lanes, Volumes, Timings
 1: Neyagawa Boulevard & William Halton Parkway

2030 Future Total AM
 Neighbourhood 10

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
































Queue shown is maximum after two cycles.

Splits and Phases: 1: Neyagawa Boulevard & William Halton Parkway

 Ø1	 Ø2 (R)	 Ø3	 Ø4
27 s	76.1 s	9.5 s	37.4 s
 Ø5 (R)		 Ø7	 Ø8
103.1 s		9.5 s	37.4 s

HCM 2010 Signalized Intersection Summary
 1: Neyagawa Boulevard & William Halton Parkway

2030 Future Total AM
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  			 			 	
Traffic Volume (veh/h)	42	2136	175	474	2215	34	194	571	543	62	216	73
Future Volume (veh/h)	42	2136	175	474	2215	34	194	571	543	62	216	73
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	51	2605	213	578	2701	41	237	696	662	76	263	89
Adj No. of Lanes	1	3	1	2	3	1	1	2	1	1	2	1
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	73	2363	736	528	3278	1021	254	731	570	112	731	327
Arrive On Green	0.46	0.46	0.46	0.15	0.64	0.64	0.03	0.21	0.21	0.03	0.21	0.21
Sat Flow, veh/h	103	5085	1583	3442	5085	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	51	2605	213	578	2701	41	237	696	662	76	263	89
Grp Sat Flow(s),veh/h/ln	103	1695	1583	1721	1695	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	36.3	69.7	12.5	23.0	60.4	1.4	5.0	29.1	31.0	5.0	9.6	7.1
Cycle Q Clear(g_c), s	69.7	69.7	12.5	23.0	60.4	1.4	5.0	29.1	31.0	5.0	9.6	7.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	73	2363	736	528	3278	1021	254	731	570	112	731	327
V/C Ratio(X)	0.70	1.10	0.29	1.10	0.82	0.04	0.93	0.95	1.16	0.68	0.36	0.27
Avail Cap(c_a), veh/h	73	2363	736	528	3278	1021	254	731	570	112	731	327
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.2	40.2	24.8	63.5	20.2	9.7	60.0	58.8	48.0	48.9	51.0	50.0
Incr Delay (d2), s/veh	43.6	53.2	1.0	67.7	2.5	0.1	39.0	23.3	90.8	15.1	1.4	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	44.2	5.7	15.9	28.8	0.6	10.2	16.6	38.0	1.2	4.8	3.3
LnGrp Delay(d),s/veh	109.8	93.3	25.8	131.2	22.7	9.8	99.0	82.1	138.8	64.0	52.4	52.1
LnGrp LOS	F	F	C	F	C	A	F	F	F	E	D	D
Approach Vol, veh/h		2869			3320			1595			428	
Approach Delay, s/veh		88.6			41.4			108.2			54.4	
Approach LOS		F			D			F			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s	27.0	76.1	9.5	37.4		103.1	9.5	37.4				
Change Period (Y+Rc), s	4.0	6.4	4.5	6.4		6.4	4.5	6.4				
Max Green Setting (Gmax), s	23.0	69.7	5.0	31.0		96.7	5.0	31.0				
Max Q Clear Time (g_c+I1), s	25.0	71.7	7.0	11.6		62.4	7.0	33.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	2.3		31.1	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				71.5								
HCM 2010 LOS				E								

Lanes, Volumes, Timings
2: Burnhamthorpe Road & William Halton Parkway

2030 Future Total AM
Neighbourhood 10



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	2104	168	2	2114	404	6
Future Volume (vph)	2104	168	2	2114	404	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		75.0	75.0		0.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			75.0		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted			0.061		0.950	
Satd. Flow (perm)	3539	1583	114	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		166				7
Link Speed (k/h)	50			50	50	
Link Distance (m)	217.7			610.7	181.6	
Travel Time (s)	15.7			44.0	13.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2287	183	2	2298	439	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2287	183	2	2298	439	7
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)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8

Lanes, Volumes, Timings
2: Burnhamthorpe Road & William Halton Parkway

2030 Future Total AM
Neighbourhood 10



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.1	23.1	26.0	26.0	23.5	23.5
Total Split (s)	71.0	71.0	71.0	71.0	29.0	29.0
Total Split (%)	71.0%	71.0%	71.0%	71.0%	29.0%	29.0%
Maximum Green (s)	65.9	65.9	65.9	65.9	23.5	23.5
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.4	1.4	1.4	1.4	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effect Green (s)	65.9	65.9	65.9	65.9	23.5	23.5
Actuated g/C Ratio	0.66	0.66	0.66	0.66	0.24	0.24
v/c Ratio	0.98	0.17	0.03	0.99	1.06	0.02
Control Delay	32.0	1.7	8.5	19.7	98.6	17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.0	1.7	8.5	19.7	98.6	17.0
LOS	C	A	A	B	F	B
Approach Delay	29.7			19.7	97.3	
Approach LOS	C			B	F	
Queue Length 50th (m)	212.7	1.1	0.1	66.3	~98.6	0.0
Queue Length 95th (m)	#295.8	8.1	m0.1	#294.3	#159.3	3.7
Internal Link Dist (m)	193.7			586.7	157.6	
Turn Bay Length (m)		75.0	75.0			
Base Capacity (vph)	2332	1099	75	2332	415	377
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	0.98	0.17	0.03	0.99	1.06	0.02

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	51 (51%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle:	120
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.06
Intersection Signal Delay:	31.1
Intersection LOS:	C
Intersection Capacity Utilization:	89.7%
ICU Level of Service:	E
Analysis Period (min):	15




~ Volume exceeds capacity, queue is theoretically infinite.

Lanes, Volumes, Timings
 2: Burnhamthorpe Road & William Halton Parkway

2030 Future Total AM
 Neighbourhood 10







- Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
- Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Burnhamthorpe Road & William Halton Parkway

 Ø2 (R)	 Ø8
71 s	29 s
 Ø6 (R)	
71 s	

HCM 2010 Signalized Intersection Summary
 2: Burnhamthorpe Road & William Halton Parkway

2030 Future Total AM
 Neighbourhood 10

								
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑		
Traffic Volume (veh/h)	2104	168	2	2114	404	6		
Future Volume (veh/h)	2104	168	2	2114	404	6		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	2287	183	2	2298	439	7		
Adj No. of Lanes	2	1	1	2	1	1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	2332	1043	77	2332	417	372		
Arrive On Green	0.66	0.66	0.66	0.66	0.23	0.23		
Sat Flow, veh/h	3632	1583	135	3632	1774	1583		
Grp Volume(v), veh/h	2287	183	2	2298	439	7		
Grp Sat Flow(s),veh/h/ln	1770	1583	135	1770	1774	1583		
Q Serve(g_s), s	62.3	4.5	1.5	63.1	23.5	0.3		
Cycle Q Clear(g_c), s	62.3	4.5	63.7	63.1	23.5	0.3		
Prop In Lane		1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	2332	1043	77	2332	417	372		
V/C Ratio(X)	0.98	0.18	0.03	0.99	1.05	0.02		
Avail Cap(c_a), veh/h	2332	1043	77	2332	417	372		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	16.4	6.6	47.1	16.6	38.3	29.4		
Incr Delay (d2), s/veh	14.6	0.4	0.6	15.5	58.7	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	34.6	2.0	0.1	35.3	18.3	0.1		
LnGrp Delay(d),s/veh	31.0	6.9	47.8	32.1	97.0	29.4		
LnGrp LOS	C	A	D	C	F	C		
Approach Vol, veh/h	2470			2300	446			
Approach Delay, s/veh	29.2			32.1	95.9			
Approach LOS	C			C	F			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		71.0				71.0		29.0
Change Period (Y+Rc), s		* 5.1				* 5.1		5.5
Max Green Setting (Gmax), s		* 66				* 66		23.5
Max Q Clear Time (g_c+I1), s		64.3				65.7		25.5
Green Ext Time (p_c), s		1.6				0.2		0.0
Intersection Summary								
HCM 2010 Ctrl Delay			36.2					
HCM 2010 LOS			D					
Notes								

Lanes, Volumes, Timings
4: Access #4 & William Halton Parkway

2030 Future Total AM
Neighbourhood 10



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↙	↑↑	↙	↗
Traffic Volume (vph)	2106	4	4	2102	14	14
Future Volume (vph)	2106	4	4	2102	14	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	75.0		0.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			75.0		7.5	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	0	1770	3539	1770	1583
Flt Permitted			0.056		0.950	
Satd. Flow (perm)	3539	0	104	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						13
Link Speed (k/h)	50			50	50	
Link Distance (m)	610.7			274.6	171.9	
Travel Time (s)	44.0			19.8	12.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2289	4	4	2285	15	15
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2293	0	4	2285	15	15
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)		15	25		25	15
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6		2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8

Lanes, Volumes, Timings
4: Access #4 & William Halton Parkway

2030 Future Total AM
Neighbourhood 10

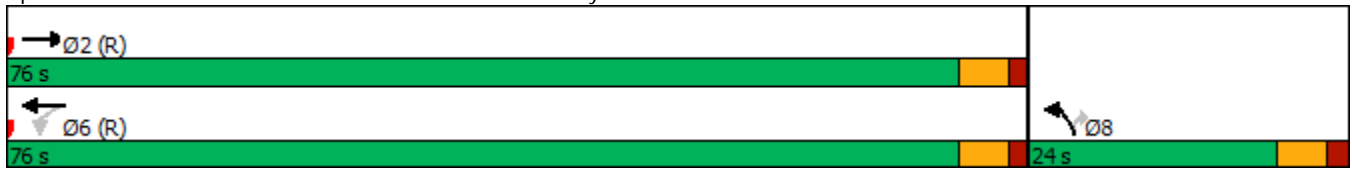














Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2		6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	23.1		23.1	23.1	23.5	23.5
Total Split (s)	76.0		76.0	76.0	24.0	24.0
Total Split (%)	76.0%		76.0%	76.0%	24.0%	24.0%
Maximum Green (s)	70.9		70.9	70.9	18.5	18.5
Yellow Time (s)	3.7		3.7	3.7	3.7	3.7
All-Red Time (s)	1.4		1.4	1.4	1.8	1.8
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1		5.1	5.1	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		C-Max	C-Max	Max	Max
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effect Green (s)	70.9		70.9	70.9	18.5	18.5
Actuated g/C Ratio	0.71		0.71	0.71	0.18	0.18
v/c Ratio	0.91		0.05	0.91	0.05	0.05
Control Delay	31.9		6.2	19.1	34.1	18.3
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	31.9		6.2	19.1	34.1	18.3
LOS	C		A	B	C	B
Approach Delay	31.9			19.1	26.2	
Approach LOS	C			B	C	
Queue Length 50th (m)	0.0		0.2	174.6	2.6	0.3
Queue Length 95th (m)	m0.0		1.4	225.0	8.3	6.0
Internal Link Dist (m)	586.7			250.6	147.9	
Turn Bay Length (m)			75.0			
Base Capacity (vph)	2509		73	2509	327	303
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.91		0.05	0.91	0.05	0.05

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 24 (24%), Referenced to phase 2:EBT and 6:WBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 25.5
 Intersection LOS: C
 Intersection Capacity Utilization 71.3%
 ICU Level of Service C
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Access #4 & William Halton Parkway

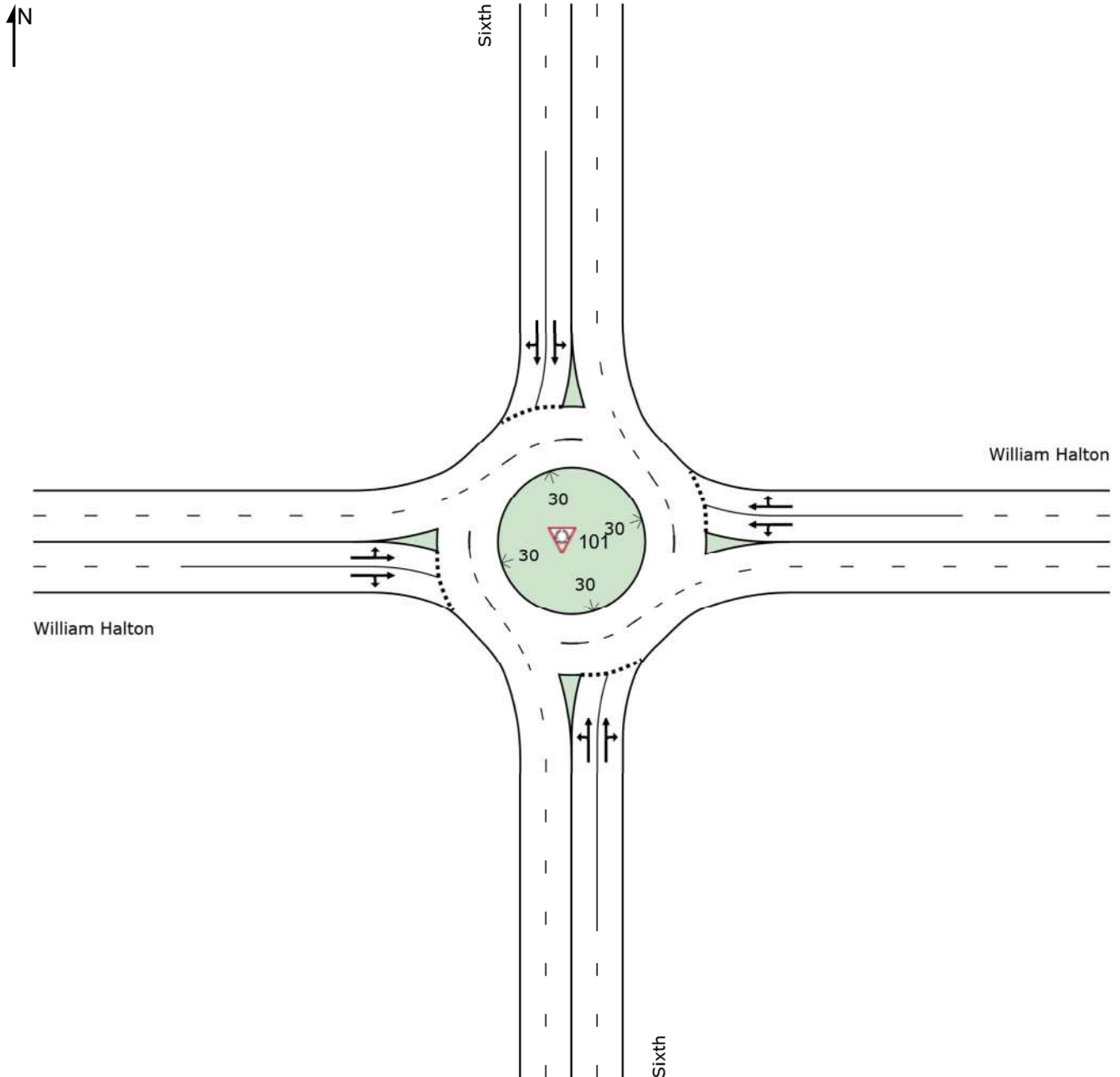


								
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations								
Traffic Volume (veh/h)	2106	4	4	2102	14	14		
Future Volume (veh/h)	2106	4	4	2102	14	14		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1863		
Adj Flow Rate, veh/h	2289	4	4	2285	15	15		
Adj No. of Lanes	2	0	1	2	1	1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	2570	4	94	2509	328	293		
Arrive On Green	0.48	0.48	0.71	0.71	0.19	0.19		
Sat Flow, veh/h	3718	6	161	3632	1774	1583		
Grp Volume(v), veh/h	1117	1176	4	2285	15	15		
Grp Sat Flow(s),veh/h/ln	1770	1862	161	1770	1774	1583		
Q Serve(g_s), s	57.4	57.5	2.2	53.0	0.7	0.8		
Cycle Q Clear(g_c), s	57.4	57.5	59.7	53.0	0.7	0.8		
Prop In Lane		0.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	1255	1320	94	2509	328	293		
V/C Ratio(X)	0.89	0.89	0.04	0.91	0.05	0.05		
Avail Cap(c_a), veh/h	1255	1320	94	2509	328	293		
HCM Platoon Ratio	0.67	0.67	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	22.7	22.7	38.4	11.9	33.5	33.5		
Incr Delay (d2), s/veh	9.7	9.4	0.9	6.3	0.3	0.3		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	31.3	32.8	0.1	27.6	0.4	0.4		
LnGrp Delay(d),s/veh	32.4	32.1	39.3	18.3	33.8	33.9		
LnGrp LOS	C	C	D	B	C	C		
Approach Vol, veh/h	2293			2289	30			
Approach Delay, s/veh	32.3			18.3	33.8			
Approach LOS	C			B	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		76.0				76.0		24.0
Change Period (Y+Rc), s		* 5.1				* 5.1		5.5
Max Green Setting (Gmax), s		* 71				* 71		18.5
Max Q Clear Time (g_c+I1), s		59.5				61.7		2.8
Green Ext Time (p_c), s		10.7				8.7		0.1
Intersection Summary								
HCM 2010 Ctrl Delay			25.3					
HCM 2010 LOS			C					
Notes								

SITE LAYOUT

 Site: 101 [WH & 6th - 2024 AM FB]

New Site
Site Category: (None)
Roundabout



MOVEMENT SUMMARY

 Site: 101 [WH & 6th - 2030 AM Future]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Sixth												
1	L2	131	2.0	1.671	623.8	LOS F	165.2	1176.0	1.00	6.80	19.54	5.5
2	T1	1172	2.0	1.671	616.9	LOS F	231.5	1648.5	1.00	7.73	21.53	5.5
3	R2	189	2.0	1.671	616.1	LOS F	231.5	1648.5	1.00	8.39	22.94	5.5
Approach		1492	2.0	1.671	617.4	LOS F	231.5	1648.5	1.00	7.73	21.53	5.5
East: William Halton												
4	L2	52	2.0	1.548	508.2	LOS F	248.7	1770.7	1.00	9.01	23.75	6.7
5	T1	2217	2.0	1.548	501.8	LOS F	306.7	2183.4	1.00	9.67	24.88	6.7
6	R2	125	2.0	1.548	501.2	LOS F	306.7	2183.4	1.00	10.23	25.83	6.7
Approach		2394	2.0	1.548	501.9	LOS F	306.7	2183.4	1.00	9.69	24.90	6.7
North: Sixth												
7	L2	156	2.0	1.670	621.1	LOS F	176.0	1253.4	1.00	7.14	20.53	5.6
8	T1	1214	2.0	1.670	614.3	LOS F	243.8	1735.7	1.00	8.08	22.52	5.6
9	R2	217	2.0	1.670	613.6	LOS F	243.8	1735.7	1.00	8.75	23.94	5.5
Approach		1586	2.0	1.670	614.9	LOS F	243.8	1735.7	1.00	8.08	22.52	5.6
West: William Halton												
10	L2	203	2.0	1.577	533.9	LOS F	265.5	1890.4	1.00	9.42	24.70	6.4
11	T1	2232	2.0	1.577	527.4	LOS F	325.5	2317.7	1.00	10.15	25.93	6.4
12	R2	37	2.0	1.577	527.0	LOS F	325.5	2317.7	1.00	10.65	26.77	6.4
Approach		2472	2.0	1.577	528.0	LOS F	325.5	2317.7	1.00	10.10	25.85	6.4
All Vehicles		7943	2.0	1.671	554.3	LOS F	325.5	2317.7	1.00	9.13	24.09	6.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Organisation: CGH TRANSPORTATION | Processed: February 22, 2019 10:49:55 AM

Project: C:\Users\AndrewHarte\CGH TRANSPORTATION\CGH Working - Documents\Projects\2018-23 Mattamy Neighbourhood 10\DATA\Sidra WH & 6.sip8

Lanes, Volumes, Timings
6: Trafalgar Road & William Halton Parkway

2030 Future Total AM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	2178	101	12	2125	15	113	1875	17	19	1909	103
Future Volume (vph)	124	2178	101	12	2125	15	113	1875	17	19	1909	103
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	180.0		0.0	180.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	75.0			75.0			75.0			75.0		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.993			0.999			0.999			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5050	0	1770	5080	0	1770	3536	0	1770	3511	0
Flt Permitted	0.084			0.092			0.079			0.086		
Satd. Flow (perm)	156	5050	0	171	5080	0	147	3536	0	160	3511	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			1			1			5	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		423.9			380.3			358.0			447.7	
Travel Time (s)		30.5			27.4			25.8			32.2	
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)	135	2367	110	13	2310	16	123	2038	18	21	2075	112
Shared Lane Traffic (%)												
Lane Group Flow (vph)	135	2477	0	13	2326	0	123	2056	0	21	2187	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	pm+pt	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	5	2			6		3	8			4	
Permitted Phases	2			6			8			4		

Lanes, Volumes, Timings
6: Trafalgar Road & William Halton Parkway

2030 Future Total AM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		6	6		3	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0		5.0	20.0		20.0	20.0	
Minimum Split (s)	9.5	39.6		39.6	39.6		9.5	39.6		39.6	39.6	
Total Split (s)	9.5	58.5		49.0	49.0		9.5	61.5		52.0	52.0	
Total Split (%)	7.9%	48.8%		40.8%	40.8%		7.9%	51.3%		43.3%	43.3%	
Maximum Green (s)	5.0	52.9		43.4	43.4		5.0	55.9		46.4	46.4	
Yellow Time (s)	3.5	3.7		3.7	3.7		3.5	3.7		3.7	3.7	
All-Red Time (s)	1.0	1.9		1.9	1.9		1.0	1.9		1.9	1.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	5.6		5.6	5.6		4.5	5.6		5.6	5.6	
Lead/Lag	Lead			Lag		Lag		Lead		Lag		Lag
Lead-Lag Optimize?	Yes			Yes		Yes		Yes		Yes		Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max		None	Max		Max	Max	
Walk Time (s)		7.0		7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)		27.0		27.0	27.0			27.0		27.0	27.0	
Pedestrian Calls (#/hr)		0		0	0			0		0	0	
Act Effect Green (s)	54.0	52.9		43.4	43.4		57.0	55.9		46.4	46.4	
Actuated g/C Ratio	0.45	0.44		0.36	0.36		0.48	0.47		0.39	0.39	
v/c Ratio	0.99	1.11		0.21	1.27		0.90	1.25		0.34	1.61	
Control Delay	99.9	89.4		37.2	158.1		77.1	147.1		44.9	305.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	99.9	89.4		37.2	158.1		77.1	147.1		44.9	305.4	
LOS	F	F		D	F		E	F		D	F	
Approach Delay		90.0			157.4			143.1			302.9	
Approach LOS		F			F			F			F	
Queue Length 50th (m)	19.5	~257.7		2.2	~267.3		16.8	~336.3		3.6	~412.4	
Queue Length 95th (m)	#59.7	#287.6		8.5	#297.9		#51.8	#381.3		13.0	#456.5	
Internal Link Dist (m)		399.9			356.3			334.0			423.7	
Turn Bay Length (m)	30.0			30.0			180.0			180.0		
Base Capacity (vph)	137	2230		61	1837		137	1647		61	1360	
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	0.99	1.11		0.21	1.27		0.90	1.25		0.34	1.61	

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle:	150
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.61
Intersection Signal Delay:	169.6
Intersection LOS:	F
Intersection Capacity Utilization:	140.4%
ICU Level of Service:	H
Analysis Period (min):	15

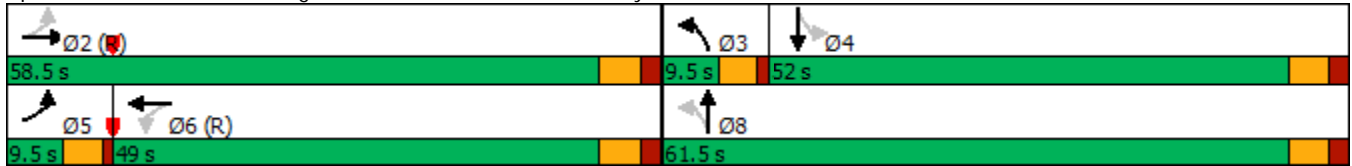
~ Volume exceeds capacity, queue is theoretically infinite.

Lanes, Volumes, Timings
 6: Trafalgar Road & William Halton Parkway

2030 Future Total AM
 Neighbourhood 10





















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

Splits and Phases: 6: Trafalgar Road & William Halton Parkway



HCM 2010 Signalized Intersection Summary
6: Trafalgar Road & William Halton Parkway

2030 Future Total AM
Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	2178	101	12	2125	15	113	1875	17	19	1909	103
Future Volume (veh/h)	124	2178	101	12	2125	15	113	1875	17	19	1909	103
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	135	2367	110	13	2310	16	123	2038	18	21	2075	112
Adj No. of Lanes	1	3	0	1	3	0	1	2	0	1	2	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	134	2196	101	60	1884	13	134	1675	15	60	1321	71
Arrive On Green	0.04	0.44	0.44	0.36	0.36	0.36	0.04	0.47	0.47	0.39	0.39	0.39
Sat Flow, veh/h	1774	4982	230	134	5211	36	1774	3595	32	203	3417	183
Grp Volume(v), veh/h	135	1605	872	13	1502	824	123	1002	1054	21	1065	1122
Grp Sat Flow(s),veh/h/ln	1774	1695	1822	134	1695	1856	1774	1770	1857	203	1770	1830
Q Serve(g_s), s	5.0	52.9	52.9	0.0	43.4	43.4	5.0	55.9	55.9	0.0	46.4	46.4
Cycle Q Clear(g_c), s	5.0	52.9	52.9	43.4	43.4	43.4	5.0	55.9	55.9	46.4	46.4	46.4
Prop In Lane	1.00		0.13	1.00		0.02	1.00		0.02	1.00		0.10
Lane Grp Cap(c), veh/h	134	1495	803	60	1226	671	134	824	865	60	684	708
V/C Ratio(X)	1.01	1.07	1.09	0.22	1.23	1.23	0.92	1.22	1.22	0.35	1.56	1.58
Avail Cap(c_a), veh/h	134	1495	803	60	1226	671	134	824	865	60	684	708
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.6	33.5	33.6	60.0	38.3	38.3	29.6	32.0	32.1	60.0	36.8	36.8
Incr Delay (d2), s/veh	79.9	46.0	57.5	8.1	108.8	114.9	53.6	107.9	108.9	15.3	257.9	269.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	34.2	39.4	0.6	38.8	43.6	4.4	51.9	54.8	0.9	71.6	76.4
LnGrp Delay(d),s/veh	113.5	79.5	91.0	68.1	147.1	153.2	83.3	139.9	141.0	75.3	294.7	306.6
LnGrp LOS	F	F	F	E	F	F	F	F	F	E	F	F
Approach Vol, veh/h		2612			2339			2179			2208	
Approach Delay, s/veh		85.1			148.8			137.2			298.6	
Approach LOS		F			F			F			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s		58.5	9.5	52.0	9.5	49.0		61.5				
Change Period (Y+Rc), s		* 5.6	4.5	* 5.6	4.5	* 5.6		* 5.6				
Max Green Setting (Gmax), s		* 53	5.0	* 46	5.0	* 43		* 56				
Max Q Clear Time (g_c+I1), s		54.9	7.0	48.4	7.0	45.4		57.9				
Green Ext Time (p_c), s		0.0	0.0	0.0	0.0	0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			163.7									
HCM 2010 LOS			F									
Notes												

Lanes, Volumes, Timings
7: Access #1 & Burnhamthorpe Road

2030 Future Total AM
Neighbourhood 10



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	163	10	5	379	31	6
Future Volume (vph)	163	10	5	379	31	6
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.992			0.977		
Flt Protected				0.999	0.960	
Satd. Flow (prot)	1848	0	0	1861	1747	0
Flt Permitted				0.999	0.960	
Satd. Flow (perm)	1848	0	0	1861	1747	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.6			137.0	150.8	
Travel Time (s)	13.1			9.9	10.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	177	11	5	412	34	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	188	0	0	417	41	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	33.9%
Analysis Period (min)	15
	ICU Level of Service A

Intersection

Int Delay, s/veh 0.9

Movement EBT EBR WBL WBT NBL NBR

Lane Configurations						
Traffic Vol, veh/h	163	10	5	379	31	6
Future Vol, veh/h	163	10	5	379	31	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	177	11	5	412	34	7

Major/Minor Major1 Major2 Minor1

Conflicting Flow All	0	0	188	0	605	183
Stage 1	-	-	-	-	183	-
Stage 2	-	-	-	-	422	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1386	-	461	859
Stage 1	-	-	-	-	848	-
Stage 2	-	-	-	-	662	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1386	-	459	859
Mov Cap-2 Maneuver	-	-	-	-	459	-
Stage 1	-	-	-	-	844	-
Stage 2	-	-	-	-	662	-

Approach EB WB NB

















HCM Control Delay, s	0	0.1	12.9
HCM LOS			B

Minor Lane/Major Mvmt NBLn1 EBT EBR WBL WBT

Capacity (veh/h)	496	-	-	1386	-
HCM Lane V/C Ratio	0.081	-	-	0.004	-
HCM Control Delay (s)	12.9	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Lanes, Volumes, Timings
8: Access #2 & Burnhamthorpe Road

2030 Future Total AM
Neighbourhood 10

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	151	9	4	337	5	29	5	12	7	5	14
Future Volume (vph)	4	151	9	4	337	5	29	5	12	7	5	14
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		0.992			0.998			0.965			0.928	
Flt Protected		0.999			0.999			0.969			0.986	
Satd. Flow (prot)	0	1846	0	0	1857	0	0	1742	0	0	1704	0
Flt Permitted		0.999			0.999			0.969			0.986	
Satd. Flow (perm)	0	1846	0	0	1857	0	0	1742	0	0	1704	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		137.0			214.2			120.1			128.7	
Travel Time (s)		9.9			15.4			8.6			9.3	
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)	4	164	10	4	366	5	32	5	13	8	5	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	178	0	0	375	0	0	50	0	0	28	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	32.0%					ICU Level of Service A						
Analysis Period (min)	15											

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	151	9	4	337	5	29	5	12	7	5	14
Future Vol, veh/h	4	151	9	4	337	5	29	5	12	7	5	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	164	10	4	366	5	32	5	13	8	5	15

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	371	0	0	174	0	0	564	556	169	563	559	369
Stage 1	-	-	-	-	-	-	177	177	-	377	377	-
Stage 2	-	-	-	-	-	-	387	379	-	186	182	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1188	-	-	1403	-	-	436	439	875	437	438	677
Stage 1	-	-	-	-	-	-	825	753	-	644	616	-
Stage 2	-	-	-	-	-	-	637	615	-	816	749	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1188	-	-	1403	-	-	419	435	875	424	434	677
Mov Cap-2 Maneuver	-	-	-	-	-	-	419	435	-	424	434	-
Stage 1	-	-	-	-	-	-	822	750	-	641	614	-
Stage 2	-	-	-	-	-	-	615	613	-	795	746	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.1			13.2			12.1		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	487	1188	-	-	1403	-	-	534
HCM Lane V/C Ratio	0.103	0.004	-	-	0.003	-	-	0.053
HCM Control Delay (s)	13.2	8	0	-	7.6	0	-	12.1
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.2

Lanes, Volumes, Timings
 9: Access #3 & Burnhamthorpe Road

2030 Future Total AM
 Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	1	107	26	8	202	5	80	5	9	17	5	3
Future Volume (vph)	1	107	26	8	202	5	80	5	9	17	5	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.974			0.997			0.987			0.984	
Flt Protected					0.998			0.959			0.967	
Satd. Flow (prot)	0	1814	0	0	1853	0	0	1763	0	0	1772	0
Flt Permitted					0.998			0.959			0.967	
Satd. Flow (perm)	0	1814	0	0	1853	0	0	1763	0	0	1772	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		214.2			214.1			129.7			115.6	
Travel Time (s)		15.4			15.4			9.3			8.3	
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)	1	116	28	9	220	5	87	5	10	18	5	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	145	0	0	234	0	0	102	0	0	26	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	29.5%
Analysis Period (min)	15
	ICU Level of Service A

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	107	26	8	202	5	80	5	9	17	5	3
Future Vol, veh/h	1	107	26	8	202	5	80	5	9	17	5	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	116	28	9	220	5	87	5	10	18	5	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	225	0	0	144	0	0	377	375	130	381	387	223
Stage 1	-	-	-	-	-	-	132	132	-	241	241	-
Stage 2	-	-	-	-	-	-	245	243	-	140	146	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1344	-	-	1438	-	-	580	556	920	577	547	817
Stage 1	-	-	-	-	-	-	871	787	-	762	706	-
Stage 2	-	-	-	-	-	-	759	705	-	863	776	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1344	-	-	1438	-	-	570	552	920	563	543	817
Mov Cap-2 Maneuver	-	-	-	-	-	-	570	552	-	563	543	-
Stage 1	-	-	-	-	-	-	870	786	-	761	701	-
Stage 2	-	-	-	-	-	-	745	700	-	847	775	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.3			12.4			11.5		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	590	1344	-	-	1438	-	-	580
HCM Lane V/C Ratio	0.173	0.001	-	-	0.006	-	-	0.047
HCM Control Delay (s)	12.4	7.7	0	-	7.5	0	-	11.5
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.6	0	-	-	0	-	-	0.1

Lanes, Volumes, Timings
10: Sixth Line & Burnhamthorpe Road

2030 Future Total AM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	68	29	221	111	225	65	942	358	284	690	52
Future Volume (vph)	43	68	29	221	111	225	65	942	358	284	690	52
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	50.0		40.0	50.0		20.0	60.0		15.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	75.0			75.0			75.0			75.0		
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		0.955			0.900			0.959			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1779	0	1770	1676	0	1770	3394	0	1770	3504	0
Flt Permitted	0.167			0.690			0.353			0.087		
Satd. Flow (perm)	311	1779	0	1285	1676	0	658	3394	0	162	3504	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			96			62			12	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		202.3			162.5			119.8			208.3	
Travel Time (s)		14.6			11.7			8.6			15.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	46	72	31	235	118	239	69	1002	381	302	734	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	103	0	235	357	0	69	1383	0	302	789	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	1		1	1		1	1		1	1	
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	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
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	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		8	8		2	2		1	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)	9.5	29.6		29.6	29.6		38.1	38.1		10.1	38.1	
Total Split (s)	9.6	39.2		29.6	29.6		41.8	41.8		19.0	60.8	

Lanes, Volumes, Timings
 10: Sixth Line & Burnhamthorpe Road

2030 Future Total AM
 Neighbourhood 10

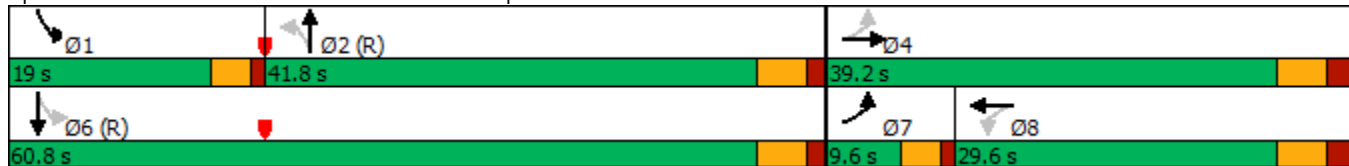


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	9.6%	39.2%		29.6%	29.6%		41.8%	41.8%		19.0%	60.8%	
Maximum Green (s)	5.6	33.6		24.0	24.0		36.7	36.7		15.0	55.7	
Yellow Time (s)	3.0	3.7		3.7	3.7		3.7	3.7		3.0	3.7	
All-Red Time (s)	1.0	1.9		1.9	1.9		1.4	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.6		5.6	5.6		5.1	5.1		4.0	5.1	
Lead/Lag	Lead			Lag		Lag		Lag		Lead		
Lead-Lag Optimize?	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	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0			7.0	7.0		7.0	7.0		7.0		
Flash Dont Walk (s)	17.0			17.0	17.0		26.0	26.0		26.0		
Pedestrian Calls (#/hr)	0			0	0		0	0		0		
Act Effect Green (s)	28.9	27.3		21.6	21.6		43.8	43.8		63.1	62.0	
Actuated g/C Ratio	0.29	0.27		0.22	0.22		0.44	0.44		0.63	0.62	
v/c Ratio	0.27	0.21		0.85	0.82		0.24	0.91		0.91	0.36	
Control Delay	26.7	20.2		64.5	42.7		24.4	37.8		57.6	10.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.7	20.2		64.5	42.7		24.4	37.8		57.6	10.9	
LOS	C	C		E	D		C	D		E	B	
Approach Delay	22.2			51.3			37.2			23.8		
Approach LOS	C			D			D			C		

Intersection Summary






















Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 34.6
 Intersection LOS: C
 Intersection Capacity Utilization 92.6%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 10: Sixth Line & Burnhamthorpe Road



HCM 2010 Signalized Intersection Summary
 10: Sixth Line & Burnhamthorpe Road

2030 Future Total AM
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	68	29	221	111	225	65	942	358	284	690	52
Future Volume (veh/h)	43	68	29	221	111	225	65	942	358	284	690	52
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	46	72	31	235	118	239	69	1002	381	302	734	55
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	161	383	165	372	129	260	343	999	376	332	1948	146
Arrive On Green	0.04	0.31	0.31	0.23	0.23	0.23	0.40	0.40	0.40	0.15	0.58	0.58
Sat Flow, veh/h	1774	1236	532	1286	551	1115	684	2518	947	1774	3338	250
Grp Volume(v), veh/h	46	0	103	235	0	357	69	701	682	302	389	400
Grp Sat Flow(s),veh/h/ln	1774	0	1769	1286	0	1666	684	1770	1696	1774	1770	1819
Q Serve(g_s), s	1.9	0.0	4.3	17.1	0.0	20.9	6.8	39.5	39.7	12.6	11.7	11.7
Cycle Q Clear(g_c), s	1.9	0.0	4.3	17.1	0.0	20.9	6.8	39.5	39.7	12.6	11.7	11.7
Prop In Lane	1.00		0.30	1.00		0.67	1.00		0.56	1.00		0.14
Lane Grp Cap(c), veh/h	161	0	548	372	0	389	343	702	673	332	1032	1061
V/C Ratio(X)	0.29	0.00	0.19	0.63	0.00	0.92	0.20	1.00	1.01	0.91	0.38	0.38
Avail Cap(c_a), veh/h	196	0	594	381	0	400	343	702	673	338	1032	1061
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.7	0.0	25.3	35.9	0.0	37.4	20.2	30.1	30.2	29.9	11.1	11.1
Incr Delay (d2), s/veh	1.0	0.0	0.2	3.2	0.0	25.5	1.3	33.5	38.3	27.1	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	2.1	6.4	0.0	12.4	1.4	25.8	25.7	10.6	6.0	6.2
LnGrp Delay(d),s/veh	29.6	0.0	25.5	39.2	0.0	62.8	21.6	63.6	68.4	57.0	12.2	12.1
LnGrp LOS	C		C	D		E	C	E	F	E	B	B
Approach Vol, veh/h		149			592			1452			1091	
Approach Delay, s/veh		26.8			53.5			63.9			24.6	
Approach LOS		C			D			E			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6	7	8				
Phs Duration (G+Y+Rc), s	18.7	44.8		36.6		63.4	7.6	28.9				
Change Period (Y+Rc), s	4.0	* 5.1		* 5.6		* 5.1	4.0	* 5.6				
Max Green Setting (Gmax), s	15.0	* 37		* 34		* 56	5.6	* 24				
Max Q Clear Time (g_c+I1), s	14.6	41.7		6.3		13.7	3.9	22.9				
Green Ext Time (p_c), s	0.1	0.0		0.6		7.2	0.0	0.4				
Intersection Summary												
HCM 2010 Ctrl Delay				47.3								
HCM 2010 LOS				D								
Notes												

Lanes, Volumes, Timings
11: Access #8 & Burnhamthorpe Road

2030 Future Total AM
Neighbourhood 10



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	707	2	1	524	34	3
Future Volume (vph)	707	2	1	524	34	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	30.0		0.0	0.0
Storage Lanes		0	0		1	0
Taper Length (m)			30.0		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.990	
Flt Protected					0.956	
Satd. Flow (prot)	1863	0	0	1863	1763	0
Flt Permitted					0.956	
Satd. Flow (perm)	1863	0	0	1863	1763	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	162.5			162.0	143.2	
Travel Time (s)	11.7			11.7	10.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	768	2	1	570	37	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	770	0	0	571	40	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)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 47.3% ICU Level of Service A

Analysis Period (min) 15

Intersection						
Int Delay, s/veh	0.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	707	2	1	524	34	3
Future Vol, veh/h	707	2	1	524	34	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	768	2	1	570	37	3

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	770	0	1341 769
Stage 1	-	-	-	-	769 -
Stage 2	-	-	-	-	572 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	844	-	168 401
Stage 1	-	-	-	-	457 -
Stage 2	-	-	-	-	565 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	844	-	168 401
Mov Cap-2 Maneuver	-	-	-	-	168 -
Stage 1	-	-	-	-	456 -
Stage 2	-	-	-	-	565 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0	31.4
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	176	-	-	844	-
HCM Lane V/C Ratio	0.229	-	-	0.001	-
HCM Control Delay (s)	31.4	-	-	9.3	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	0.8	-	-	0	-

Lanes, Volumes, Timings
12: Access #9 & Burnhamthorpe Road

2030 Future Total AM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	769	3	10	557	5	20	0	30	15	0	6
Future Volume (vph)	2	769	3	10	557	5	20	0	30	15	0	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	30.0			30.0			7.5			7.5		
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		0.999			0.999			0.919			0.959	
Flt Protected	0.950			0.950				0.980			0.966	
Satd. Flow (prot)	1770	1861	0	1770	1861	0	0	1678	0	0	1726	0
Flt Permitted	0.950			0.950				0.980			0.966	
Satd. Flow (perm)	1770	1861	0	1770	1861	0	0	1678	0	0	1726	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		162.0			583.2			156.1			86.4	
Travel Time (s)		11.7			42.0			11.2			6.2	
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)	2	836	3	11	605	5	22	0	33	16	0	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	839	0	11	610	0	0	55	0	0	23	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			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	50.7%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	2	769	3	10	557	5	20	0	30	15	0	6
Future Vol, veh/h	2	769	3	10	557	5	20	0	30	15	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	300	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	836	3	11	605	5	22	0	33	16	0	7

























Major/Minor	Major1		Major2		Minor1			Minor2				
Conflicting Flow All	610	0	0	839	0	0	1475	1474	838	1488	1473	608
Stage 1	-	-	-	-	-	-	842	842	-	630	630	-
Stage 2	-	-	-	-	-	-	633	632	-	858	843	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	969	-	-	796	-	-	104	127	366	102	127	496
Stage 1	-	-	-	-	-	-	359	380	-	470	475	-
Stage 2	-	-	-	-	-	-	468	474	-	352	380	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	969	-	-	796	-	-	101	125	366	92	125	496
Mov Cap-2 Maneuver	-	-	-	-	-	-	101	125	-	92	125	-
Stage 1	-	-	-	-	-	-	358	379	-	469	468	-
Stage 2	-	-	-	-	-	-	455	467	-	320	379	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0		0.2		33.6		41.9	
HCM LOS					D		E	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	179	969	-	-	796	-	-	120
HCM Lane V/C Ratio	0.304	0.002	-	-	0.014	-	-	0.19
HCM Control Delay (s)	33.6	8.7	-	-	9.6	-	-	41.9
HCM Lane LOS	D	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	1.2	0	-	-	0	-	-	0.7

Lanes, Volumes, Timings
13: Trafalgar Road & Burnhamthorpe Road

2030 Future Total AM
Neighbourhood 10

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	477	183	73	268	109	153	1614	145	316	1450	130
Future Volume (vph)	122	477	183	73	268	109	153	1614	145	316	1450	130
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		30.0	30.0		30.0	180.0		30.0	180.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	75.0			75.0			75.0			75.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850			0.850			0.850		0.988	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3497	0
Flt Permitted	0.591			0.109			0.082			0.075		
Satd. Flow (perm)	1101	1863	1583	203	1863	1583	153	3539	1583	140	3497	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			145			105			145		11	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		338.3			414.4			579.3			233.9	
Travel Time (s)		24.4			29.8			41.7			16.8	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	124	487	187	74	273	111	156	1647	148	322	1480	133
Shared Lane Traffic (%)												
Lane Group Flow (vph)	124	487	187	74	273	111	156	1647	148	322	1613	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	1	1	1	1	1	1	1	1	1	1	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
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	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
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
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	10.0	5.0	20.0	20.0	7.0	20.0	
Minimum Split (s)	24.0	24.0	24.0	9.5	23.8	23.8	9.5	26.0	26.0	11.5	26.0	
Total Split (s)	36.0	36.0	36.0	9.5	45.5	45.5	11.7	55.9	55.9	18.6	62.8	

Lanes, Volumes, Timings
13: Trafalgar Road & Burnhamthorpe Road

2030 Future Total AM
Neighbourhood 10

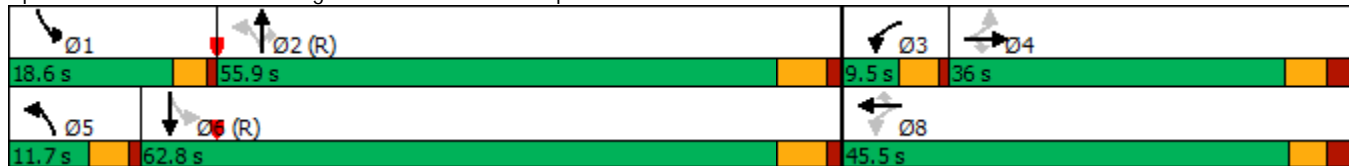


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	30.0%	30.0%	30.0%	7.9%	37.9%	37.9%	9.8%	46.6%	46.6%	15.5%	52.3%	
Maximum Green (s)	30.0	30.0	30.0	5.0	39.7	39.7	7.2	49.9	49.9	14.6	56.8	
Yellow Time (s)	3.7	3.7	3.7	3.5	3.5	3.5	3.5	4.6	4.6	3.0	4.6	
All-Red Time (s)	2.3	2.3	2.3	1.0	2.3	2.3	1.0	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	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	4.5	5.8	5.8	4.5	6.0	6.0	4.0	6.0	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0		11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0	0		0	0		0	0		0	
Act Effect Green (s)	31.9	31.9	31.9	41.0	39.7	39.7	58.6	49.9	49.9	70.5	56.8	
Actuated g/C Ratio	0.27	0.27	0.27	0.34	0.33	0.33	0.49	0.42	0.42	0.59	0.47	
v/c Ratio	0.42	0.98	0.35	0.55	0.44	0.19	0.91	1.12	0.20	1.15	0.97	
Control Delay	43.0	81.7	12.1	43.8	34.3	6.9	75.2	97.2	4.4	132.4	47.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	43.0	81.7	12.1	43.8	34.3	6.9	75.2	97.2	4.4	132.4	47.2	
LOS	D	F	B	D	C	A	E	F	A	F	D	
Approach Delay		59.4			29.2			88.4			61.4	
Approach LOS		E			C			F			E	

Intersection Summary

























Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	150
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.15
Intersection Signal Delay:	68.5
Intersection LOS:	E
Intersection Capacity Utilization:	108.5%
ICU Level of Service:	G
Analysis Period (min):	15

Splits and Phases: 13: Trafalgar Road & Burnhamthorpe Road



HCM 2010 Signalized Intersection Summary
 13: Trafalgar Road & Burnhamthorpe Road

2030 Future Total AM
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	122	477	183	73	268	109	153	1614	145	316	1450	130
Future Volume (veh/h)	122	477	183	73	268	109	153	1614	145	316	1450	130
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	124	487	187	74	273	111	156	1647	148	322	1480	133
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	273	466	396	134	613	521	178	1472	658	276	1556	139
Arrive On Green	0.25	0.25	0.25	0.04	0.33	0.33	0.06	0.42	0.42	0.12	0.47	0.47
Sat Flow, veh/h	995	1863	1583	1774	1863	1583	1774	3539	1583	1774	3287	293
Grp Volume(v), veh/h	124	487	187	74	273	111	156	1647	148	322	792	821
Grp Sat Flow(s),veh/h/ln	995	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1811
Q Serve(g_s), s	13.4	30.0	12.1	3.6	13.8	6.1	6.1	49.9	7.2	14.6	51.2	52.4
Cycle Q Clear(g_c), s	17.7	30.0	12.1	3.6	13.8	6.1	6.1	49.9	7.2	14.6	51.2	52.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	273	466	396	134	613	521	178	1472	658	276	838	857
V/C Ratio(X)	0.45	1.05	0.47	0.55	0.45	0.21	0.88	1.12	0.22	1.17	0.95	0.96
Avail Cap(c_a), veh/h	273	466	396	134	616	524	178	1472	658	276	838	857
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.3	45.0	38.3	34.2	31.6	29.0	28.3	35.0	22.6	39.5	30.1	30.4
Incr Delay (d2), s/veh	1.2	54.2	0.9	4.8	0.5	0.2	35.4	63.3	0.8	107.3	20.4	22.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	22.4	5.3	1.9	7.2	2.7	4.7	37.3	3.3	17.3	29.6	31.2
LnGrp Delay(d),s/veh	43.5	99.2	39.1	39.1	32.1	29.2	63.7	98.4	23.4	146.7	50.6	52.4
LnGrp LOS	D	F	D	D	C	C	E	F	C	F	D	D
Approach Vol, veh/h		798			458			1951			1935	
Approach Delay, s/veh		76.5			32.6			89.9			67.4	
Approach LOS		E			C			F			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	18.6	55.9	9.5	36.0	11.7	62.8		45.5				
Change Period (Y+Rc), s	4.0	* 6	4.5	6.0	4.5	* 6		* 6				
Max Green Setting (Gmax), s	14.6	* 50	5.0	30.0	7.2	* 57		* 40				
Max Q Clear Time (g_c+I1), s	16.6	51.9	5.6	32.0	8.1	54.4		15.8				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	2.1		2.5				
Intersection Summary												
HCM 2010 Ctrl Delay			74.2									
HCM 2010 LOS			E									
Notes												

Lanes, Volumes, Timings
 14: Sixth Line & Access #5/Settlers Road

2030 Future Total AM
 Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	5	39	80	5	20	12	1217	27	7	895	3
Future Volume (vph)	10	5	39	80	5	20	12	1217	27	7	895	3
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	75.0		0.0	75.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			75.0			75.0		
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		0.866			0.878			0.997				
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1613	0	1770	1635	0	1770	3529	0	1770	3539	0
Flt Permitted	0.740			0.726			0.277			0.167		
Satd. Flow (perm)	1378	1613	0	1352	1635	0	516	3529	0	311	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42			19			3				
Link Speed (k/h)		50			50			50				50
Link Distance (m)		149.3			115.8			436.9				320.1
Travel Time (s)		10.7			8.3			31.5				23.0
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)	11	5	42	87	5	22	13	1323	29	8	973	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	47	0	87	27	0	13	1352	0	8	976	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	1		1	1	
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	10.0		2.0	10.0	
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							
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	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2				6
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings
 14: Sixth Line & Access #5/Settlers Road

2030 Future Total AM
 Neighbourhood 10

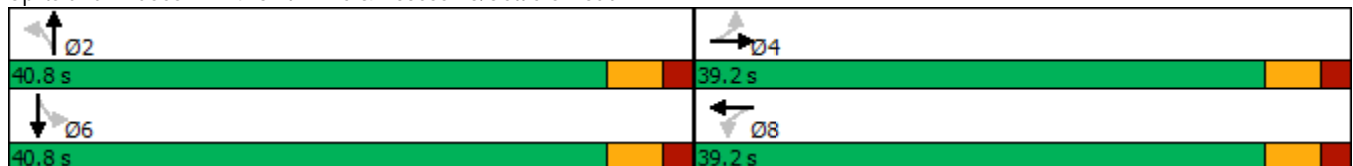


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	33.2	33.2		39.2	39.2		33.2	33.2		39.2	39.2	
Total Split (s)	39.2	39.2		39.2	39.2		40.8	40.8		40.8	40.8	
Total Split (%)	49.0%	49.0%		49.0%	49.0%		51.0%	51.0%		51.0%	51.0%	
Maximum Green (s)	34.0	34.0		34.0	34.0		35.6	35.6		35.6	35.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.9	1.9		1.9	1.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2		5.2	5.2		5.2	5.2	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		27.0	27.0		21.0	21.0		27.0	27.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	10.6	10.6		10.6	10.6		43.1	43.1		43.1	43.1	
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.72	0.72		0.72	0.72	
v/c Ratio	0.05	0.15		0.36	0.09		0.04	0.53		0.04	0.38	
Control Delay	19.4	9.3		25.9	12.0		4.6	6.4		4.9	5.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	19.4	9.3		25.9	12.0		4.6	6.4		4.9	5.2	
LOS	B	A		C	B		A	A		A	A	
Approach Delay		11.2			22.6			6.4			5.2	
Approach LOS		B			C			A			A	

Intersection Summary






















Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	59.8
Natural Cycle:	80
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.53
Intersection Signal Delay:	6.8
Intersection LOS:	A
Intersection Capacity Utilization:	54.3%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 14: Sixth Line & Access #5/Settlers Road



HCM 2010 Signalized Intersection Summary
 14: Sixth Line & Access #5/Settlers Road

2030 Future Total AM
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	5	39	80	5	20	12	1217	27	7	895	3
Future Volume (veh/h)	10	5	39	80	5	20	12	1217	27	7	895	3
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	11	5	42	87	5	22	13	1323	29	8	973	3
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	342	29	242	324	51	223	425	2280	50	303	2330	7
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.64	0.64	0.64	0.64	0.64	0.64
Sat Flow, veh/h	1378	171	1438	1353	302	1327	574	3541	78	402	3619	11
Grp Volume(v), veh/h	11	0	47	87	0	27	13	661	691	8	476	500
Grp Sat Flow(s),veh/h/ln	1378	0	1609	1353	0	1629	574	1770	1849	402	1770	1861
Q Serve(g_s), s	0.4	0.0	1.4	3.3	0.0	0.8	0.6	11.7	11.8	0.6	7.2	7.2
Cycle Q Clear(g_c), s	1.2	0.0	1.4	4.6	0.0	0.8	7.9	11.7	11.8	12.4	7.2	7.2
Prop In Lane	1.00		0.89	1.00		0.81	1.00		0.04	1.00		0.01
Lane Grp Cap(c), veh/h	342	0	270	324	0	274	425	1139	1191	303	1139	1198
V/C Ratio(X)	0.03	0.00	0.17	0.27	0.00	0.10	0.03	0.58	0.58	0.03	0.42	0.42
Avail Cap(c_a), veh/h	958	0	989	928	0	1002	425	1139	1191	303	1139	1198
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.9	0.0	19.7	21.7	0.0	19.5	6.7	5.6	5.6	9.1	4.8	4.8
Incr Delay (d2), s/veh	0.0	0.0	0.3	0.4	0.0	0.2	0.1	2.2	2.1	0.2	1.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.6	1.2	0.0	0.4	0.1	6.2	6.4	0.1	3.8	4.0
LnGrp Delay(d),s/veh	20.0	0.0	20.0	22.1	0.0	19.6	6.8	7.8	7.7	9.3	5.9	5.9
LnGrp LOS	B		C	C		B	A	A	A	A	A	A
Approach Vol, veh/h		58			114			1365			984	
Approach Delay, s/veh		20.0			21.5			7.7			5.9	
Approach LOS		C			C			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		40.8		14.5		40.8		14.5				
Change Period (Y+Rc), s		* 5.2		* 5.2		* 5.2		* 5.2				
Max Green Setting (Gmax), s		* 36		* 34		* 36		* 34				
Max Q Clear Time (g_c+I1), s		13.8		3.4		14.4		6.6				
Green Ext Time (p_c), s		12.0		0.3		7.9		0.5				
Intersection Summary												
HCM 2010 Ctrl Delay				7.9								
HCM 2010 LOS				A								
Notes												

Lanes, Volumes, Timings
15: Sixth Line & Access #6/Marvin Avenue

2030 Future Total AM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	5	185	131	5	45	60	1129	44	16	1042	25
Future Volume (vph)	77	5	185	131	5	45	60	1129	44	16	1042	25
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	30.0		50.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			50.0			50.0		
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		0.854			0.864			0.994			0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1591	0	1770	1609	0	1770	3518	0	1770	3529	0
Flt Permitted	0.722			0.584			0.199			0.166		
Satd. Flow (perm)	1345	1591	0	1088	1609	0	371	3518	0	309	3529	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		35			26			6			4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		121.7			102.5			226.5			436.9	
Travel Time (s)		8.8			7.4			16.3			31.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	84	5	201	142	5	49	65	1227	48	17	1133	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	84	206	0	142	54	0	65	1275	0	17	1160	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	1		1	1	
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	10.0		2.0	10.0	
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							
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	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings
 15: Sixth Line & Access #6/Marvin Avenue

2030 Future Total AM
 Neighbourhood 10

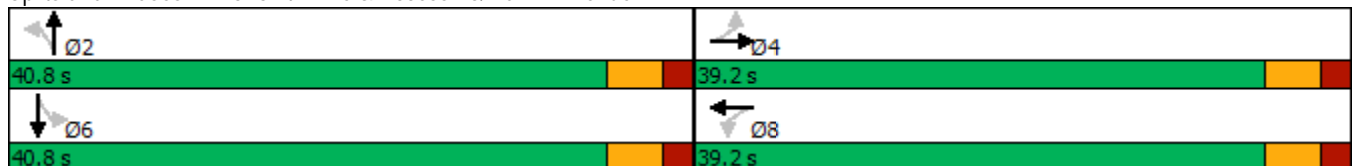


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	33.2	33.2		39.2	39.2		33.2	33.2		39.2	39.2	
Total Split (s)	39.2	39.2		39.2	39.2		40.8	40.8		40.8	40.8	
Total Split (%)	49.0%	49.0%		49.0%	49.0%		51.0%	51.0%		51.0%	51.0%	
Maximum Green (s)	34.0	34.0		34.0	34.0		35.6	35.6		35.6	35.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.9	1.9		1.9	1.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2		5.2	5.2		5.2	5.2	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		27.0	27.0		21.0	21.0		27.0	27.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	13.1	13.1		13.1	13.1		37.0	37.0		37.0	37.0	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.61	0.61		0.61	0.61	
v/c Ratio	0.29	0.56		0.60	0.15		0.29	0.59		0.09	0.54	
Control Delay	21.6	22.9		32.2	12.3		11.1	9.2		7.7	8.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.6	22.9		32.2	12.3		11.1	9.2		7.7	8.5	
LOS	C	C		C	B		B	A		A	A	
Approach Delay		22.5			26.7			9.3			8.5	
Approach LOS		C			C			A			A	

Intersection Summary






















Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	60.5
Natural Cycle:	80
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.60
Intersection Signal Delay:	11.4
Intersection LOS:	B
Intersection Capacity Utilization:	82.9%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 15: Sixth Line & Access #6/Marvin Avenue



HCM 2010 Signalized Intersection Summary
 15: Sixth Line & Access #6/Marvin Avenue

2030 Future Total AM
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	5	185	131	5	45	60	1129	44	16	1042	25
Future Volume (veh/h)	77	5	185	131	5	45	60	1129	44	16	1042	25
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	84	5	201	142	5	49	65	1227	48	17	1133	27
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	444	10	420	304	40	395	287	1959	77	255	1993	47
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.56	0.56	0.56	0.56	0.56	0.56
Sat Flow, veh/h	1345	39	1551	1171	149	1457	482	3473	136	432	3533	84
Grp Volume(v), veh/h	84	0	206	142	0	54	65	625	650	17	567	593
Grp Sat Flow(s),veh/h/ln	1345	0	1589	1171	0	1606	482	1770	1839	432	1770	1848
Q Serve(g_s), s	3.2	0.0	6.9	7.3	0.0	1.6	6.3	15.0	15.0	1.7	13.0	13.0
Cycle Q Clear(g_c), s	4.8	0.0	6.9	14.1	0.0	1.6	19.3	15.0	15.0	16.8	13.0	13.0
Prop In Lane	1.00		0.98	1.00		0.91	1.00		0.07	1.00		0.05
Lane Grp Cap(c), veh/h	444	0	431	304	0	435	287	998	1037	255	998	1042
V/C Ratio(X)	0.19	0.00	0.48	0.47	0.00	0.12	0.23	0.63	0.63	0.07	0.57	0.57
Avail Cap(c_a), veh/h	804	0	856	618	0	865	287	998	1037	255	998	1042
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.2	0.0	19.3	25.2	0.0	17.3	15.0	9.3	9.3	14.9	8.8	8.8
Incr Delay (d2), s/veh	0.2	0.0	0.8	1.1	0.0	0.1	1.8	3.0	2.9	0.5	2.3	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	3.1	2.5	0.0	0.7	1.0	8.1	8.4	0.2	7.0	7.2
LnGrp Delay(d),s/veh	19.4	0.0	20.1	26.3	0.0	17.5	16.8	12.2	12.1	15.4	11.2	11.1
LnGrp LOS	B		C	C		B	B	B	B	B	B	B
Approach Vol, veh/h		290			196			1340			1177	
Approach Delay, s/veh		19.9			23.9			12.4			11.2	
Approach LOS		B			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		40.8		22.3		40.8		22.3				
Change Period (Y+Rc), s		* 5.2		* 5.2		* 5.2		* 5.2				
Max Green Setting (Gmax), s		* 36		* 34		* 36		* 34				
Max Q Clear Time (g_c+I1), s		21.3		8.9		18.8		16.1				
Green Ext Time (p_c), s		9.0		2.0		8.7		1.0				
Intersection Summary												
HCM 2010 Ctrl Delay			13.4									
HCM 2010 LOS			B									
Notes												

Lanes, Volumes, Timings
 16: Sixth Line & Access #7/Carnegie Drive

2030 Future Total AM
 Neighbourhood 10

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	5	10	7	5	7	4	1231	1	1	1358	1
Future Volume (vph)	2	5	10	7	5	7	4	1231	1	1	1358	1
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	30.0		0.0	75.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			50.0			75.0		
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		0.897			0.908							
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1671	0	1770	1691	0	1770	3539	0	1770	3539	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1671	0	1770	1691	0	1770	3539	0	1770	3539	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		113.1			127.1			184.0			226.5	
Travel Time (s)		8.1			9.2			13.2			16.3	
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)	2	5	11	8	5	8	4	1338	1	1	1476	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	16	0	8	13	0	4	1339	0	1	1477	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
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	50.1%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↵		↵	↵		↵	↕		↵	↕	
Traffic Vol, veh/h	2	5	10	7	5	7	4	1231	1	1	1358	1
Future Vol, veh/h	2	5	10	7	5	7	4	1231	1	1	1358	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	300	-	-	750	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	5	11	8	5	8	4	1338	1	1	1476	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2159	2826	739	2090	2826	670	1477	0	0	1339	0	0
Stage 1	1479	1479	-	1347	1347	-	-	-	-	-	-	-
Stage 2	680	1347	-	743	1479	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	27	17	360	30	17	399	452	-	-	511	-	-
Stage 1	132	188	-	159	218	-	-	-	-	-	-	-
Stage 2	407	218	-	373	188	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	20	17	360	22	17	399	452	-	-	511	-	-
Mov Cap-2 Maneuver	20	17	-	22	17	-	-	-	-	-	-	-
Stage 1	131	188	-	158	216	-	-	-	-	-	-	-
Stage 2	386	216	-	351	188	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	128.2		175.1		0		0	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	452	-	-	20	47	22	39	511	-	-
HCM Lane V/C Ratio	0.01	-	-	0.109	0.347	0.346	0.334	0.002	-	-
HCM Control Delay (s)	13	-	-	205.9	117.8	238.5	138.1	12.1	-	-
HCM Lane LOS	B	-	-	F	F	F	F	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	1.2	1	1.1	0	-	-

Lanes, Volumes, Timings
17: Sixth Line & Dundas Street

2030 Future Total AM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	2296	226	168	1061	234	180	189	336	634	356	182
Future Volume (vph)	90	2296	226	168	1061	234	180	189	336	634	356	182
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		80.0	35.0		0.0	80.0		0.0	45.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	75.0			75.0			75.0			75.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.973				0.850		0.949	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	1770	4948	0	1770	3539	1583	1770	3359	0
Flt Permitted	0.129			0.065			0.330			0.616		
Satd. Flow (perm)	240	5085	1583	121	4948	0	615	3539	1583	1147	3359	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			159		53				121		78	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		409.7			323.7			341.1			842.1	
Travel Time (s)		29.5			23.3			24.6			60.6	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	93	2367	233	173	1094	241	186	195	346	654	367	188
Shared Lane Traffic (%)												
Lane Group Flow (vph)	93	2367	233	173	1335	0	186	195	346	654	555	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	1	1	1	1		1	1	1	1	1	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0	2.0	10.0	
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	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8				4
Permitted Phases	2		2	6			8		8	4		
Detector Phase	5	2	2	1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	11.5	37.2	37.2	11.5	34.2		40.5	40.5	40.5	40.5	40.5	
Total Split (s)	11.5	67.0	67.0	12.0	67.5		51.0	51.0	51.0	51.0	51.0	

Lanes, Volumes, Timings
17: Sixth Line & Dundas Street

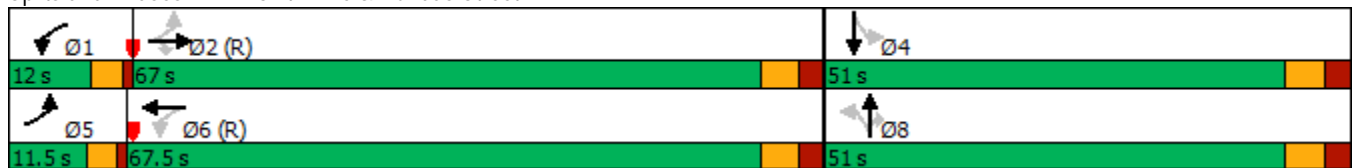
2030 Future Total AM
Neighbourhood 10

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	8.8%	51.5%	51.5%	9.2%	51.9%		39.2%	39.2%	39.2%	39.2%	39.2%	39.2%
Maximum Green (s)	7.5	60.8	60.8	8.0	61.3		44.5	44.5	44.5	44.5	44.5	44.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5		2.8	2.8	2.8	2.8	2.8	2.8
Lost Time Adjust (s)	0.0	-2.2	-2.2	0.0	-2.2		-2.5	-2.5	-2.5	-2.5	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max		Max	Max	Max	Max	Max	Max
Walk Time (s)		7.0	7.0		7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		24.0	24.0		21.0		27.0	27.0	27.0	27.0	27.0	27.0
Pedestrian Calls (#/hr)		0	0		0		0	0	0	0	0	0
Act Effct Green (s)	70.4	63.0	63.0	71.6	63.6		47.0	47.0	47.0	47.0	47.0	47.0
Actuated g/C Ratio	0.54	0.48	0.48	0.55	0.49		0.36	0.36	0.36	0.36	0.36	0.36
v/c Ratio	0.43	0.96	0.27	1.03	0.55		0.84	0.15	0.53	1.58	0.44	0.44
Control Delay	18.7	43.5	7.3	107.8	23.1		69.6	28.5	24.1	302.8	28.0	28.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.7	43.5	7.3	107.8	23.1		69.6	28.5	24.1	302.8	28.0	28.0
LOS	B	D	A	F	C		E	C	C	F	C	C
Approach Delay		39.5			32.8			36.9				176.6
Approach LOS		D			C			D				F

Intersection Summary






























Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 130
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.58
 Intersection Signal Delay: 64.6
 Intersection LOS: E
 Intersection Capacity Utilization 110.5%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 17: Sixth Line & Dundas Street



HCM 2010 Signalized Intersection Summary
17: Sixth Line & Dundas Street

2030 Future Total AM
Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (veh/h)	90	2296	226	168	1061	234	180	189	336	634	356	182
Future Volume (veh/h)	90	2296	226	168	1061	234	180	189	336	634	356	182
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	93	2367	233	173	1094	241	186	195	346	654	367	188
Adj No. of Lanes	1	3	1	1	3	0	1	2	1	1	2	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	268	2464	767	167	2062	454	255	1280	572	335	824	416
Arrive On Green	0.05	0.48	0.48	0.06	0.49	0.48	0.36	0.36	0.36	0.36	0.36	0.34
Sat Flow, veh/h	1774	5085	1583	1774	4172	919	850	3539	1583	861	2280	1150
Grp Volume(v), veh/h	93	2367	233	173	889	446	186	195	346	654	284	271
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1701	850	1770	1583	861	1770	1660
Q Serve(g_s), s	3.5	58.3	11.6	8.0	23.4	23.7	27.9	4.8	23.2	42.2	15.8	16.4
Cycle Q Clear(g_c), s	3.5	58.3	11.6	8.0	23.4	23.7	44.3	4.8	23.2	47.0	15.8	16.4
Prop In Lane	1.00		1.00	1.00		0.54	1.00		1.00	1.00		0.69
Lane Grp Cap(c), veh/h	268	2464	767	167	1675	840	255	1280	572	335	640	600
V/C Ratio(X)	0.35	0.96	0.30	1.04	0.53	0.53	0.73	0.15	0.60	1.95	0.44	0.45
Avail Cap(c_a), veh/h	278	2464	767	167	1675	840	255	1280	572	335	640	600
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.3	32.3	20.2	38.5	22.5	23.0	48.7	28.0	33.9	47.4	31.6	32.4
Incr Delay (d2), s/veh	0.8	11.0	1.0	79.8	1.2	2.4	16.7	0.3	4.7	440.1	2.2	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	29.7	5.3	9.7	11.1	11.7	7.7	2.4	10.8	52.9	8.1	8.0
LnGrp Delay(d),s/veh	19.1	43.3	21.3	118.5	23.7	25.4	65.4	28.3	38.6	487.5	33.8	34.9
LnGrp LOS	B	D	C	F	C	C	E	C	D	F	C	C
Approach Vol, veh/h		2693			1508			727			1209	
Approach Delay, s/veh		40.5			35.1			42.7			279.5	
Approach LOS		D			D			D			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	67.0		51.0	10.8	68.2		51.0				
Change Period (Y+Rc), s	4.0	* 6.2		6.5	4.0	* 6.2		6.5				
Max Green Setting (Gmax), s	8.0	* 61		44.5	7.5	* 61		44.5				
Max Q Clear Time (g_c+I1), s	10.0	60.3		49.0	5.5	25.7		46.3				
Green Ext Time (p_c), s	0.0	0.5		0.0	0.0	14.7		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			86.5									
HCM 2010 LOS			F									
Notes												

Lanes, Volumes, Timings
 18: Sixth Line & Right In / Right Out

2030 Future Total AM
 Neighbourhood 10



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕↗			↕↕
Traffic Volume (vph)	0	3	1238	12	0	905
Future Volume (vph)	0	3	1238	12	0	905
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.865	0.999			
Flt Protected						
Satd. Flow (prot)	0	1611	3536	0	0	3539
Flt Permitted						
Satd. Flow (perm)	0	1611	3536	0	0	3539
Link Speed (k/h)	50		50			50
Link Distance (m)	92.1		320.1			119.8
Travel Time (s)	6.6		23.0			8.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	3	1346	13	0	984
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	3	1359	0	0	984
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		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		15	25	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	44.6%
Analysis Period (min)	15
	ICU Level of Service A

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕			↕
Traffic Vol, veh/h	0	3	1238	12	0	905
Future Vol, veh/h	0	3	1238	12	0	905
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	3	1346	13	0	984

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	680	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-
Pot Cap-1 Maneuver	0	393	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	-	393	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	393
HCM Lane V/C Ratio	-	-	0.008
HCM Control Delay (s)	-	-	14.2
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0

Lanes, Volumes, Timings
19: Sixth Line & Threshing Mill Boulevard

2030 Future Total AM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	5	6	9	4	7	2	1183	3	2	1384	1
Future Volume (vph)	2	5	6	9	4	7	2	1183	3	2	1384	1
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	75.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			75.0			50.0		
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		0.912			0.900							
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1699	0	1770	1676	0	1770	3539	0	1770	3539	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1699	0	1770	1676	0	1770	3539	0	1770	3539	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		130.9			142.3			842.1			184.0	
Travel Time (s)		9.4			10.2			60.6			13.2	
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)	2	5	7	10	4	8	2	1286	3	2	1504	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	12	0	10	12	0	2	1289	0	2	1505	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
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	52.1%
Analysis Period (min)	15
	ICU Level of Service A

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↵		↵	↵		↵	↵↵		↵	↵↵	
Traffic Vol, veh/h	2	5	6	9	4	7	2	1183	3	2	1384	1
Future Vol, veh/h	2	5	6	9	4	7	2	1183	3	2	1384	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	750	-	-	300	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	5	7	10	4	8	2	1286	3	2	1504	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2158	2802	753	2051	2801	645	1505	0	0	1289	0	0
Stage 1	1509	1509	-	1292	1292	-	-	-	-	-	-	-
Stage 2	649	1293	-	759	1509	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	27	18	352	32	18	415	441	-	-	534	-	-
Stage 1	126	182	-	172	232	-	-	-	-	-	-	-
Stage 2	425	231	-	365	182	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	21	18	352	24	18	415	441	-	-	534	-	-
Mov Cap-2 Maneuver	21	18	-	24	18	-	-	-	-	-	-	-
Stage 1	125	181	-	171	231	-	-	-	-	-	-	-
Stage 2	407	230	-	346	181	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	151.2		165.4		0		0	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	441	-	-	21	37	24	46	534	-	-
HCM Lane V/C Ratio	0.005	-	-	0.104	0.323	0.408	0.26	0.004	-	-
HCM Control Delay (s)	13.2	-	-	195.3	143.2	234.5	108.8	11.8	-	-
HCM Lane LOS	B	-	-	F	F	F	F	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	1.1	1.2	0.9	0	-	-

Lanes, Volumes, Timings
1: Neyagawa Boulevard & William Halton Parkway

2030 Future Total PM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	2227	66	542	2175	57	32	229	373	58	566	31
Future Volume (vph)	31	2227	66	542	2175	57	32	229	373	58	566	31
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	3433	5085	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.063			0.950			0.193			0.562		
Satd. Flow (perm)	117	5085	1583	3433	5085	1583	360	3539	1583	1047	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			58			61			292			58
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		433.0			261.8			285.2			280.3	
Travel Time (s)		31.2			18.8			20.5			20.2	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	33	2369	70	577	2314	61	34	244	397	62	602	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	2369	70	577	2314	61	34	244	397	62	602	33
Enter Blocked Intersection	No	No	No	No	No	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	1	1	1	1	1	1	1	1	1	1	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	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	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
Turn Type	Perm	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2			6	8		8	4		4
Detector Phase	2	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	15.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	40.4	40.4	40.4	11.0	40.4	40.4	37.4	37.4	37.4	37.4	37.4	37.4
Total Split (s)	74.0	74.0	74.0	28.6	102.6	102.6	37.4	37.4	37.4	37.4	37.4	37.4

Lanes, Volumes, Timings
1: Neyagawa Boulevard & William Halton Parkway

2030 Future Total PM
Neighbourhood 10

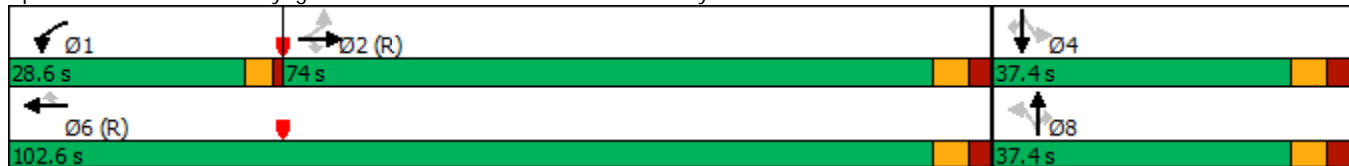


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	52.9%	52.9%	52.9%	20.4%	73.3%	73.3%	26.7%	26.7%	26.7%	26.7%	26.7%	26.7%
Maximum Green (s)	67.6	67.6	67.6	24.6	96.2	96.2	31.0	31.0	31.0	31.0	31.0	31.0
Yellow Time (s)	3.7	3.7	3.7	3.0	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	1.0	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	4.0	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
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	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	None	C-Max	C-Max	Max	Max	Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	27.0	27.0	27.0		27.0	27.0	24.0	24.0	24.0	24.0	24.0	24.0
Pedestrian Calls (#/hr)	0	0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	67.6	67.6	67.6	24.6	96.2	96.2	31.0	31.0	31.0	31.0	31.0	31.0
Actuated g/C Ratio	0.48	0.48	0.48	0.18	0.69	0.69	0.22	0.22	0.22	0.22	0.22	0.22
v/c Ratio	0.59	0.96	0.09	0.96	0.66	0.06	0.43	0.31	0.69	0.27	0.77	0.08
Control Delay	71.5	46.8	6.4	84.3	13.7	1.8	66.1	46.9	20.2	48.9	58.7	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.5	46.8	6.4	84.3	13.7	1.8	66.1	46.9	20.2	48.9	58.7	3.5
LOS	E	D	A	F	B	A	E	D	C	D	E	A
Approach Delay		46.0			27.3			32.1			55.2	
Approach LOS		D			C			C			E	

Intersection Summary
































Area Type: Other
 Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 66 (47%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 130
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.96
 Intersection Signal Delay: 37.4
 Intersection LOS: D
 Intersection Capacity Utilization 106.0%
 ICU Level of Service G
 Analysis Period (min) 15

Splits and Phases: 1: Neyagawa Boulevard & William Halton Parkway



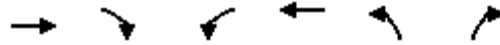
HCM 2010 Signalized Intersection Summary
 1: Neyagawa Boulevard & William Halton Parkway

2030 Future Total PM
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	  			 			 	
Traffic Volume (veh/h)	31	2227	66	542	2175	57	32	229	373	58	566	31
Future Volume (veh/h)	31	2227	66	542	2175	57	32	229	373	58	566	31
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	33	2369	70	577	2314	61	34	244	397	62	602	33
Adj No. of Lanes	1	3	1	2	3	1	1	2	1	1	2	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	114	2455	765	605	3494	1088	100	784	351	180	784	351
Arrive On Green	0.48	0.48	0.48	0.18	0.69	0.69	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	148	5085	1583	3442	5085	1583	789	3539	1583	785	3539	1583
Grp Volume(v), veh/h	33	2369	70	577	2314	61	34	244	397	62	602	33
Grp Sat Flow(s),veh/h/ln	148	1695	1583	1721	1695	1583	789	1770	1583	785	1770	1583
Q Serve(g_s), s	23.1	63.1	3.3	23.2	36.6	1.8	5.9	8.1	31.0	10.0	22.3	2.3
Cycle Q Clear(g_c), s	31.0	63.1	3.3	23.2	36.6	1.8	28.3	8.1	31.0	18.1	22.3	2.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	114	2455	765	605	3494	1088	100	784	351	180	784	351
V/C Ratio(X)	0.29	0.96	0.09	0.95	0.66	0.06	0.34	0.31	1.13	0.34	0.77	0.09
Avail Cap(c_a), veh/h	114	2455	765	605	3494	1088	100	784	351	180	784	351
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.7	35.0	19.6	57.1	12.6	7.1	64.4	45.6	54.5	53.1	51.1	43.3
Incr Delay (d2), s/veh	6.2	11.6	0.2	25.6	1.0	0.1	8.9	1.0	89.0	5.2	7.1	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	32.0	1.5	13.2	17.3	0.8	1.5	4.0	22.2	2.4	11.7	1.1
LnGrp Delay(d),s/veh	35.9	46.6	19.8	82.8	13.6	7.2	73.3	46.6	143.5	58.3	58.3	43.9
LnGrp LOS	D	D	B	F	B	A	E	D	F	E	E	D
Approach Vol, veh/h		2472			2952			675			697	
Approach Delay, s/veh		45.7			27.0			104.9			57.6	
Approach LOS		D			C			F			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	28.6	74.0		37.4		102.6		37.4				
Change Period (Y+Rc), s	4.0	6.4		6.4		6.4		6.4				
Max Green Setting (Gmax), s	24.6	67.6		31.0		96.2		31.0				
Max Q Clear Time (g_c+I1), s	25.2	65.1		24.3		38.6		33.0				
Green Ext Time (p_c), s	0.0	2.4		2.8		42.4		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				44.7								
HCM 2010 LOS				D								

Lanes, Volumes, Timings
2: Burnhamthorpe Road & William Halton Parkway

2030 Future Total PM
Neighbourhood 10



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	2115	237	6	2109	396	4
Future Volume (vph)	2115	237	6	2109	396	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		75.0	75.0		0.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			75.0		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted			0.061		0.950	
Satd. Flow (perm)	3539	1583	114	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		235				4
Link Speed (k/h)	50			50	50	
Link Distance (m)	217.7			610.7	181.6	
Travel Time (s)	15.7			44.0	13.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2299	258	7	2292	430	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2299	258	7	2292	430	4
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)		15	25		25	15
Number of Detectors	1	1	1	1	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	10.0	2.0	2.0	10.0	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.9	22.9	23.5	23.5	23.5	23.5
Total Split (s)	71.0	71.0	71.0	71.0	29.0	29.0

Lanes, Volumes, Timings
 2: Burnhamthorpe Road & William Halton Parkway

2030 Future Total PM
 Neighbourhood 10

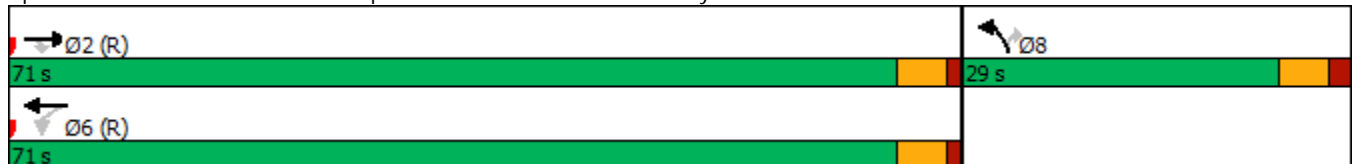


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Total Split (%)	71.0%	71.0%	71.0%	71.0%	29.0%	29.0%
Maximum Green (s)	66.1	66.1	66.1	66.1	23.5	23.5
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.2	1.2	1.2	1.2	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effect Green (s)	66.1	66.1	66.1	66.1	23.5	23.5
Actuated g/C Ratio	0.66	0.66	0.66	0.66	0.24	0.24
v/c Ratio	0.98	0.23	0.09	0.98	1.04	0.01
Control Delay	32.3	1.7	5.3	27.2	92.7	18.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.3	1.7	5.3	27.2	92.7	18.8
LOS	C	A	A	C	F	B
Approach Delay	29.2			27.1		
Approach LOS	C			F		

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	51 (51%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle:	110
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.04
Intersection Signal Delay:	33.5
Intersection LOS:	C
Intersection Capacity Utilization:	89.1%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 2: Burnhamthorpe Road & William Halton Parkway



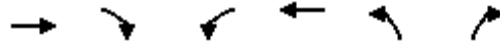
HCM 2010 Signalized Intersection Summary
 2: Burnhamthorpe Road & William Halton Parkway

2030 Future Total PM
 Neighbourhood 10

	→	↘	↙	←	↖	↗		
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑		
Traffic Volume (veh/h)	2115	237	6	2109	396	4		
Future Volume (veh/h)	2115	237	6	2109	396	4		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	2299	258	7	2292	430	4		
Adj No. of Lanes	2	1	1	2	1	1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	2339	1047	76	2339	417	372		
Arrive On Green	0.66	0.66	0.66	0.66	0.23	0.23		
Sat Flow, veh/h	3632	1583	123	3632	1774	1583		
Grp Volume(v), veh/h	2299	258	7	2292	430	4		
Grp Sat Flow(s),veh/h/ln	1770	1583	123	1770	1774	1583		
Q Serve(g_s), s	62.8	6.6	3.3	62.3	23.5	0.2		
Cycle Q Clear(g_c), s	62.8	6.6	66.1	62.3	23.5	0.2		
Prop In Lane		1.00	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	2339	1047	76	2339	417	372		
V/C Ratio(X)	0.98	0.25	0.09	0.98	1.03	0.01		
Avail Cap(c_a), veh/h	2339	1047	76	2339	417	372		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	16.4	6.9	49.1	16.3	38.3	29.3		
Incr Delay (d2), s/veh	15.0	0.6	2.4	14.4	52.4	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	34.9	3.0	0.2	34.6	17.5	0.1		
LnGrp Delay(d),s/veh	31.4	7.4	51.5	30.7	90.6	29.3		
LnGrp LOS	C	A	D	C	F	C		
Approach Vol, veh/h	2557			2299	434			
Approach Delay, s/veh	28.9			30.8	90.1			
Approach LOS	C			C	F			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		71.0				71.0		29.0
Change Period (Y+Rc), s		4.9				4.9		5.5
Max Green Setting (Gmax), s		66.1				66.1		23.5
Max Q Clear Time (g_c+I1), s		64.8				68.1		25.5
Green Ext Time (p_c), s		1.2				0.0		0.0
Intersection Summary								
HCM 2010 Ctrl Delay			34.8					
HCM 2010 LOS			C					

Lanes, Volumes, Timings
4: Access #4 & William Halton Parkway

2030 Future Total PM
Neighbourhood 10



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (vph)	2104	15	15	2106	9	9
Future Volume (vph)	2104	15	15	2106	9	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.999					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3536	0	1770	3539	1770	1583
Flt Permitted			0.059		0.950	
Satd. Flow (perm)	3536	0	110	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	2					10
Link Speed (k/h)	50			50	50	
Link Distance (m)	610.7			274.6	171.9	
Travel Time (s)	44.0			19.8	12.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2287	16	16	2289	10	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2303	0	16	2289	10	10
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)		15	25		25	15
Number of Detectors	1		1	1	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	10.0		2.0	10.0	2.0	2.0
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Detector Phase	2		6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5
Total Split (s)	77.5		77.5	77.5	22.5	22.5
Total Split (%)	77.5%		77.5%	77.5%	22.5%	22.5%
Maximum Green (s)	73.0		73.0	73.0	18.0	18.0
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5

Lanes, Volumes, Timings
 4: Access #4 & William Halton Parkway

2030 Future Total PM
 Neighbourhood 10

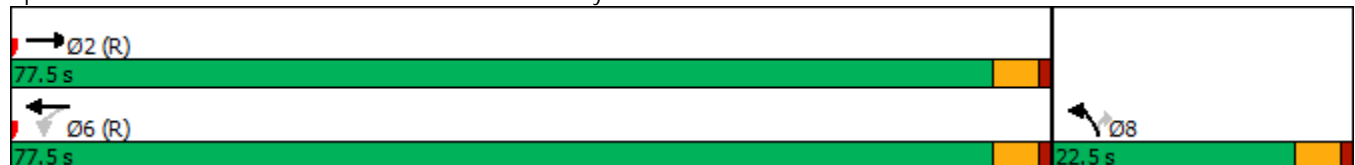













Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.5		-0.5	-0.5	-0.5	0.0
Total Lost Time (s)	4.0		4.0	4.0	4.0	4.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	C-Max		C-Max	C-Max	None	None
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effect Green (s)	93.8		93.8	93.8	6.7	6.2
Actuated g/C Ratio	0.94		0.94	0.94	0.07	0.06
v/c Ratio	0.69		0.16	0.69	0.08	0.09
Control Delay	1.8		4.7	3.1	45.0	25.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	1.8		4.7	3.1	45.0	25.0
LOS	A		A	A	D	C
Approach Delay	1.8			3.1	35.0	
Approach LOS	A			A	C	

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 2.6
 Intersection LOS: A
 Intersection Capacity Utilization 69.9%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 4: Access #4 & William Halton Parkway

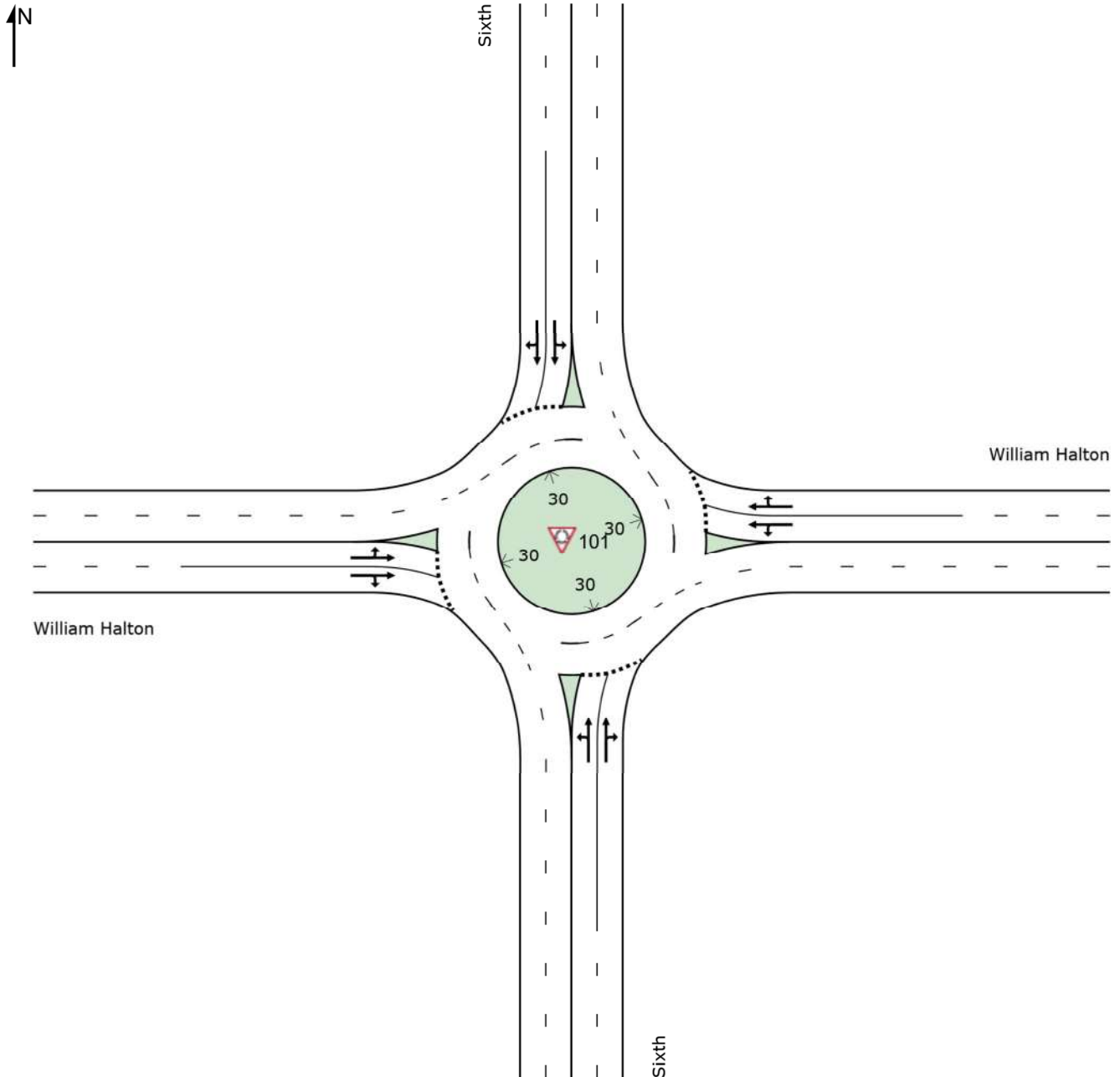


								
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations								
Traffic Volume (veh/h)	2104	15	15	2106	9	9		
Future Volume (veh/h)	2104	15	15	2106	9	9		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1863		
Adj Flow Rate, veh/h	2287	16	16	2289	10	10		
Adj No. of Lanes	2	0	1	2	1	1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	3220	22	143	3163	47	34		
Arrive On Green	0.60	0.60	0.89	0.89	0.03	0.02		
Sat Flow, veh/h	3696	25	159	3632	1774	1583		
Grp Volume(v), veh/h	1122	1181	16	2289	10	10		
Grp Sat Flow(s),veh/h/ln	1770	1858	159	1770	1774	1583		
Q Serve(g_s), s	44.2	44.4	6.2	19.5	0.6	0.6		
Cycle Q Clear(g_c), s	44.2	44.4	50.6	19.5	0.6	0.6		
Prop In Lane		0.01	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	1581	1661	143	3163	47	34		
V/C Ratio(X)	0.71	0.71	0.11	0.72	0.21	0.30		
Avail Cap(c_a), veh/h	1581	1661	143	3163	328	285		
HCM Platoon Ratio	0.67	0.67	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	11.0	11.0	16.8	1.6	47.7	48.2		
Incr Delay (d2), s/veh	2.7	2.6	1.6	1.5	2.3	4.8		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	22.8	24.0	0.3	9.5	0.3	0.3		
LnGrp Delay(d),s/veh	13.7	13.7	18.4	3.1	49.9	53.0		
LnGrp LOS	B	B	B	A	D	D		
Approach Vol, veh/h	2303			2305	20			
Approach Delay, s/veh	13.7			3.2	51.5			
Approach LOS	B			A	D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		93.4				93.4		6.6
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		73.0				73.0		18.0
Max Q Clear Time (g_c+I1), s		46.4				52.6		2.6
Green Ext Time (p_c), s		23.8				18.6		0.0
Intersection Summary								
HCM 2010 Ctrl Delay			8.6					
HCM 2010 LOS			A					

SITE LAYOUT

 Site: 101 [WH & 6th - 2024 AM FB]

New Site
Site Category: (None)
Roundabout



MOVEMENT SUMMARY

 Site: 101 [WH & 6th - 2030 PM Future]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Sixth												
1	L2	81	2.0	1.153	166.6	LOS F	51.7	368.2	1.00	3.40	8.49	16.9
2	T1	1011	2.0	1.153	158.8	LOS F	68.4	486.7	1.00	3.70	9.10	17.1
3	R2	84	2.0	1.153	157.4	LOS F	68.4	486.7	1.00	3.92	9.53	17.0
Approach		1176	2.0	1.153	159.2	LOS F	68.4	486.7	1.00	3.70	9.09	17.1
East: William Halton												
4	L2	198	2.0	1.732	673.3	LOS F	310.5	2210.5	1.00	10.12	27.31	5.2
5	T1	2233	2.0	1.732	666.9	LOS F	385.0	2741.4	1.00	10.98	28.84	5.2
6	R2	102	2.0	1.732	666.5	LOS F	385.0	2741.4	1.00	11.59	29.93	5.1
Approach		2533	2.0	1.732	667.4	LOS F	385.0	2741.4	1.00	10.94	28.76	5.2
North: Sixth												
7	L2	67	2.0	1.094	120.1	LOS F	35.3	251.4	1.00	2.69	6.33	21.4
8	T1	967	2.0	1.094	111.5	LOS F	46.5	330.9	1.00	2.90	6.75	21.8
9	R2	39	2.0	1.094	109.7	LOS F	46.5	330.9	1.00	3.05	7.02	21.7
Approach		1074	2.0	1.094	112.0	LOS F	46.5	330.9	1.00	2.90	6.73	21.7
West: William Halton												
10	L2	39	2.0	1.674	621.9	LOS F	271.2	1931.2	1.00	9.53	26.21	5.6
11	T1	2224	2.0	1.674	615.5	LOS F	342.3	2437.5	1.00	10.37	27.78	5.6
12	R2	76	2.0	1.674	615.0	LOS F	342.3	2437.5	1.00	11.04	29.03	5.5
Approach		2339	2.0	1.674	615.6	LOS F	342.3	2437.5	1.00	10.38	27.79	5.6
All Vehicles		7121	2.0	1.732	482.7	LOS F	385.0	2741.4	1.00	8.35	21.87	6.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Organisation: CGH TRANSPORTATION | Processed: February 22, 2019 10:49:56 AM

Project: C:\Users\AndrewHarte\CGH TRANSPORTATION\CGH Working - Documents\Projects\2018-23 Mattamy Neighbourhood 10\DATA\Sidra WH & 6.sip8

Lanes, Volumes, Timings
6: Trafalgar Road & William Halton Parkway

2030 Future Total PM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖		↖	↖↖		↖	↖↖	
Traffic Volume (vph)	102	2153	62	17	2182	15	90	2185	14	40	1757	108
Future Volume (vph)	102	2153	62	17	2182	15	90	2185	14	40	1757	108
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	180.0		0.0	180.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	75.0			75.0			75.0			75.0		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.996			0.999			0.999			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5065	0	1770	5080	0	1770	3536	0	1770	3507	0
Flt Permitted	0.078			0.086			0.074			0.075		
Satd. Flow (perm)	145	5065	0	160	5080	0	138	3536	0	140	3507	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			1			1			6	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		504.3			487.0			378.3			367.0	
Travel Time (s)		36.3			35.1			27.2			26.4	
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)	111	2340	67	18	2372	16	98	2375	15	43	1910	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	111	2407	0	18	2388	0	98	2390	0	43	2027	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	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2			6		3	8		7	4	
Permitted Phases	2			6			8			4		

Lanes, Volumes, Timings
6: Trafalgar Road & William Halton Parkway

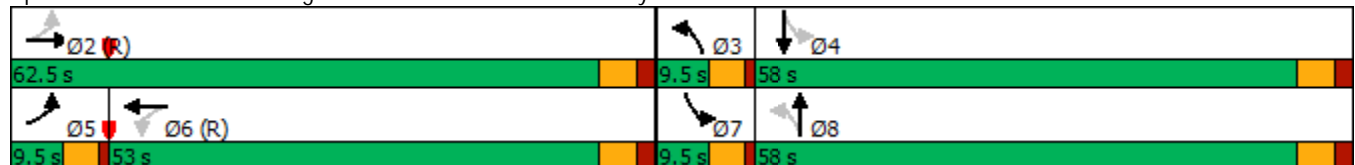
2030 Future Total PM
Neighbourhood 10

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Detector Phase	5	2		6	6		3	8		7	4		
Switch Phase													
Minimum Initial (s)	5.0	10.0		10.0	10.0		5.0	20.0		5.0	20.0		
Minimum Split (s)	9.5	39.6		39.6	39.6		9.5	39.6		9.5	39.6		
Total Split (s)	9.5	62.5		53.0	53.0		9.5	58.0		9.5	58.0		
Total Split (%)	7.3%	48.1%		40.8%	40.8%		7.3%	44.6%		7.3%	44.6%		
Maximum Green (s)	5.0	56.9		47.4	47.4		5.0	52.4		5.0	52.4		
Yellow Time (s)	3.5	3.7		3.7	3.7		3.5	3.7		3.5	3.7		
All-Red Time (s)	1.0	1.9		1.9	1.9		1.0	1.9		1.0	1.9		
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Total Lost Time (s)	4.5	5.6		5.6	5.6		4.5	5.6		4.5	5.6		
Lead/Lag	Lead			Lag			Lead		Lag		Lead		Lag
Lead-Lag Optimize?	Yes			Yes			Yes		Yes		Yes		Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None		
Walk Time (s)		7.0		7.0	7.0			7.0			7.0		
Flash Dont Walk (s)		27.0		27.0	27.0			27.0			27.0		
Pedestrian Calls (#/hr)		0		0	0			0			0		
Act Effect Green (s)	58.0	56.9		47.4	47.4		59.4	54.3		58.5	52.4		
Actuated g/C Ratio	0.45	0.44		0.36	0.36		0.46	0.42		0.45	0.40		
v/c Ratio	0.87	1.08		0.31	1.29		0.78	1.62		0.34	1.43		
Control Delay	78.2	81.9		47.1	169.7		60.2	310.0		25.4	229.3		
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0		
Total Delay	78.2	81.9		47.1	169.7		60.2	310.0		25.4	229.3		
LOS	E	F		D	F		E	F		C	F		
Approach Delay		81.7			168.8			300.1			225.1		
Approach LOS		F			F			F			F		

Intersection Summary





















Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.62
 Intersection Signal Delay: 192.4
 Intersection LOS: F
 Intersection Capacity Utilization 134.1%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 6: Trafalgar Road & William Halton Parkway



HCM 2010 Signalized Intersection Summary
6: Trafalgar Road & William Halton Parkway

2030 Future Total PM
Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	2153	62	17	2182	15	90	2185	14	40	1757	108
Future Volume (veh/h)	102	2153	62	17	2182	15	90	2185	14	40	1757	108
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	111	2340	67	18	2372	16	98	2375	15	43	1910	117
Adj No. of Lanes	1	3	0	1	3	0	1	2	0	1	2	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	124	2225	63	55	1900	13	124	1483	9	109	1367	83
Arrive On Green	0.04	0.44	0.44	0.36	0.36	0.36	0.04	0.41	0.41	0.03	0.40	0.40
Sat Flow, veh/h	1774	5082	145	143	5212	35	1774	3606	23	1774	3390	206
Grp Volume(v), veh/h	111	1558	849	18	1542	846	98	1164	1226	43	988	1039
Grp Sat Flow(s),veh/h/ln	1774	1695	1837	143	1695	1857	1774	1770	1859	1774	1770	1826
Q Serve(g_s), s	5.0	56.9	56.9	0.0	47.4	47.4	4.2	53.5	53.5	1.8	52.4	52.4
Cycle Q Clear(g_c), s	5.0	56.9	56.9	47.4	47.4	47.4	4.2	53.5	53.5	1.8	52.4	52.4
Prop In Lane	1.00		0.08	1.00		0.02	1.00		0.01	1.00		0.11
Lane Grp Cap(c), veh/h	124	1484	804	55	1236	677	124	728	764	109	713	736
V/C Ratio(X)	0.90	1.05	1.06	0.32	1.25	1.25	0.79	1.60	1.60	0.39	1.38	1.41
Avail Cap(c_a), veh/h	124	1484	804	55	1236	677	124	728	764	124	713	736
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.1	36.6	36.6	65.0	41.3	41.3	32.0	38.3	38.3	31.9	38.8	38.8
Incr Delay (d2), s/veh	51.0	37.7	47.6	14.9	118.4	124.2	28.7	276.5	277.7	2.3	181.7	193.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	34.3	39.4	0.9	42.5	47.6	3.1	82.0	86.4	1.0	61.6	65.9
LnGrp Delay(d),s/veh	84.1	74.2	84.1	79.9	159.7	165.5	60.8	314.7	316.0	34.2	220.5	232.2
LnGrp LOS	F	F	F	E	F	F	E	F	F	C	F	F
Approach Vol, veh/h		2518			2406			2488			2070	
Approach Delay, s/veh		78.0			161.1			305.3			222.5	
Approach LOS		E			F			F			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s		62.5	9.5	58.0	9.5	53.0	8.4	59.1				
Change Period (Y+Rc), s		* 5.6	4.5	* 5.6	4.5	* 5.6	4.5	* 5.6				
Max Green Setting (Gmax), s		* 57	5.0	* 52	5.0	* 47	5.0	* 52				
Max Q Clear Time (g_c+I1), s		58.9	6.2	54.4	7.0	49.4	3.8	55.5				
Green Ext Time (p_c), s		0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				190.3								
HCM 2010 LOS				F								
Notes												

Lanes, Volumes, Timings
7: Access #1 & Burnhamthorpe Road

2030 Future Total PM
Neighbourhood 10



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	218	34	6	380	20	6
Future Volume (vph)	218	34	6	380	20	6
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	0.982			0.967		
Flt Protected				0.999	0.963	
Satd. Flow (prot)	1829	0	0	1861	1735	0
Flt Permitted				0.999	0.963	
Satd. Flow (perm)	1829	0	0	1861	1735	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	181.6			137.0	150.8	
Travel Time (s)	13.1			9.9	10.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	237	37	7	413	22	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	274	0	0	420	29	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	34.8%
Analysis Period (min)	15
	ICU Level of Service A

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	218	34	6	380	20	6
Future Vol, veh/h	218	34	6	380	20	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	237	37	7	413	22	7
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	274	0	683	256
Stage 1	-	-	-	-	256	-
Stage 2	-	-	-	-	427	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1289	-	415	783
Stage 1	-	-	-	-	787	-
Stage 2	-	-	-	-	658	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1289	-	412	783
Mov Cap-2 Maneuver	-	-	-	-	412	-
Stage 1	-	-	-	-	781	-
Stage 2	-	-	-	-	658	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0.1	13.3			
HCM LOS			B			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	463	-	-	1289	-	
HCM Lane V/C Ratio	0.061	-	-	0.005	-	
HCM Control Delay (s)	13.3	-	-	7.8	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.2	-	-	0	-	

Lanes, Volumes, Timings
8: Access #2 & Burnhamthorpe Road

2030 Future Total PM
Neighbourhood 10

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	173	32	13	353	5	19	5	7	5	5	9
Future Volume (vph)	15	173	32	13	353	5	19	5	7	5	5	9
Ideal Flow (vphp)	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		0.980			0.998			0.968			0.932	
Flt Protected		0.997			0.998			0.970			0.988	
Satd. Flow (prot)	0	1820	0	0	1855	0	0	1749	0	0	1715	0
Flt Permitted		0.997			0.998			0.970			0.988	
Satd. Flow (perm)	0	1820	0	0	1855	0	0	1749	0	0	1715	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		137.0			214.2			120.1			128.7	
Travel Time (s)		9.9			15.4			8.6			9.3	
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)	16	188	35	14	384	5	21	5	8	5	5	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	239	0	0	403	0	0	34	0	0	20	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	32.7%					ICU Level of Service A						
Analysis Period (min)	15											

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	173	32	13	353	5	19	5	7	5	5	9
Future Vol, veh/h	15	173	32	13	353	5	19	5	7	5	5	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	188	35	14	384	5	21	5	8	5	5	10

















Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	389	0	0	223	0	0	660	655	206	659	670	387
Stage 1	-	-	-	-	-	-	238	238	-	415	415	-
Stage 2	-	-	-	-	-	-	422	417	-	244	255	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1170	-	-	1346	-	-	376	386	835	377	378	661
Stage 1	-	-	-	-	-	-	765	708	-	615	592	-
Stage 2	-	-	-	-	-	-	609	591	-	760	696	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1170	-	-	1346	-	-	358	375	835	361	367	661
Mov Cap-2 Maneuver	-	-	-	-	-	-	358	375	-	361	367	-
Stage 1	-	-	-	-	-	-	753	697	-	605	584	-
Stage 2	-	-	-	-	-	-	587	583	-	735	685	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.6			0.3			14.5			13.2		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	414	1170	-	-	1346	-	-	462
HCM Lane V/C Ratio	0.081	0.014	-	-	0.01	-	-	0.045
HCM Control Delay (s)	14.5	8.1	0	-	7.7	0	-	13.2
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.1

Lanes, Volumes, Timings
9: Access #3 & Burnhamthorpe Road

2030 Future Total PM
Neighbourhood 10

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	70	88	29	298	5	51	5	6	11	5	2
Future Volume (vph)	4	70	88	29	298	5	51	5	6	11	5	2
Ideal Flow (vphp)	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		0.926			0.998			0.986			0.986	
Flt Protected		0.999			0.996			0.961			0.969	
Satd. Flow (prot)	0	1723	0	0	1852	0	0	1765	0	0	1780	0
Flt Permitted		0.999			0.996			0.961			0.969	
Satd. Flow (perm)	0	1723	0	0	1852	0	0	1765	0	0	1780	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		214.2			214.1			129.7			115.6	
Travel Time (s)		15.4			15.4			9.3			8.3	
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)	4	76	96	32	324	5	55	5	7	12	5	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	176	0	0	361	0	0	67	0	0	19	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	41.5%					ICU Level of Service A						
Analysis Period (min)	15											

Intersection

Int Delay, s/veh 2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	70	88	29	298	5	51	5	6	11	5	2
Future Vol, veh/h	4	70	88	29	298	5	51	5	6	11	5	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	76	96	32	324	5	55	5	7	12	5	2

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	329	0	0	172
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.12	-	-	4.12
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.218	-	-	2.218
Pot Cap-1 Maneuver	1231	-	-	1405
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	1231	-	-	1405
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.7	14	13.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	468	1231	-	-	1405	-	-	454
HCM Lane V/C Ratio	0.144	0.004	-	-	0.022	-	-	0.043
HCM Control Delay (s)	14	7.9	0	-	7.6	0	-	13.3
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.5	0	-	-	0.1	-	-	0.1

Lanes, Volumes, Timings
10: Sixth Line & Burnhamthorpe Road

2030 Future Total PM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	51	42	338	206	143	90	915	182	131	953	43
Future Volume (vph)	13	51	42	338	206	143	90	915	182	131	953	43
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		0.0	50.0		40.0	50.0		20.0	60.0		15.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	75.0			75.0			75.0			75.0		
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		0.932			0.939			0.975			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1736	0	1770	1749	0	1770	3451	0	1770	3514	0
Flt Permitted	0.288			0.692			0.211			0.178		
Satd. Flow (perm)	536	1736	0	1289	1749	0	393	3451	0	332	3514	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		44			37			42			8	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		202.3			162.5			126.1			208.3	
Travel Time (s)		14.6			11.7			9.1			15.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	14	54	45	360	219	152	96	973	194	139	1014	46
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	99	0	360	371	0	96	1167	0	139	1060	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	1		1	1		1	1		1	1	
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	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
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	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	29.6	29.6		29.6	29.6		38.1	38.1		38.1	38.1	
Total Split (s)	36.0	36.0		36.0	36.0		64.0	64.0		64.0	64.0	

Lanes, Volumes, Timings
 10: Sixth Line & Burnhamthorpe Road

2030 Future Total PM
 Neighbourhood 10

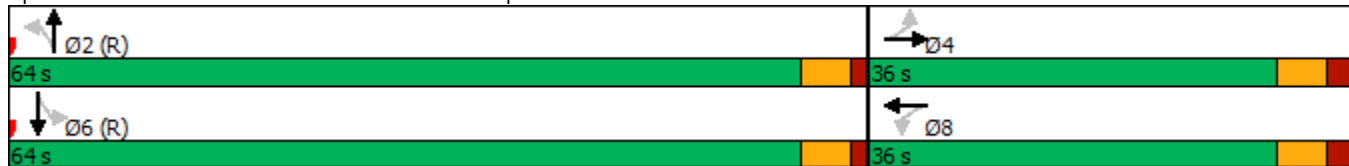


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	36.0%	36.0%		36.0%	36.0%		64.0%	64.0%		64.0%	64.0%	
Maximum Green (s)	30.4	30.4		30.4	30.4		58.9	58.9		58.9	58.9	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.7	3.7		3.7	3.7	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.4	1.4		1.4	1.4	
Lost Time Adjust (s)	-0.7	-1.6		-1.6	-1.6		-1.1	-1.1		-0.7	-1.1	
Total Lost Time (s)	4.9	4.0		4.0	4.0		4.0	4.0		4.4	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	17.0	17.0		17.0	17.0		26.0	26.0		26.0	26.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	29.9	30.8		30.8	30.8		61.2	61.2		60.8	61.2	
Actuated g/C Ratio	0.30	0.31		0.31	0.31		0.61	0.61		0.61	0.61	
v/c Ratio	0.09	0.18		0.91	0.66		0.40	0.55		0.69	0.49	
Control Delay	26.3	15.4		61.3	33.0		16.8	12.3		35.7	11.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.3	15.4		61.3	33.0		16.8	12.3		35.7	11.9	
LOS	C	B		E	C		B	B		D	B	
Approach Delay		16.7			46.9			12.6			14.7	
Approach LOS		B			D			B			B	

Intersection Summary






















Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	88 (88%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle:	75
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.91
Intersection Signal Delay:	21.1
Intersection LOS:	C
Intersection Capacity Utilization:	74.1%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 10: Sixth Line & Burnhamthorpe Road



HCM 2010 Signalized Intersection Summary
 10: Sixth Line & Burnhamthorpe Road

2030 Future Total PM
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	51	42	338	206	143	90	915	182	131	953	43
Future Volume (veh/h)	13	51	42	338	206	143	90	915	182	131	953	43
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	14	54	45	360	219	152	96	973	194	139	1014	46
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	199	301	251	431	328	228	302	1766	352	263	2069	94
Arrive On Green	0.31	0.32	0.30	0.32	0.32	0.32	0.60	0.60	0.60	0.60	0.60	0.60
Sat Flow, veh/h	1007	941	784	1291	1025	712	530	2943	586	479	3448	156
Grp Volume(v), veh/h	14	0	99	360	0	371	96	585	582	139	520	540
Grp Sat Flow(s),veh/h/ln	1007	0	1724	1291	0	1737	530	1770	1759	479	1770	1835
Q Serve(g_s), s	1.2	0.0	4.2	27.8	0.0	18.5	12.5	19.7	19.8	24.6	16.7	16.7
Cycle Q Clear(g_c), s	19.7	0.0	4.2	32.0	0.0	18.5	29.2	19.7	19.8	44.4	16.7	16.7
Prop In Lane	1.00		0.45	1.00		0.41	1.00		0.33	1.00		0.09
Lane Grp Cap(c), veh/h	199	0	552	431	0	556	302	1062	1056	263	1062	1101
V/C Ratio(X)	0.07	0.00	0.18	0.84	0.00	0.67	0.32	0.55	0.55	0.53	0.49	0.49
Avail Cap(c_a), veh/h	199	0	552	431	0	556	302	1062	1056	263	1062	1101
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.7	0.0	24.8	36.1	0.0	29.4	19.6	11.9	12.0	25.5	11.3	11.3
Incr Delay (d2), s/veh	0.1	0.0	0.2	13.3	0.0	3.0	2.8	2.1	2.1	7.4	1.6	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	2.0	11.5	0.0	9.3	2.1	10.2	10.2	3.8	8.6	8.9
LnGrp Delay(d),s/veh	38.8	0.0	25.0	49.4	0.0	32.4	22.4	14.0	14.0	33.0	12.9	12.9
LnGrp LOS	D		C	D		C	C	B	B	C	B	B
Approach Vol, veh/h		113			731			1263			1199	
Approach Delay, s/veh		26.7			40.8			14.7			15.2	
Approach LOS		C			D			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		64.0		36.0		64.0		36.0				
Change Period (Y+Rc), s		* 5.1		* 5.6		* 5.1		* 5.6				
Max Green Setting (Gmax), s		* 59		* 30		* 59		* 30				
Max Q Clear Time (g_c+I1), s		31.2		21.7		46.4		34.0				
Green Ext Time (p_c), s		12.9		0.4		7.6		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				21.1								
HCM 2010 LOS				C								
Notes												

Lanes, Volumes, Timings
 11: Access #8 & Burnhamthorpe Road

2030 Future Total PM
 Neighbourhood 10



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	359	6	3	666	19	2
Future Volume (vph)	359	6	3	666	19	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	30.0		0.0	0.0
Storage Lanes		0	0		1	0
Taper Length (m)			30.0		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998				0.988	
Flt Protected					0.956	
Satd. Flow (prot)	1859	0	0	1863	1759	0
Flt Permitted					0.956	
Satd. Flow (perm)	1859	0	0	1863	1759	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	162.5			162.0	143.2	
Travel Time (s)	11.7			11.7	10.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	390	7	3	724	21	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	397	0	0	727	23	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)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	47.4%
ICU Level of Service	A
Analysis Period (min)	15

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	359	6	3	666	19	2
Future Vol, veh/h	359	6	3	666	19	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	390	7	3	724	21	2

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	397	0	1124 394
Stage 1	-	-	-	-	394 -
Stage 2	-	-	-	-	730 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1162	-	227 655
Stage 1	-	-	-	-	681 -
Stage 2	-	-	-	-	477 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1162	-	226 655
Mov Cap-2 Maneuver	-	-	-	-	226 -
Stage 1	-	-	-	-	678 -
Stage 2	-	-	-	-	477 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0	21.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	241	-	-	1162	-
HCM Lane V/C Ratio	0.095	-	-	0.003	-
HCM Control Delay (s)	21.5	-	-	8.1	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Lanes, Volumes, Timings
12: Access #9 & Burnhamthorpe Road

2030 Future Total PM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	385	9	33	686	15	11	0	19	10	0	4
Future Volume (vph)	6	385	9	33	686	15	11	0	19	10	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	30.0			30.0			7.5			7.5		
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		0.996			0.997			0.850				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1855	0	1770	1857	0	1770	1583	0	1770	1583	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1855	0	1770	1857	0	1770	1583	0	1770	1583	0
Link Speed (k/h)		50			50			50				50
Link Distance (m)		162.0			627.0			156.1				97.7
Travel Time (s)		11.7			45.1			11.2				7.0
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)	7	418	10	36	746	16	12	0	21	11	0	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	428	0	36	762	0	12	21	0	11	4	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
Sign Control		Free			Free			Stop				Stop

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	51.0%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷		↶	↷	
Traffic Vol, veh/h	6	385	9	33	686	15	11	0	19	10	0	4
Future Vol, veh/h	6	385	9	33	686	15	11	0	19	10	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	300	-	-	0	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	418	10	36	746	16	12	0	21	11	0	4

























Major/Minor	Major1		Major2		Minor1			Minor2				
Conflicting Flow All	762	0	0	428	0	0	1265	1271	423	1274	1268	754
Stage 1	-	-	-	-	-	-	437	437	-	826	826	-
Stage 2	-	-	-	-	-	-	828	834	-	448	442	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	850	-	-	1131	-	-	146	168	631	144	168	409
Stage 1	-	-	-	-	-	-	598	579	-	366	387	-
Stage 2	-	-	-	-	-	-	365	383	-	590	576	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	850	-	-	1131	-	-	140	161	631	135	161	409
Mov Cap-2 Maneuver	-	-	-	-	-	-	140	161	-	135	161	-
Stage 1	-	-	-	-	-	-	593	574	-	363	375	-
Stage 2	-	-	-	-	-	-	350	371	-	566	571	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0.1		0.4		19		28.3	
HCM LOS					C		D	

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	140	631	850	-	-	1131	-	-	135	409
HCM Lane V/C Ratio	0.085	0.033	0.008	-	-	0.032	-	-	0.081	0.011
HCM Control Delay (s)	33.1	10.9	9.3	-	-	8.3	-	-	34	13.9
HCM Lane LOS	D	B	A	-	-	A	-	-	D	B
HCM 95th %tile Q(veh)	0.3	0.1	0	-	-	0.1	-	-	0.3	0

Lanes, Volumes, Timings
13: Trafalgar Road & Burnhamthorpe Road

2030 Future Total PM
Neighbourhood 10

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	225	73	123	358	270	188	1842	106	204	1312	153
Future Volume (vph)	83	225	73	123	358	270	188	1842	106	204	1312	153
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		30.0	15.0		30.0	180.0		30.0	180.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	75.0			75.0			75.0			75.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850			0.850			0.850		0.984	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3483	0
Flt Permitted	0.302			0.267			0.077			0.062		
Satd. Flow (perm)	563	1863	1583	497	1863	1583	143	3539	1583	115	3483	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109			143			109		16	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		294.5			414.4			579.3			233.9	
Travel Time (s)		21.2			29.8			41.7			16.8	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	85	230	74	126	365	276	192	1880	108	208	1339	156
Shared Lane Traffic (%)												
Lane Group Flow (vph)	85	230	74	126	365	276	192	1880	108	208	1495	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	1	1	1	1	1	1	1	1	1	1	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
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	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
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	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0	10.0	5.0	20.0	20.0	7.0	20.0	
Minimum Split (s)	24.0	24.0	24.0	9.5	23.8	23.8	9.5	26.0	26.0	11.5	26.0	
Total Split (s)	26.0	26.0	26.0	9.6	35.6	35.6	17.4	67.2	67.2	17.2	67.0	

Lanes, Volumes, Timings
 13: Trafalgar Road & Burnhamthorpe Road

2030 Future Total PM
 Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	21.7%	21.7%	21.7%	8.0%	29.7%	29.7%	14.5%	56.0%	56.0%	14.3%	55.8%	
Maximum Green (s)	20.0	20.0	20.0	5.1	29.8	29.8	12.9	61.2	61.2	12.7	61.0	
Yellow Time (s)	3.7	3.7	3.7	3.5	3.5	3.5	3.5	4.6	4.6	3.5	4.6	
All-Red Time (s)	2.3	2.3	2.3	1.0	2.3	2.3	1.0	1.4	1.4	1.0	1.4	
Lost Time Adjust (s)	-2.0	-2.0	0.0	-1.8	-1.8	0.0	-2.0	-2.0	0.0	0.0	-2.0	
Total Lost Time (s)	4.0	4.0	6.0	2.7	4.0	5.8	2.5	4.0	6.0	4.5	4.0	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0		11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0	0		0	0		0	0		0	
Act Effct Green (s)	20.7	20.7	18.7	31.6	30.3	28.5	79.4	65.2	63.2	78.1	66.6	
Actuated g/C Ratio	0.17	0.17	0.16	0.26	0.25	0.24	0.66	0.54	0.53	0.65	0.56	
v/c Ratio	0.88	0.72	0.22	0.62	0.78	0.57	0.72	0.98	0.12	0.86	0.77	
Control Delay	112.4	60.0	4.4	49.3	54.0	23.6	38.2	43.7	3.1	61.6	24.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	112.4	60.0	4.4	49.3	54.0	23.6	38.2	43.7	3.1	61.6	24.8	
LOS	F	E	A	D	D	C	D	D	A	E	C	
Approach Delay		60.9			42.3			41.2			29.3	
Approach LOS		E			D			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: Actuated-Coordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 38.9
 Intersection LOS: D
 Intersection Capacity Utilization 103.1%
 ICU Level of Service G
 Analysis Period (min) 15

Splits and Phases: 13: Trafalgar Road & Burnhamthorpe Road



HCM 2010 Signalized Intersection Summary
 13: Trafalgar Road & Burnhamthorpe Road

2030 Future Total PM
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	225	73	123	358	270	188	1842	106	204	1312	153
Future Volume (veh/h)	83	225	73	123	358	270	188	1842	106	204	1312	153
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	85	230	74	126	365	276	192	1880	108	208	1339	156
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	1	2	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	125	342	264	233	487	391	294	1889	819	235	1811	210
Arrive On Green	0.18	0.18	0.17	0.06	0.26	0.25	0.08	0.53	0.52	0.10	0.57	0.55
Sat Flow, veh/h	785	1863	1583	1774	1863	1583	1774	3539	1583	1774	3197	370
Grp Volume(v), veh/h	85	230	74	126	365	276	192	1880	108	208	738	757
Grp Sat Flow(s),veh/h/ln	785	1863	1583	1774	1863	1583	1774	1770	1583	1774	1770	1797
Q Serve(g_s), s	10.0	13.8	4.9	6.8	21.6	19.1	5.6	63.4	4.2	9.8	37.2	38.0
Cycle Q Clear(g_c), s	22.0	13.8	4.9	6.8	21.6	19.1	5.6	63.4	4.2	9.8	37.2	38.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	125	342	264	233	487	391	294	1889	819	235	1003	1018
V/C Ratio(X)	0.68	0.67	0.28	0.54	0.75	0.71	0.65	0.99	0.13	0.89	0.74	0.74
Avail Cap(c_a), veh/h	125	342	264	233	491	393	368	1889	819	248	1003	1018
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.1	45.7	43.7	36.9	40.7	41.2	20.2	27.8	15.0	38.9	19.3	19.7
Incr Delay (d2), s/veh	13.6	5.1	0.6	2.5	6.2	5.7	2.8	19.6	0.3	28.5	4.8	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	7.6	2.2	3.5	12.0	9.0	3.6	35.9	1.9	8.6	19.4	20.1
LnGrp Delay(d),s/veh	69.8	50.8	44.3	39.4	46.9	46.9	23.0	47.4	15.3	67.3	24.1	24.6
LnGrp LOS	E	D	D	D	D	D	C	D	B	E	C	C
Approach Vol, veh/h		389			767			2180			1703	
Approach Delay, s/veh		53.7			45.7			43.6			29.6	
Approach LOS		D			D			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	16.3	68.1	9.6	26.0	12.4	72.0		35.6				
Change Period (Y+Rc), s	4.5	* 6	4.5	6.0	4.5	* 6		* 6				
Max Green Setting (Gmax), s	12.7	* 61	5.1	20.0	12.9	* 61		* 30				
Max Q Clear Time (g_c+I1), s	11.8	65.4	8.8	24.0	7.6	40.0		23.6				
Green Ext Time (p_c), s	0.1	0.0	0.0	0.0	0.3	13.1		2.1				
Intersection Summary												
HCM 2010 Ctrl Delay			40.0									
HCM 2010 LOS			D									
Notes												

Lanes, Volumes, Timings
 14: Sixth Line & Access #5/Settlers Road

2030 Future Total PM
 Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	5	25	53	5	13	44	1128	90	22	1229	11
Future Volume (vph)	6	5	25	53	5	13	44	1128	90	22	1229	11
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	75.0		0.0	75.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			75.0			75.0		
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		0.873			0.889			0.989			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1626	0	1770	1656	0	1770	3500	0	1770	3536	0
Flt Permitted	0.745			0.736			0.177			0.183		
Satd. Flow (perm)	1388	1626	0	1371	1656	0	330	3500	0	341	3536	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			14			13			1	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		149.3			138.8			436.9			313.8	
Travel Time (s)		10.7			10.0			31.5			22.6	
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)	7	5	27	58	5	14	48	1226	98	24	1336	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	32	0	58	19	0	48	1324	0	24	1348	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	1		1	1	
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	10.0		2.0	10.0	
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							
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	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings
 14: Sixth Line & Access #5/Settlers Road

2030 Future Total PM
 Neighbourhood 10

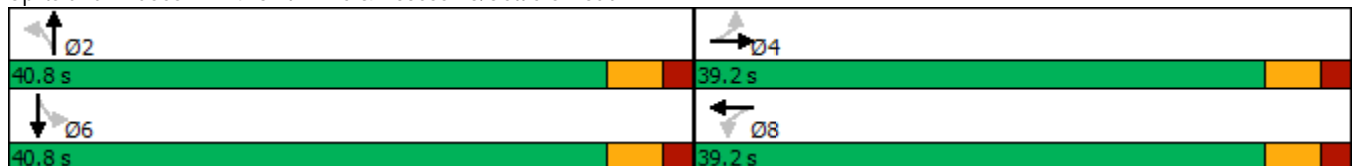


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	33.2	33.2		39.2	39.2		33.2	33.2		39.2	39.2	
Total Split (s)	39.2	39.2		39.2	39.2		40.8	40.8		40.8	40.8	
Total Split (%)	49.0%	49.0%		49.0%	49.0%		51.0%	51.0%		51.0%	51.0%	
Maximum Green (s)	34.0	34.0		34.0	34.0		35.6	35.6		35.6	35.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.9	1.9		1.9	1.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2		5.2	5.2		5.2	5.2	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		27.0	27.0		21.0	21.0		27.0	27.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	10.1	10.1		10.1	10.1		45.8	45.8		45.8	45.8	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.79	0.79		0.79	0.79	
v/c Ratio	0.03	0.11		0.24	0.06		0.18	0.48		0.09	0.48	
Control Delay	20.0	14.1		23.7	13.1		6.3	4.9		5.0	4.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.0	14.1		23.7	13.1		6.3	4.9		5.0	4.9	
LOS	B	B		C	B		A	A		A	A	
Approach Delay		15.2			21.1			4.9			4.9	
Approach LOS		B			C			A			A	

Intersection Summary





















Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	57.9
Natural Cycle:	80
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.48
Intersection Signal Delay:	5.5
Intersection LOS:	A
Intersection Capacity Utilization:	54.8%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 14: Sixth Line & Access #5/Settlers Road



HCM 2010 Signalized Intersection Summary
 14: Sixth Line & Access #5/Settlers Road

2030 Future Total PM
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	5	25	53	5	13	44	1128	90	22	1229	11
Future Volume (veh/h)	6	5	25	53	5	13	44	1128	90	22	1229	11
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	7	5	27	58	5	14	48	1226	98	24	1336	12
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	330	39	208	318	66	185	315	2179	174	320	2358	21
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.66	0.66	0.66	0.66	0.66	0.66
Sat Flow, veh/h	1388	253	1368	1372	434	1215	403	3321	265	413	3594	32
Grp Volume(v), veh/h	7	0	32	58	0	19	48	652	672	24	658	690
Grp Sat Flow(s),veh/h/ln	1388	0	1621	1372	0	1648	403	1770	1816	413	1770	1857
Q Serve(g_s), s	0.2	0.0	0.9	2.1	0.0	0.5	4.0	10.9	11.0	1.8	11.0	11.0
Cycle Q Clear(g_c), s	0.8	0.0	0.9	3.0	0.0	0.5	15.1	10.9	11.0	12.8	11.0	11.0
Prop In Lane	1.00		0.84	1.00		0.74	1.00		0.15	1.00		0.02
Lane Grp Cap(c), veh/h	330	0	247	318	0	251	315	1161	1191	320	1161	1218
V/C Ratio(X)	0.02	0.00	0.13	0.18	0.00	0.08	0.15	0.56	0.56	0.07	0.57	0.57
Avail Cap(c_a), veh/h	989	0	1016	969	0	1033	315	1161	1191	320	1161	1218
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.1	0.0	19.9	21.2	0.0	19.7	9.2	5.1	5.1	8.6	5.1	5.1
Incr Delay (d2), s/veh	0.0	0.0	0.2	0.3	0.0	0.1	1.0	2.0	1.9	0.5	2.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.4	0.8	0.0	0.3	0.5	5.9	6.1	0.2	5.9	6.2
LnGrp Delay(d),s/veh	20.1	0.0	20.1	21.5	0.0	19.9	10.3	7.1	7.0	9.0	7.1	7.0
LnGrp LOS	C		C	C		B	B	A	A	A	A	A
Approach Vol, veh/h		39			77			1372			1372	
Approach Delay, s/veh		20.1			21.1			7.1			7.1	
Approach LOS		C			C			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		40.8		13.5		40.8		13.5				
Change Period (Y+Rc), s		* 5.2		* 5.2		* 5.2		* 5.2				
Max Green Setting (Gmax), s		* 36		* 34		* 36		* 34				
Max Q Clear Time (g_c+I1), s		17.1		2.9		14.8		5.0				
Green Ext Time (p_c), s		11.1		0.2		11.8		0.3				
Intersection Summary												
HCM 2010 Ctrl Delay				7.7								
HCM 2010 LOS				A								
Notes												

Lanes, Volumes, Timings
15: Sixth Line & Access #6/Marvin Avenue

2030 Future Total PM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	5	121	87	5	29	203	1250	147	61	1178	85
Future Volume (vph)	50	5	121	87	5	29	203	1250	147	61	1178	85
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	30.0		50.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			50.0			50.0		
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		0.855			0.870			0.984			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1593	0	1770	1621	0	1770	3483	0	1770	3504	0
Flt Permitted	0.733			0.669			0.163			0.131		
Satd. Flow (perm)	1365	1593	0	1246	1621	0	304	3483	0	244	3504	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		28			22			19			11	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		121.7			108.4			226.5			436.9	
Travel Time (s)		8.8			7.8			16.3			31.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	5	132	95	5	32	221	1359	160	66	1280	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	54	137	0	95	37	0	221	1519	0	66	1372	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	1		1	1	
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	10.0		2.0	10.0	
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							
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	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

Lanes, Volumes, Timings
 15: Sixth Line & Access #6/Marvin Avenue

2030 Future Total PM
 Neighbourhood 10

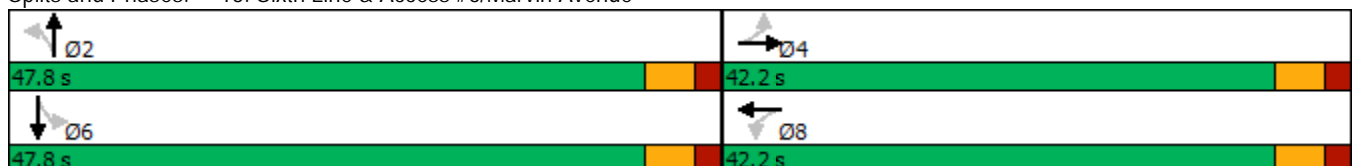


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	33.2	33.2		39.2	39.2		33.2	33.2		39.2	39.2	
Total Split (s)	42.2	42.2		42.2	42.2		47.8	47.8		47.8	47.8	
Total Split (%)	46.9%	46.9%		46.9%	46.9%		53.1%	53.1%		53.1%	53.1%	
Maximum Green (s)	37.0	37.0		37.0	37.0		42.6	42.6		42.6	42.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9		1.9	1.9		1.9	1.9		1.9	1.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.2	5.2		5.2	5.2		5.2	5.2		5.2	5.2	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		27.0	27.0		21.0	21.0		27.0	27.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	11.2	11.2		11.2	11.2		46.8	46.8		46.8	46.8	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.73	0.73		0.73	0.73	
v/c Ratio	0.23	0.46		0.44	0.12		1.00	0.60		0.37	0.54	
Control Delay	25.2	24.1		30.5	14.4		82.0	7.2		13.6	6.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	25.2	24.1		30.5	14.4		82.0	7.2		13.6	6.5	
LOS	C	C		C	B		F	A		B	A	
Approach Delay		24.4			26.0			16.7			6.8	
Approach LOS		C			C			B			A	

Intersection Summary






















Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	64.2
Natural Cycle:	150
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	1.00
Intersection Signal Delay:	13.4
Intersection LOS:	B
Intersection Capacity Utilization:	89.9%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 15: Sixth Line & Access #6/Marvin Avenue

























HCM 2010 Signalized Intersection Summary
 15: Sixth Line & Access #6/Marvin Avenue

2030 Future Total PM
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	5	121	87	5	29	203	1250	147	61	1178	85
Future Volume (veh/h)	50	5	121	87	5	29	203	1250	147	61	1178	85
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	54	5	132	95	5	32	221	1359	160	66	1280	92
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	343	11	291	251	41	265	282	2080	243	244	2182	157
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.65	0.65	0.65	0.65	0.65	0.65
Sat Flow, veh/h	1365	58	1534	1247	218	1398	394	3193	374	342	3350	240
Grp Volume(v), veh/h	54	0	137	95	0	37	221	749	770	66	675	697
Grp Sat Flow(s),veh/h/ln	1365	0	1592	1247	0	1616	394	1770	1797	342	1770	1820
Q Serve(g_s), s	2.2	0.0	5.0	4.8	0.0	1.2	28.5	16.7	17.1	9.5	14.1	14.1
Cycle Q Clear(g_c), s	3.5	0.0	5.0	9.8	0.0	1.2	42.6	16.7	17.1	26.6	14.1	14.1
Prop In Lane	1.00		0.96	1.00		0.86	1.00		0.21	1.00		0.13
Lane Grp Cap(c), veh/h	343	0	302	251	0	306	282	1153	1171	244	1153	1186
V/C Ratio(X)	0.16	0.00	0.45	0.38	0.00	0.12	0.78	0.65	0.66	0.27	0.59	0.59
Avail Cap(c_a), veh/h	857	0	901	721	0	914	282	1153	1171	244	1153	1186
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.4	0.0	23.5	27.8	0.0	22.0	21.7	6.9	6.9	15.1	6.4	6.4
Incr Delay (d2), s/veh	0.2	0.0	1.1	0.9	0.0	0.2	19.4	2.8	2.9	2.7	2.2	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	2.3	1.7	0.0	0.6	5.4	8.8	9.3	1.1	7.4	7.7
LnGrp Delay(d),s/veh	23.6	0.0	24.6	28.8	0.0	22.2	41.1	9.7	9.8	17.8	8.6	8.6
LnGrp LOS	C		C	C		C	D	A	A	B	A	A
Approach Vol, veh/h		191			132			1740			1438	
Approach Delay, s/veh		24.3			26.9			13.8			9.0	
Approach LOS		C			C			B			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		47.8		17.6		47.8		17.6				
Change Period (Y+Rc), s		* 5.2		* 5.2		* 5.2		* 5.2				
Max Green Setting (Gmax), s		* 43		* 37		* 43		* 37				
Max Q Clear Time (g_c+I1), s		44.6		7.0		28.6		11.8				
Green Ext Time (p_c), s		0.0		1.3		9.7		0.7				
Intersection Summary												
HCM 2010 Ctrl Delay				12.9								
HCM 2010 LOS				B								
Notes												

Lanes, Volumes, Timings
 16: Sixth Line & Access #7/Carnegie Drive

2030 Future Total PM
 Neighbourhood 10

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	5	7	6	5	6	11	1598	2	3	1384	2
Future Volume (vph)	1	5	7	6	5	6	11	1598	2	3	1384	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		0.0	30.0		0.0	75.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			50.0			75.0		
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		0.908			0.912							
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1691	0	1770	1699	0	1770	3539	0	1770	3539	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1691	0	1770	1699	0	1770	3539	0	1770	3539	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		113.1			125.7			173.3			226.5	
Travel Time (s)		8.1			9.1			12.5			16.3	
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)	1	5	8	7	5	7	12	1737	2	3	1504	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	13	0	7	12	0	12	1739	0	3	1506	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
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	55.9%
ICU Level of Service	B
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕		↖	↕	
Traffic Vol, veh/h	1	5	7	6	5	6	11	1598	2	3	1384	2
Future Vol, veh/h	1	5	7	6	5	6	11	1598	2	3	1384	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	300	-	-	750	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	5	8	7	5	7	12	1737	2	3	1504	2

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2406	3274	753	2523	3274	870	1506	0	0	1739	0	0
Stage 1	1511	1511	-	1762	1762	-	-	-	-	-	-	-
Stage 2	895	1763	-	761	1512	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	17	9	352	14	9	295	441	-	-	358	-	-
Stage 1	126	181	-	87	136	-	-	-	-	-	-	-
Stage 2	302	136	-	364	181	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	8	9	352	7	9	295	441	-	-	358	-	-
Mov Cap-2 Maneuver	8	9	-	7	9	-	-	-	-	-	-	-
Stage 1	123	180	-	85	132	-	-	-	-	-	-	-
Stage 2	275	132	-	342	180	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s\$	340.7	\$ 573	0.1	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	441	-	-	8	21	7	19	358	-	-
HCM Lane V/C Ratio	0.027	-	-	0.136	0.621	0.932	0.629	0.009	-	-
HCM Control Delay (s)	13.4	-	-	\$ 516.1	\$ 326.1	\$ 968.5	\$ 357.3	15.1	-	-
HCM Lane LOS	B	-	-	F	F	F	F	C	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	1.8	1.5	1.7	0	-	-

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lanes, Volumes, Timings
17: Sixth Line & Dundas Street

2030 Future Total PM
Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	201	1588	185	232	2549	546	219	385	224	421	221	137
Future Volume (vph)	201	1588	185	232	2549	546	219	385	224	421	221	137
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	130.0		80.0	35.0		0.0	80.0		0.0	45.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	75.0			75.0			75.0			75.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.974				0.850		0.943	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	1770	4953	0	1770	3539	1583	1770	3337	0
Flt Permitted	0.065			0.071			0.455			0.428		
Satd. Flow (perm)	121	5085	1583	132	4953	0	848	3539	1583	797	3337	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			170		57				231		100	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		409.7			323.7			341.1			852.7	
Travel Time (s)		29.5			23.3			24.6			61.4	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	207	1637	191	239	2628	563	226	397	231	434	228	141
Shared Lane Traffic (%)												
Lane Group Flow (vph)	207	1637	191	239	3191	0	226	397	231	434	369	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	1	1	1	1		1	1	1	1	1	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0	2.0	10.0	
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	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8				4
Permitted Phases	2		2	6			8		8	4		
Detector Phase	5	2	2	1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	11.5	37.2	37.2	11.5	34.2		40.5	40.5	40.5	40.5	40.5	
Total Split (s)	11.6	62.0	62.0	26.8	77.2		41.2	41.2	41.2	41.2	41.2	

Lanes, Volumes, Timings
17: Sixth Line & Dundas Street

2030 Future Total PM
Neighbourhood 10

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	8.9%	47.7%	47.7%	20.6%	59.4%		31.7%	31.7%	31.7%	31.7%	31.7%	
Maximum Green (s)	7.6	55.8	55.8	22.8	71.0		34.7	34.7	34.7	34.7	34.7	
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	1.0	2.5	2.5	1.0	2.5		2.8	2.8	2.8	2.8	2.8	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.2	6.2	4.0	6.2		6.5	6.5	6.5	6.5	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?	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	C-Max	C-Max	None	C-Max		Max	Max	Max	Max	Max	
Walk Time (s)		7.0	7.0		7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		24.0	24.0		21.0		27.0	27.0	27.0	27.0	27.0	
Pedestrian Calls (#/hr)		0	0		0		0	0	0	0	0	
Act Effct Green (s)	71.2	61.4	61.4	84.5	71.0		34.7	34.7	34.7	34.7	34.7	
Actuated g/C Ratio	0.55	0.47	0.47	0.65	0.55		0.27	0.27	0.27	0.27	0.27	
v/c Ratio	1.28	0.68	0.23	0.79	1.17		1.00	0.42	0.39	2.05	0.38	
Control Delay	192.2	29.2	5.1	48.2	108.8		107.8	41.0	6.6	513.6	29.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	192.2	29.2	5.1	48.2	108.8		107.8	41.0	6.6	513.6	29.2	
LOS	F	C	A	D	F		F	D	A	F	C	
Approach Delay		43.5			104.6			49.4			291.0	
Approach LOS		D			F			D			F	

Intersection Summary
























Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 140
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 2.05
 Intersection Signal Delay: 101.6 Intersection LOS: F
 Intersection Capacity Utilization 125.9% ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 17: Sixth Line & Dundas Street














HCM 2010 Signalized Intersection Summary
 17: Sixth Line & Dundas Street

2030 Future Total PM
 Neighbourhood 10

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	201	1588	185	232	2549	546	219	385	224	421	221	137
Future Volume (veh/h)	201	1588	185	232	2549	546	219	385	224	421	221	137
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	207	1637	191	239	2628	563	226	397	231	434	228	141
Adj No. of Lanes	1	3	1	1	3	0	1	2	1	1	2	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	159	2658	828	276	2321	465	232	945	423	194	570	339
Arrive On Green	0.06	0.52	0.52	0.08	0.55	0.55	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1774	5085	1583	1774	4251	852	1009	3539	1583	795	2137	1271
Grp Volume(v), veh/h	207	1637	191	239	2059	1132	226	397	231	434	187	182
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1712	1009	1770	1583	795	1770	1638
Q Serve(g_s), s	7.6	29.5	8.5	7.8	71.0	71.0	22.8	12.0	16.3	22.7	11.3	11.9
Cycle Q Clear(g_c), s	7.6	29.5	8.5	7.8	71.0	71.0	34.7	12.0	16.3	34.7	11.3	11.9
Prop In Lane	1.00		1.00	1.00		0.50	1.00		1.00	1.00		0.78
Lane Grp Cap(c), veh/h	159	2658	828	276	1852	935	232	945	423	194	472	437
V/C Ratio(X)	1.30	0.62	0.23	0.87	1.11	1.21	0.97	0.42	0.55	2.24	0.40	0.42
Avail Cap(c_a), veh/h	159	2658	828	442	1852	935	232	945	423	194	472	437
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.9	21.8	16.8	23.5	29.5	29.5	56.1	39.3	40.9	56.9	39.1	39.3
Incr Delay (d2), s/veh	173.6	1.1	0.7	10.2	58.8	104.5	52.3	1.4	5.0	573.7	2.5	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.4	14.1	3.9	5.4	48.0	60.4	11.5	6.1	7.7	37.8	5.8	5.8
LnGrp Delay(d),s/veh	214.6	22.9	17.5	33.7	88.3	134.0	108.4	40.7	45.9	630.6	41.5	42.2
LnGrp LOS	F	C	B	C	F	F	F	D	D	F	D	D
Approach Vol, veh/h		2035			3430			854			803	
Approach Delay, s/veh		41.9			99.6			60.0			360.0	
Approach LOS		D			F			E			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.6	74.2		41.2	11.6	77.2		41.2				
Change Period (Y+Rc), s	4.0	* 6.2		6.5	4.0	* 6.2		6.5				
Max Green Setting (Gmax), s	22.8	* 56		34.7	7.6	* 71		34.7				
Max Q Clear Time (g_c+I1), s	9.8	31.5		36.7	9.6	73.0		36.7				
Green Ext Time (p_c), s	0.8	16.6		0.0	0.0	0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				107.7								
HCM 2010 LOS				F								
Notes												

Lanes, Volumes, Timings
18: Sixth Line

2030 Future Total PM
Neighbourhood 10

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	0	2	1108	38	0	1262
Future Volume (vph)	0	2	1108	38	0	1262
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Fr _t		0.865	0.995			
Fl _t Protected						
Satd. Flow (prot)	0	1611	3522	0	0	3539
Fl _t Permitted						
Satd. Flow (perm)	0	1611	3522	0	0	3539
Link Speed (k/h)	50		50			50
Link Distance (m)	89.3		313.8			126.1
Travel Time (s)	6.4		22.6			9.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2	1204	41	0	1372
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2	1245	0	0	1372
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		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		15	25	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	41.8%		ICU Level of Service A			
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕			↕
Traffic Vol, veh/h	0	2	1108	38	0	1262
Future Vol, veh/h	0	2	1108	38	0	1262
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	2	1204	41	0	1372

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	623	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.94	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.32	-
Pot Cap-1 Maneuver	0	429	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	-	429	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	429
HCM Lane V/C Ratio	-	-	0.005
HCM Control Delay (s)	-	-	13.4
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0

Lanes, Volumes, Timings
 19: Sixth Line & Threshing Mill Boulevard

2030 Future Total PM
 Neighbourhood 10



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	5	4	5	3	4	6	1512	9	7	1349	2
Future Volume (vph)	1	5	4	5	3	4	6	1512	9	7	1349	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		0.0	75.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			75.0			50.0		
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		0.933			0.914			0.999				
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1738	0	1770	1703	0	1770	3536	0	1770	3539	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1738	0	1770	1703	0	1770	3536	0	1770	3539	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		108.5			127.4			852.7			173.3	
Travel Time (s)		7.8			9.2			61.4			12.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	5	4	5	3	4	7	1643	10	8	1466	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	9	0	5	7	0	7	1653	0	8	1468	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
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	52.9%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕		↖	↕	
Traffic Vol, veh/h	1	5	4	5	3	4	6	1512	9	7	1349	2
Future Vol, veh/h	1	5	4	5	3	4	6	1512	9	7	1349	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	750	-	-	300	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	5	4	5	3	4	7	1643	10	8	1466	2

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2320	3150	734	2414	3146	827	1468	0	0	1653	0	0
Stage 1	1483	1483	-	1662	1662	-	-	-	-	-	-	-
Stage 2	837	1667	-	752	1484	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	20	11	363	17	11	315	456	-	-	386	-	-
Stage 1	131	187	-	101	153	-	-	-	-	-	-	-
Stage 2	327	152	-	368	187	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	15	11	363	10	11	315	456	-	-	386	-	-
Mov Cap-2 Maneuver	15	11	-	10	11	-	-	-	-	-	-	-
Stage 1	129	183	-	99	151	-	-	-	-	-	-	-
Stage 2	311	150	-	345	183	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	315.7		358.4		0.1		0.1	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	456	-	-	15	19	10	25	386	-	-
HCM Lane V/C Ratio	0.014	-	-	0.072	0.515	0.543	0.304	0.02	-	-
HCM Control Delay (s)	13	-	-	263	321.6	576.3	202.8	14.5	-	-
HCM Lane LOS	B	-	-	F	F	F	F	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	1.4	1.2	0.9	0.1	-	-

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon