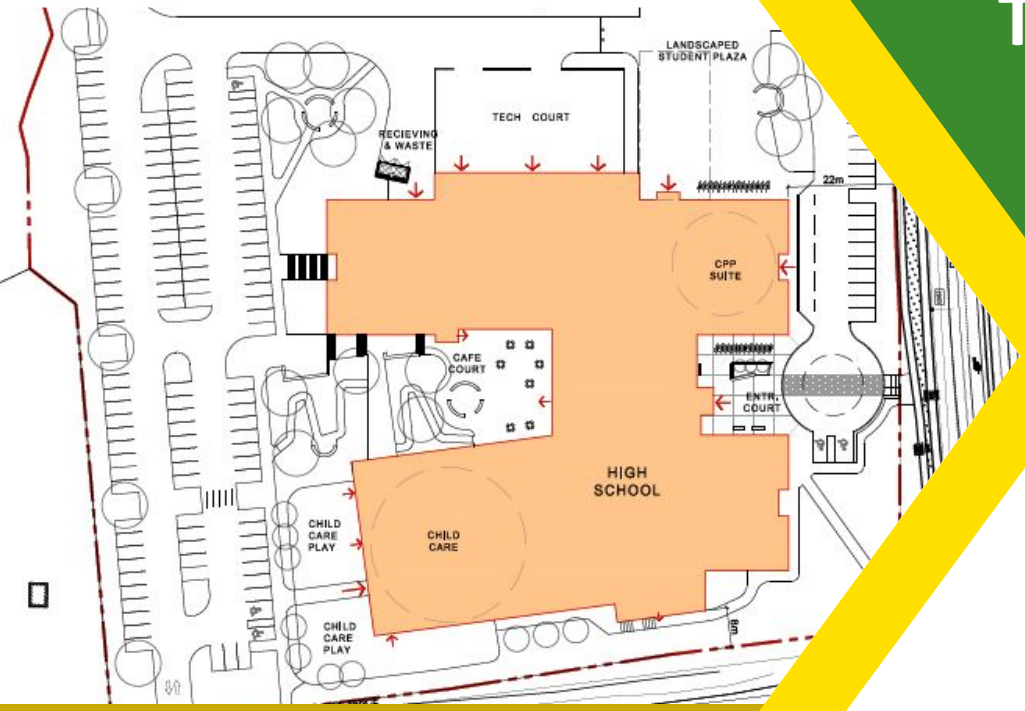
Sixth Oak Inc.

North Oakville School & Commercial Development



Transportation Impact Study

CGH TRANSPORTATION

Sixth Oak Inc. School and Employment Lands
Transportation Impact Study

Prepared for:

Sixth Oak Inc.
145 Reynolds Street, Suite 400
Oakville, ON L6J 0A7

Prepared by:

CGH TRANSPORTATION

628 Haines Road
Newmarket, ON L3Y 6V5

June 2022

PN: 2021-113

Table of Contents

List of Figures

List of Tables

List of Appendices

1 Introduction

This Transportation Impact Study (TIS) has been prepared to support the official plan amendment, zoning by-law amendment and draft plan of subdivision applications for Sixth Oak Inc. properties in North Oakville. The proposed development includes two blocks and a large natural heritage area. Block 1 is designated for employment lands. The site is anticipated to be able to accommodate one or more single storey employment buildings with a total gross floor area of 281,600 square feet. Block 2 is proposed to include a secondary school. The secondary school is comprised of 80 classrooms sufficient to support 1614 students, and an 8,000 square feet childcare facility.

The school and childcare centre will be located at the northwest corner of the intersection of Burnhamthorpe Road and Sixth Line and have accesses on both, while the single-storey employment lands will be located along the south side of William Halton Parkway. Access to the employment lands will be guided by the Halton Region Access Management Guidelines. The developments are surrounded by residential developments such as those proposed as part of Neighbourhood 9, 10, and 11. Figure 1 illustrates the site context. Figure 2 illustrates the proposed development demonstration plan. Figure 3 illustrates the detailed site plan for the proposed secondary school. Please note that this demonstration plan has been prepared to support the official plan and zoning bylaw amendment and draft plan of subdivision process and that each of Block 1 and Block 2 would be subject to a subsequent site plan approval process that will further refine the plans for each site. The intent and goal of this study is to evaluate the access locations and network adequacy. Commentary will be provided on some site design aspects, but this is subject to change at a later stage of development approvals.

The site currently resides within an Existing Development (ED) zone. It is located next to other existing development zones to its west and south, and a neighbourhood Centre (NC), a general urban (GU), and a service area employment (SA) zone on the east side of Sixth Line.

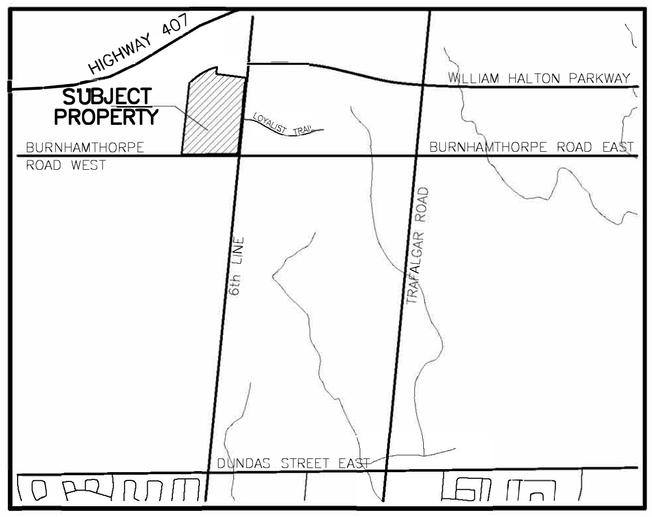
The scope of this TIS has been confirmed with transportation staff from the Town of Oakville and Halton Region. Email correspondence has been included in Appendix A. Comments from the Town received on March 25, 2022, on the first submission are also included in Appendix A.

Figure 1: Site Context

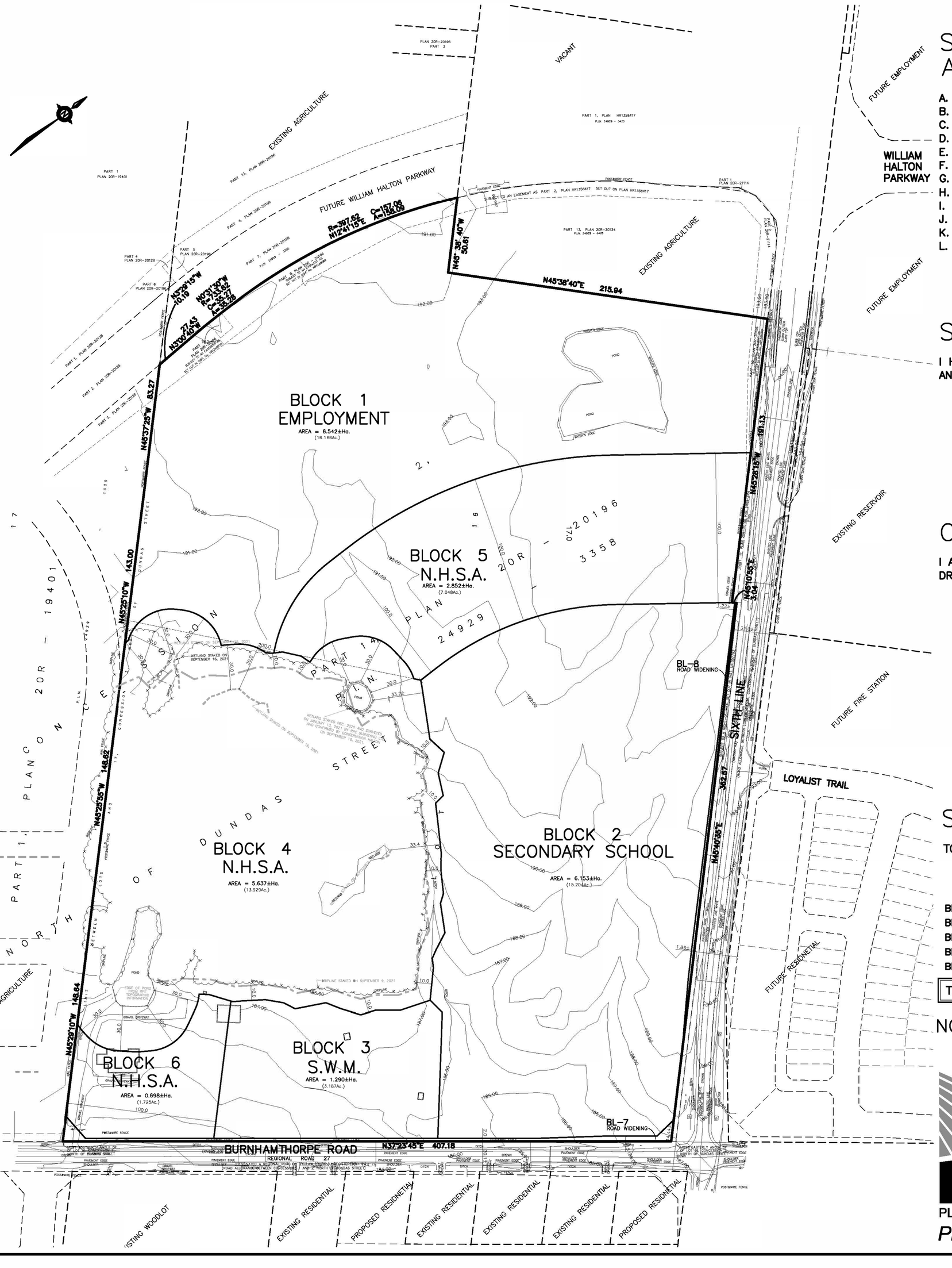
DRAFT PLAN OF SUBDIVISION
PART OF LOT 16, CONCESSION 2
NORTH OF DUNDAS STREET
(GEOGRAPHIC TOWNSHIP OF TRAFALGAR)
TOWN OF OAKVILLE
REGIONAL MUNICIPALITY OF HALTON

SCALE 1:1500

DRAFT PLAN T–



KEY PLAN



SECTION 51, PLANNING ACT, ADDITIONAL INFORMATION

A. AS SHOWN ON DRAFT PLAN
B. AS SHOWN ON DRAFT PLAN
C. AS SHOWN ON DRAFT PLAN
D. SEE SCHEDULE OF LAND USE
E. AS SHOWN ON DRAFT PLAN
F. AS SHOWN ON DRAFT PLAN
G. AS SHOWN ON DRAFT PLAN
H. MUNICIPAL PIPED WATER AVAILABLE AT TIME OF DEVELOPMENT
I. CLAY–LOAM
J. AS SHOWN ON DRAFT PLAN
K. SANITARY AND STORM SEWERS, GARBAGE COLLECTION, FIRE PROTECTION
L. AS SHOWN ON DRAFT PLAN

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE CORRECTLY SHOWN.

DATE JANUARY 4, 2022

ROSS DENBROEDER OLS

OWNER'S CERTIFICATE

I AUTHORIZE KLM PLANNING PARTNERS INC. TO PREPARE AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION TO THE TOWN OF OAKVILLE FOR APPROVAL.

OWNER

SIXTH OAK INC.

145 REYNOLDS STREET
SUITE 400
OAKVILLE, ONTARIO
L6J 0A7

SILVIO GUGLIETTI A.S.O.

SCHEDULE OF LAND USE

TOTAL AREA OF LAND TO BE SUBDIVIDED=23.324±Ha. (57.635±Acs.)

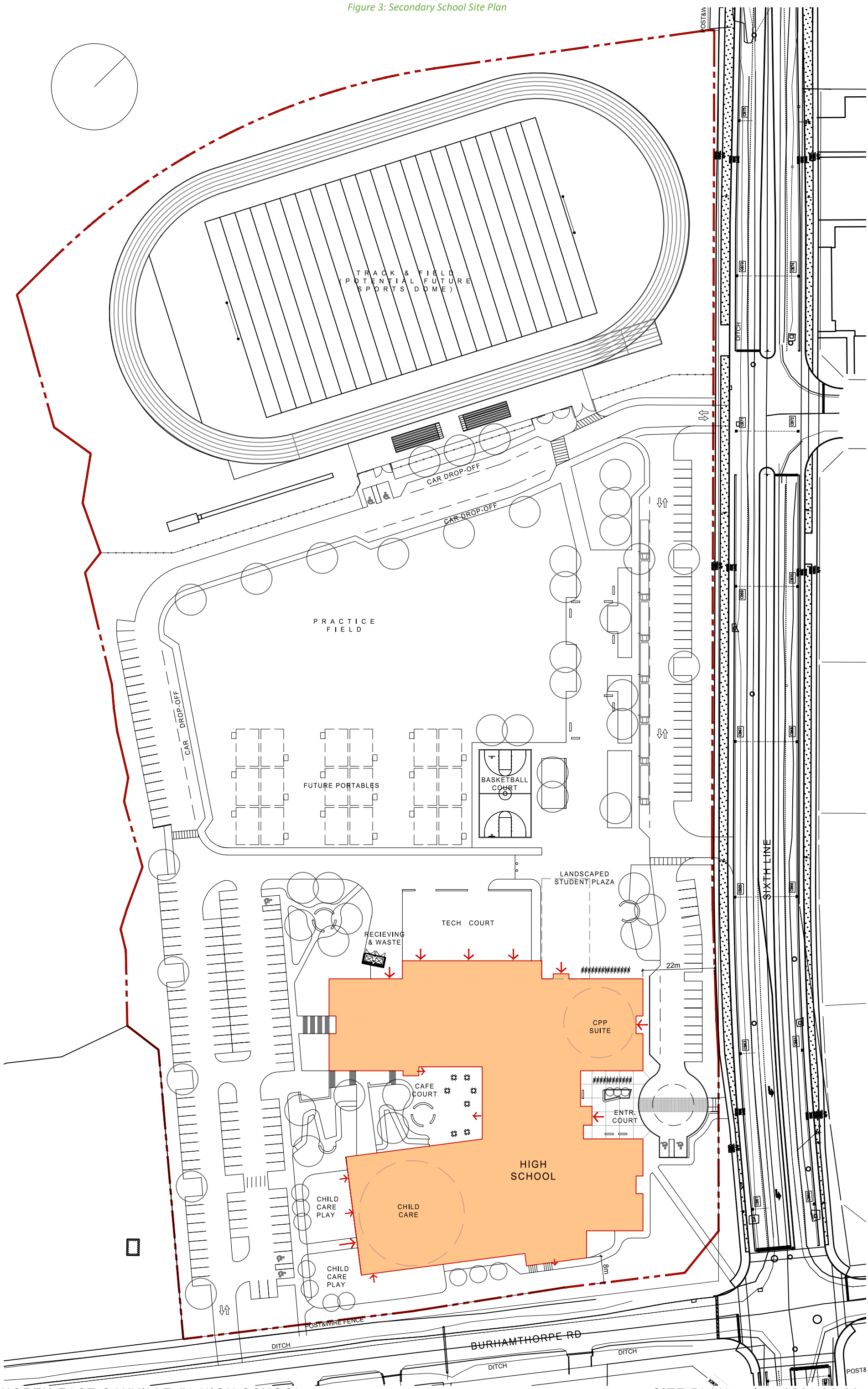
	BLOCKS	±Ha.	±Acs.
BLOCK 1 – EMPLOYMENT	1	6.542	16.166
BLOCK 2 – SECONDARY SCHOOL	1	6.153	15.204
BLOCK 3 – STORM WATER MANAGEMENT	1	1.290	3.187
BLOCKS 4–6 – NATURAL HERITAGE SYSTEM AREA	3	9.187	22.702
BLOCKS 7 & 8 – ROAD WIDENING	2	0.152	0.376
TOTAL	8	23.324	57.635

NOTE – ELEVATIONS RELATED TO CANADIAN GEODETIC DATUM

KLM PLANNING PARTNERS INC.
64 JARDIN DRIVE - UNIT 1B, CONCORD ONTARIO L4K 3P3
TEL: (905)669-4055 FAX: (905)669-0097 design@klmplanning.com
Planning • Design • Development

PROJECT No. P-3209
SCALE 1:1500 JANUARY 21, 2022
(3209DES7) X-REF: (3209MAS1 & 3209TOPO1)
DWG. No. - 22:1

Figure 3: Secondary School Site Plan



NORTH EAST OAKVILLE #1 HIGH SCHOOL SITE PLAN | 2201 06 06

2 Existing Conditions

2.1 Area Road Network

Burnhamthorpe Road

Burnhamthorpe Road within the study area is a Region of Halton arterial road with a two-lane rural cross-section with gravel shoulders. The Halton Region Official Plan protects for a 24-metre right of way for Burnhamthorpe Road. A 60 km/h posted speed limit applies. Upon completion of the William Halton Parkway extension, responsibility for this roadway will transfer from the Region to the Town of Oakville as the new William Halton Parkway will replace the regional road function of Burnhamthorpe Road to serve as the north Oakville transportation corridor. The Town completed a Character Study for Burnhamthorpe Road to illustrate the ultimate cross-section and alignment once the Town assumes this road.

Sixth Line

Sixth Line is classified as a minor arterial roadway in the Town of Oakville's Official Plan *Livable Oakville*. It has a two-lane divided rural cross-section with gravel shoulders. The Town of Oakville Official Plan protects for a 26-metre right-of-way for minor arterial roads. A 60 km/h posted speed limit applies. Sixth Line is anticipated to be widened from two to four-lanes and the right-of-way will be widened to 31 metres. Phase I of the widening has started in 2021 while the entire project is anticipated to be completed by 2024 in the original plan. The widening has been considered in the analysis herein.

William Halton Parkway

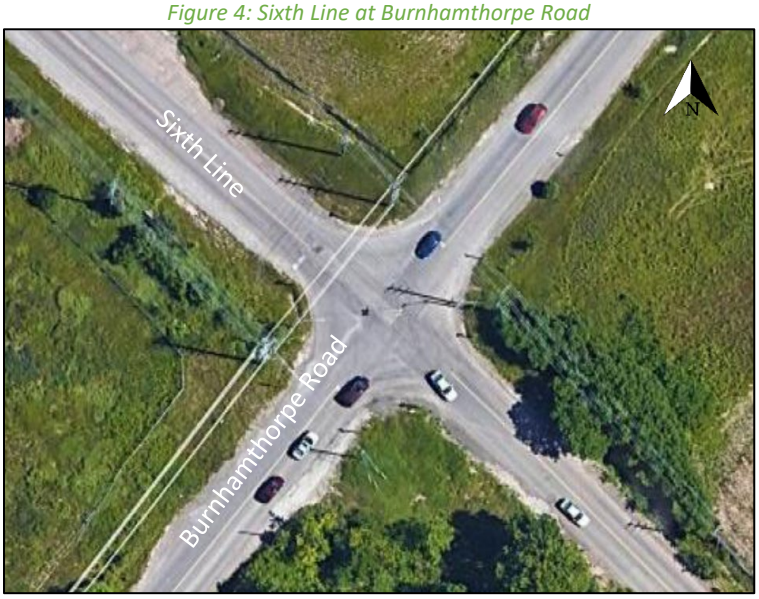
William Halton Parkway is a Region of Halton arterial road with a four-lane cross-section and a raised concrete median north of, and parallel to Burnhamthorpe Road. The Halton Region Transportation Master Plan (TMP) protects a 35-metre right-of-way for class C2 road. A 60 km/h posted speed limit applies. It currently runs between Sixth Line and Ninth Line, bike lanes are presented on both sides of the road, sidewalks are provided on the north side while multi-use paths are provided on the south side. The construction between Neyagawa Boulevard and Sixth Line is currently taking place.

2.2 Existing Intersections

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. No turn restrictions are noted. Figure 4 illustrates the intersection of Sixth Line at Burnhamthorpe Road.

Figure 4: Sixth Line at Burnhamthorpe Road



Sixth Line at William Halton Parkway

The intersection of Sixth Line at William Halton Parkway functions as a three-legged two-lane roundabout despite having four constructed legs. While the west leg of the intersection has been constructed, it is currently blocked off as the extension of William Halton Parkway further west of Sixth Line has not yet been completed. Pedestrian crossovers are present on all intersection legs. Bike lanes and sidewalks are also provided on both sides of the road at all approaches. The northbound approach consists of a shared left-turn / through lane and an auxiliary shared through / right-turn lane, the westbound approach consists of a shared left-turn / through lane and a shared through/right-turn lane, and the southbound approach has a shared left-turn / through lane and an auxiliary shared through / right-turn lane. All approaches are noted to have yield signs. No turn restrictions are noted. Figure 5 illustrates the roundabout intersection at Sixth Line at William Halton Parkway.

Figure 5: Sixth Line at William Halton Parkway

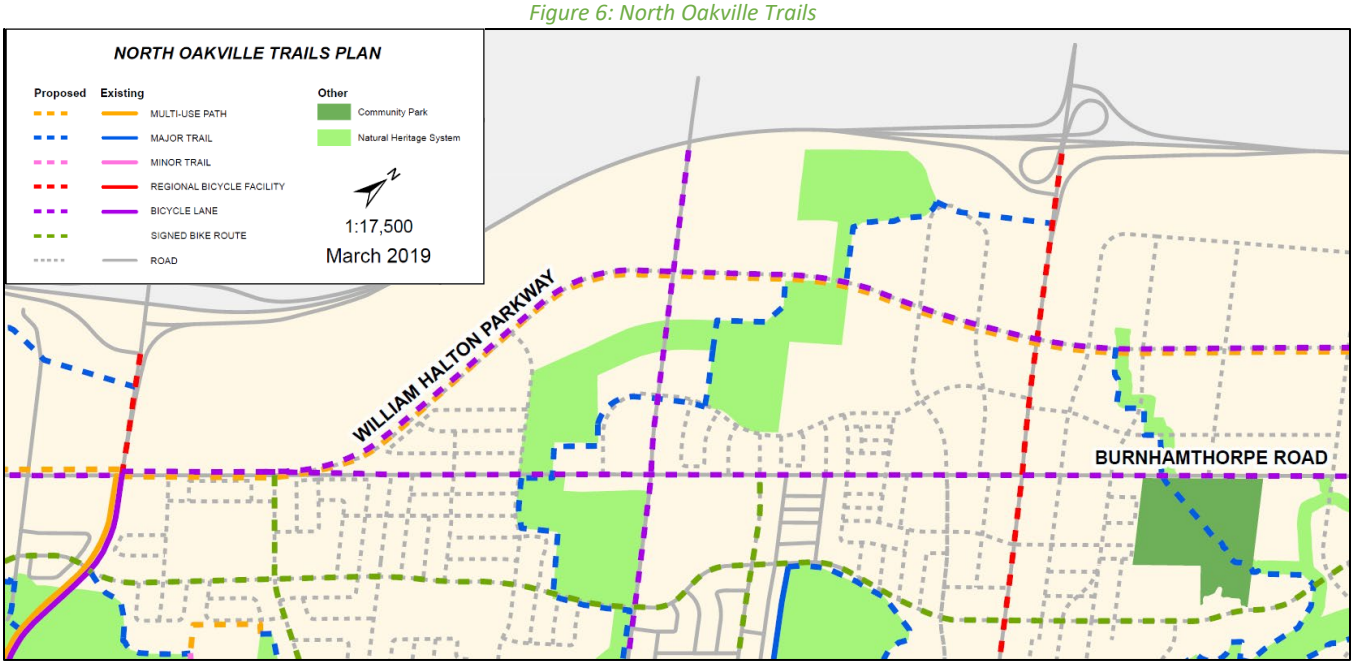
2.3 Cycling and Pedestrian Facilities

Bike lanes are presented on both sides along Willian Halton Parkway east of Sixth Line and at all approaches at the Sixth Line at William Halton Parkway roundabout.

Sidewalks are provided on the north side along Willian Halton Parkway east of Sixth Line and at all approaches at Sixth Line at William Halton Parkway roundabout. Pedestrian crossovers are implemented at all approaches at the William Halton Parkway roundabout.

According to the Town of Oakville Active Transportation Master Plan (ATMP), Burnhamthorpe Road, Sixth Line, William Halton Parkway are designated as spine routes, and bike lanes are proposed to be provided along Burnhamthorpe Road and Sixth Line which are represented by dashed purple lines in Figure 6 below. The William Halton Parkway Extension Project, which will be completed in 2024, is planned to include multi-use paths shown in orange. A major trail, indicated by a dashed blue line on the map, will be constructed along the western and northern edges of the secondary school site.

Figure 6: North Oakville Trails



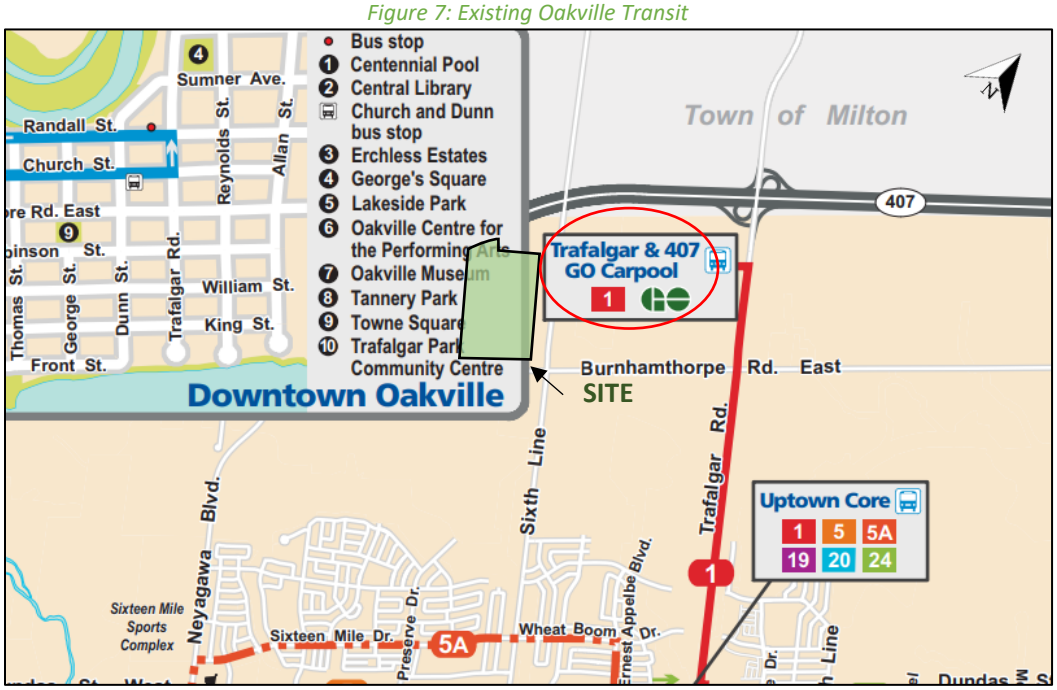
2.4 Existing Transit

As of January 2022, there are no transit routes in the immediate vicinity of the site. The closest route operated by Oakville Transit is Route #1 which runs along Trafalgar Road. The closest stop is located at the intersection of Trafalgar Road at Burnhamthorpe Road, which is approximately 1.3 kilometres of walking distance to the east of the proposed secondary school and more than 2 kilometres away from the industrial employment lands. Routes #5 and #5A along Dundas Street are located to the south of the proposed development and are more than 2 kilometres away from the site. However, while the fixed route services are currently operating relatively far from the proposed development, Oakville Transit also provides On Demand service in the area called Home to Hub. Registered customers can book a ride within the Home to Hub service hours and get transported from the bottom of their driveway to the nearest transit hub to connect with regular fixed route service. The current transit hub is the Uptown Core Terminal located near Trafalgar and Dundas.

There is a “park and ride” facility to the south of Highway 407 interchange at Trafalgar Road, approximately 2 kilometres of walking distance from the site. GO Bus Routes #40, #41, #47, and #56 all have a stop at this location, which will provide intercity transit services to the proposed developments. Route #40 runs along Highway 403 and Highway 407 between Hamilton GO and Richmond Hill Centre. Route #41 runs between Hamilton GO and Pickering GO via Highway 403, Highway 407 and Highway 401. Route #47 runs between Hamilton GO and Highway 407 Bus Terminal in Vaughan via Highway 403 and Highway 407. Route #56 runs between Oakville GO and Oshawa GO via Trafalgar Road, Highway 407 and Simcoe Street in Oshawa, and provides an extra stop near the Study Area at Trafalgar Road at Burnhamthorpe Road.

The existing Oakville Transit and GO Transit services close to the Study Area are presented in Figure 7 and Figure 8, respectively. The Trafalgar Road at Highway 407 Carpool / Park and Ride has been circled on both system maps.

Figure 7: Existing Oakville Transit



Source: www.oakvilletransit.ca/ Accessed: January 13, 2022

Figure 8: Existing GO Transit

Source: https://www.gotransit.com/en/trip-planning/system-and-route-map/ Accessed: January 26, 2022

2.5 Existing Peak Hour Travel Demand

The analysis will cover the AM and PM peak hours due to the land uses being proposed are for secondary school and employment. To understand the existing AM and PM peak hour traffic volumes turning movement counts for the Study Area intersections have been acquired from Ontario Traffic Inc.

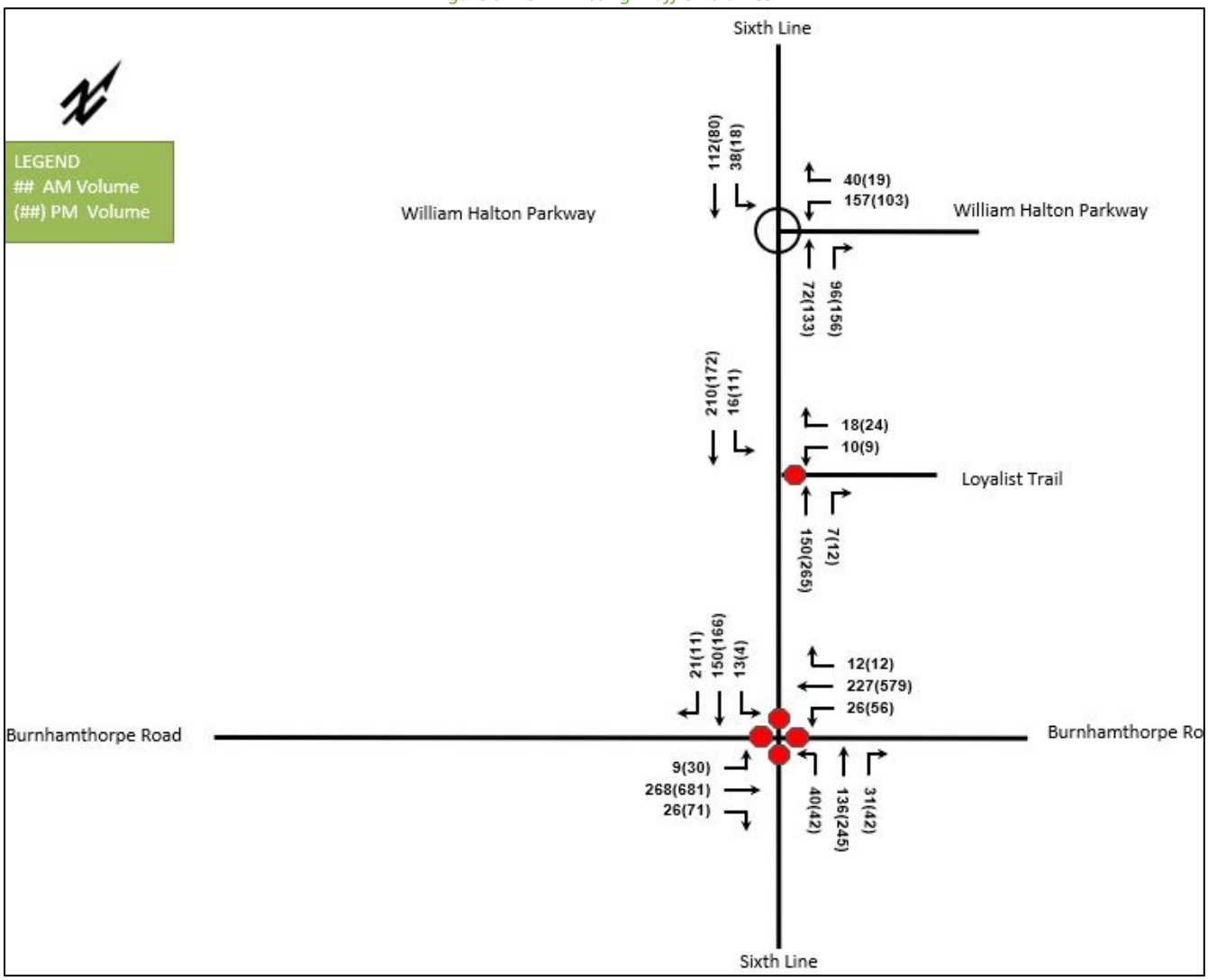
Table 1 summarizes the date of the most recent turning movement count at each existing Study Area intersection.

Table 1: TMC Data Dates

Data Type	Location	Count Date
Turning Movement Counts (TMC)	Burnhamthorpe Road at Sixth Line	January 26, 2022
	William Halton Parkway at Sixth Line	January 26, 2022

The turning movement counts were undertaken in January 2022 in the study horizon year for the existing conditions. No modifications are needed to reflect growth inside of the Study Area. Turning movement count data is included in Appendix B. All the Study Area intersections are unsignalized. Figure 9 illustrates the existing 2022 vehicle traffic volumes. Very few pedestrian or bicycle trips are present in the existing conditions.

Figure 9: 2022 Existing Traffic Volumes



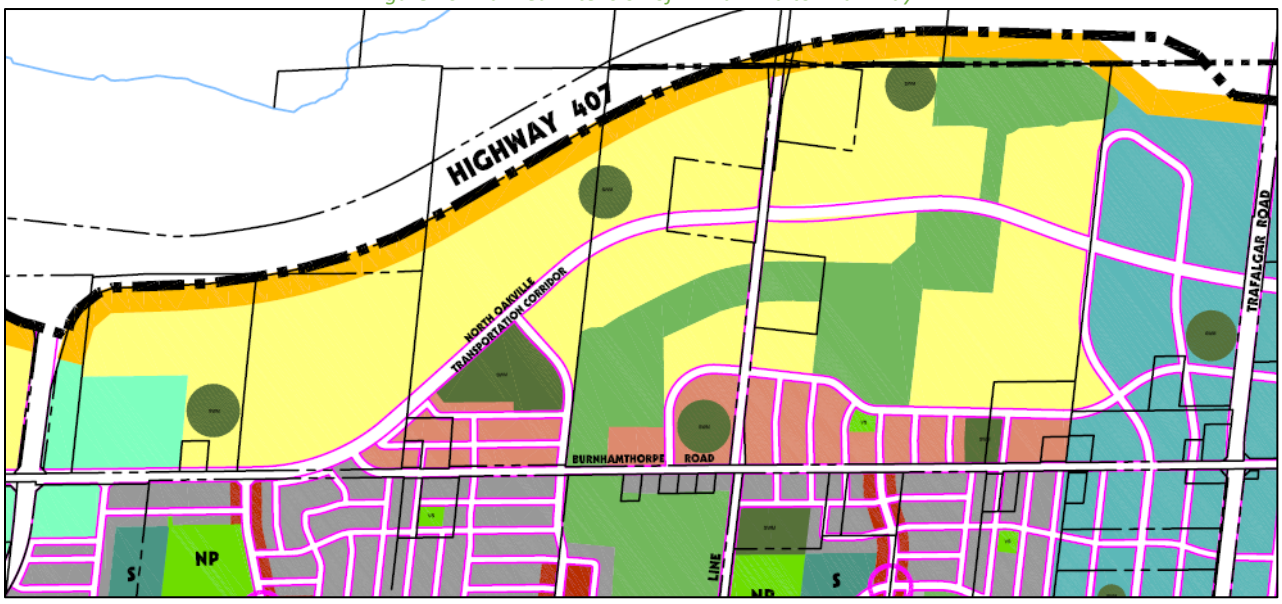
3 Future Background Conditions

3.1 Planned Conditions

3.1.1 William Halton Parkway Extension

As discussed in Section 2.1, William Halton Parkway is a Region of Halton arterial road with a four-lane cross-section. The William Halton Parkway Extension Project, which creates a new east-west corridor from Bronte Road (Regional Road 25) to Ninth Line (Regional Road 13), is planned to include sidewalks and bike lanes east of Sixth Line. Phase 1 of the William Halton Parkway Extension Project, which is between Sixth Line and Ninth Line, was completed in November 2020. Phase 2 of the projects, which is between Third Line and Sixth Line, is anticipated to be completed by 2024, forming a new three-legged intersection with Burnhamthorpe Road about 1 kilometre to the west of Sixth Line as seen in Figure 10. The cross-section of the extended road can be seen in Figure 11. Based on the provided timing information for the William Halton Parkway Extension, the intersection of William Parkway and Sixth Line has been assumed to operate as a four-legged intersection in both the 2025 and 2030 future analysis horizons. Through the previously completed Neighborhood 9, 10, 11 TIS the Region of Halton has indicated that a peak hour volume of 2100 vehicles per hour in each direction in future conditions should be assumed for William Halton Parkway.

Figure 10: Planned Extension of William Halton Parkway



Source: North Oakville East Secondary Plan (2008)

Figure 11: Proposed William Halton Parkway Cross Section

Source: https://www.halton.ca/For-Residents/Roads-Construction/Construction-Projects/William-Halton-Parkway-Extension-Project
Accessed: January 15, 2022

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 the Sixth Line Class Environmental Assessment Study to examine widening Sixth Line from two-lanes to four-lanes between Dundas Street and just south of Highway 407. The proposed cross-section 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

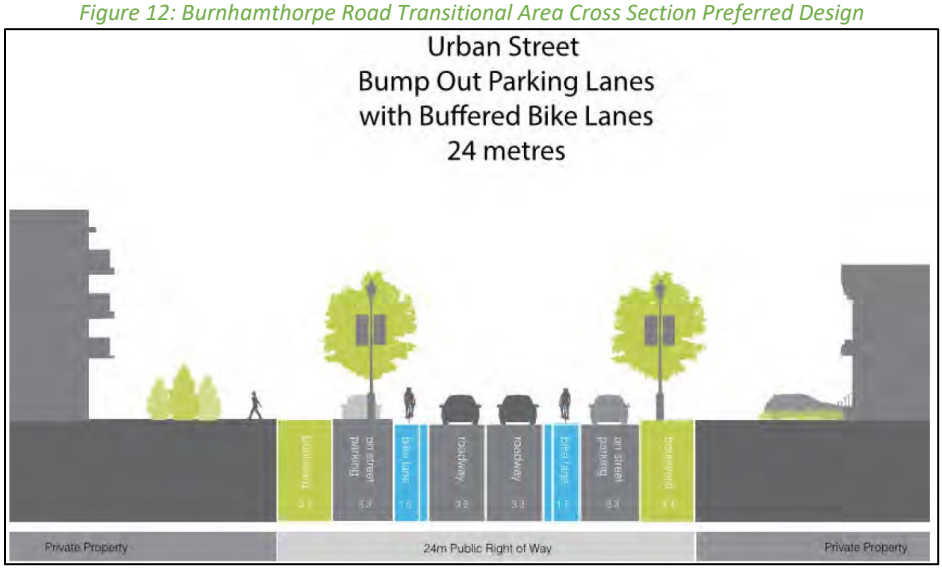
According to the original plan, the widening will be completed in three phases: Phase 1 covers the section between Dundas and North Park Drive; Phase 2 covers the section north of North Park Drive and south of Burnhamthorpe Road; Phase 3 covers the section between Burnhamthorpe Road and Highway 407. The timeline of construction according to the original schedule is to have Phase 1 start in 2015, Phase 2 start in 2020 and Phase 3 start in 2023. However, the construction has been delayed and the updated schedule outlines that the section between Dundas Street and Threshing Mill Boulevard which is within Phase 1 was still under construction in 2021, and Phase 2 and 3 have yet to start. Therefore, it is possible that the Sixth Line widening with the Study Area will not be completed before the 2025 horizon year. For the purposes of this study, the two cases – one with Sixth Line modelled as a two-lane road and the other with Sixth Line modelled as a four-lane road – have been analyzed and compared for the 2025 horizon. The widening of Sixth Line was assumed to be completed before 2030, and Sixth Line was modelled as a four-lane road in the 2030 horizon.

3.1.3 Burnhamthorpe Road

Burnhamthorpe Road is currently designated as a regional arterial road under the jurisdiction of Halton Region. However, its function as the north Oakville transportation corridor will be replaced by William Halton Parkway. A Class Environmental Assessment was conducted to develop a new road design for the section between Ninth Line and Sixteen Mile Creek of Burnhamthorpe Road to better serve the needs of the north Oakville community once its responsibility is transferred to the Town.

The section of Burnhamthorpe Road within the Study Area is designated as the Transitional Area which provides interface/buffer from Employment District. The cross-section as illustrated in Figure 12 will be applied at Burnhamthorpe Road which includes concrete curb and gutter, two 3.30 m through lanes, two 1.5 m bike lanes, on-street parking on each side, hard surface and/or landscaped boulevards, and two 1.5 m concrete sidewalks. Thus, the section of Burnhamthorpe Road within the Study Area will still be a two-lane road in the future 2025 and 2030 horizons, but it will have an urban cross-section and provides connectivity for pedestrians and cyclists.

Figure 12: Burnhamthorpe Road Transitional Area Cross Section Preferred Design

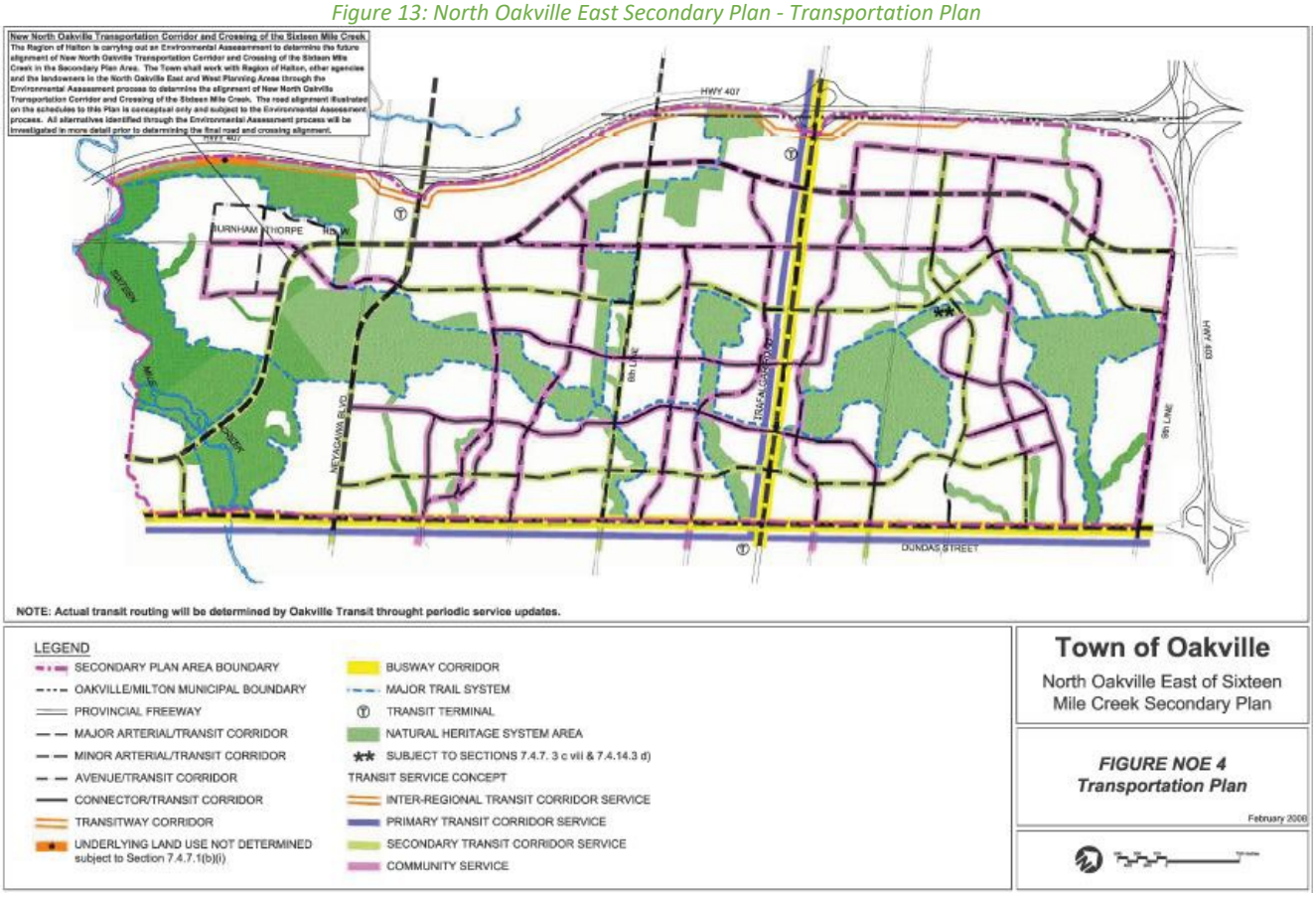


Source: Burnhamthorpe Road Character Study & Municipal Class Environmental Assessment (2014)

3.1.4 North Oakville East Secondary Plan – Transportation Plan

The North Oakville East Secondary Plan includes transit routes along key corridors within the proposed developments. Figure 13 illustrates the North Oakville East Secondary Plan Transportation Plan. Within the Study Area, Sixth Line is planned as a Secondary Transit Corridor, and William Halton Parkway, Burnhamthorpe Road, and the new street running in the north-south direction immediately to the west of the property are designated as Community Service Transit corridors. Additional bus stops will be located on either side of Sixth Line at Loyalist Trail for the proposed secondary school.

Figure 13: North Oakville East Secondary Plan - Transportation Plan



Source: North Oakville East Secondary Plan (2008)

3.1.5 Other Study Area Developments

In the proximity of the proposed Sixth Oak developments, there are background developments on its west, north, and south sides. The proposed full-movement access on Sixth Line will be aligned with the existing Loyalist Trail leading to the Star Oak Development.

3.1.5.1 Neighbourhood 9,10,11 Developments

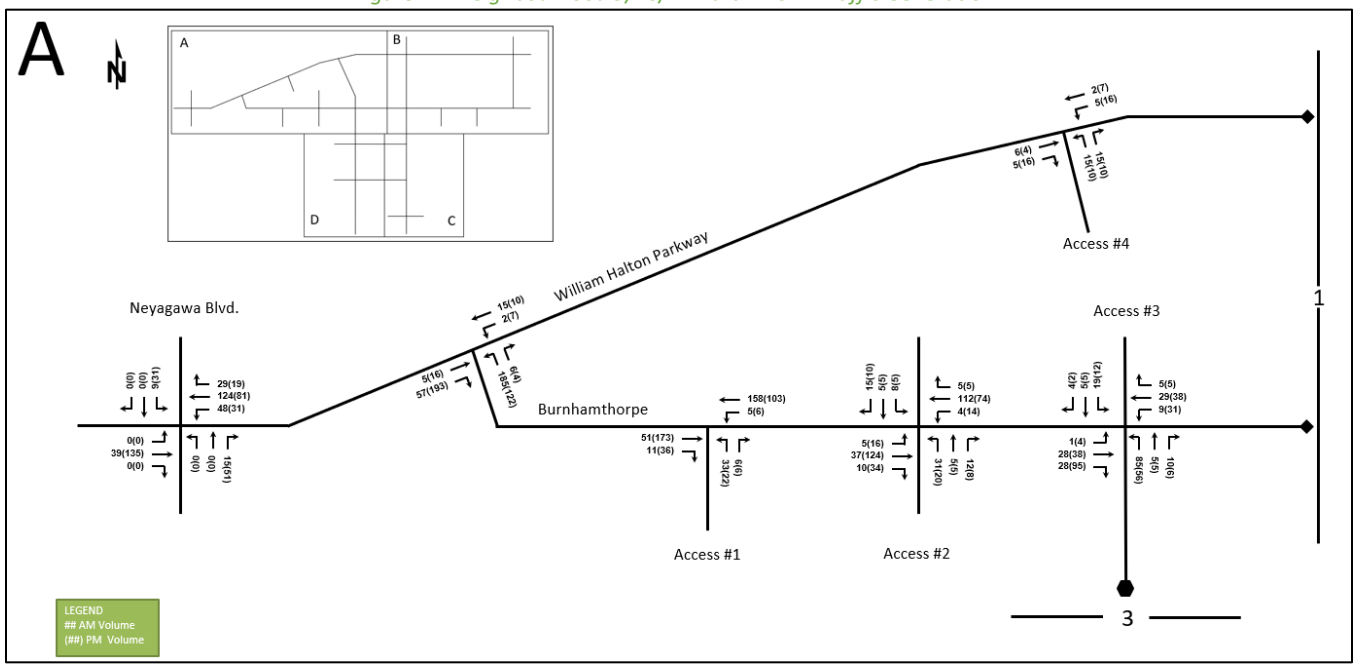
The proposed Neighbourhood 9/10/11 developments in North Oakville surrounds the subject development, covering a vast area on both sides of Burnhamthorpe Road. The site encloses everything south of the extension of William Halton Parkway, north of North Park Boulevard, and west of Sixth Line. The developments consist of:

- Timsin Holding Corp. – 22 single family detached units, and 36 townhouse units
- Docasa Group Ltd. – 114 single detached residential units, 168 townhouses, 128 mid-rise apartment units, and a small ground floor commercial area of 300 square metres for the apartment, as of the 2021 update.
- Star Oak Developments Ltd. – 68 single family detached units, and 141 townhouse units
- Digram Developments Inc. – 154 townhouse units, and 360 apartment units
- ARGO (West Morrison Creek) Ltd. – 92 single family detached units, 86 townhouse units, and 124 apartment units
- Crosstrail Estates Inc. and TWKD Developments Inc. – 244 townhouse units
- Mattamy Homes Preserve North – 369 single family detached units, 22 townhouses
- Mattamy Homes / SGGC – 202 townhouse units, and 75 apartment units

- G.C. Family Investments – 13 townhouse units

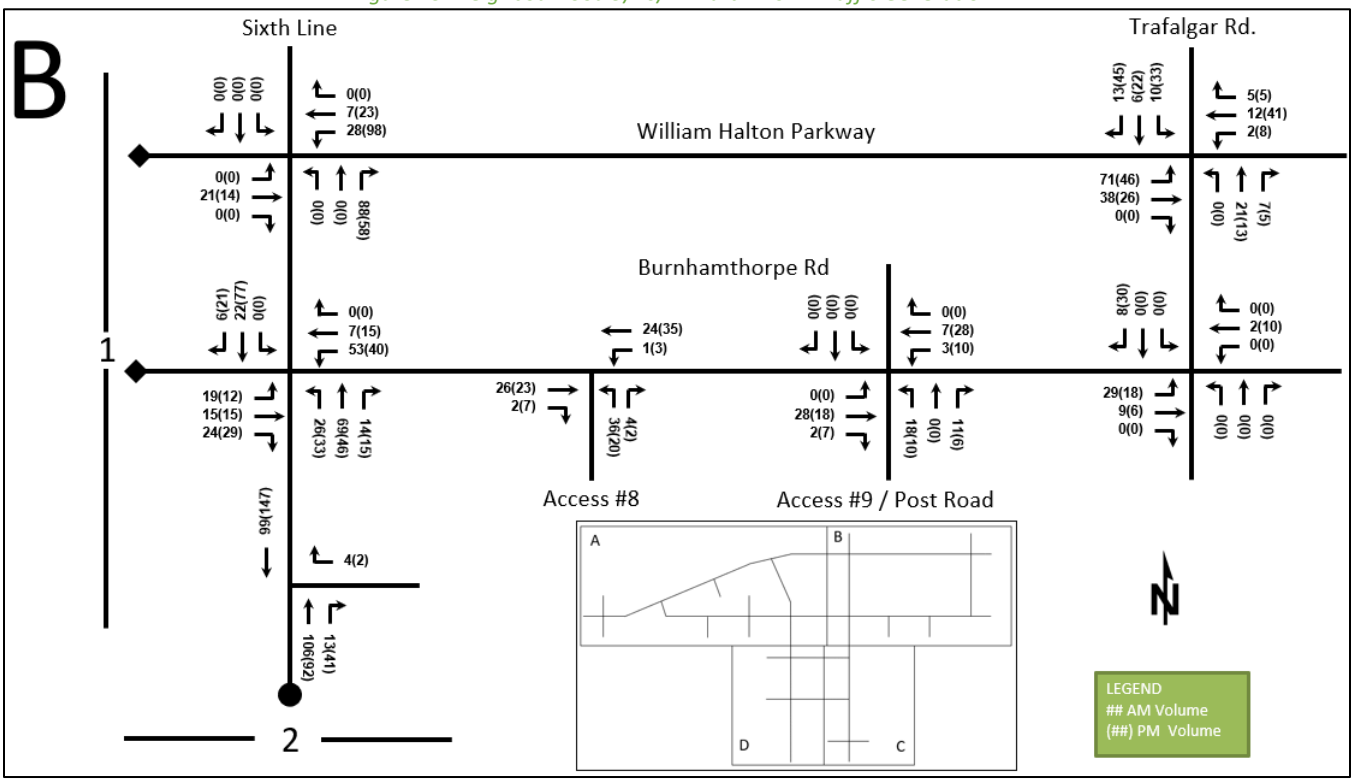
The combined development includes a total of 665 single detached homes, 864 townhouses, and 687 mid-rise units in the most recent update of the study in 2021. The projected completion date is 2024, so it will be included in the background developments in both the 2025 and 2030 horizons. The development is anticipated to generate, in total, 1537 and 2018 two-way vehicle trips during the AM and PM peak hour. Figure 14 and Figure 15 illustrate part A and part B of the projected 2024 site traffic generation of the Neighbourhood 9/10/11 Development in the update of the study. Figure 16 and Figure 17 illustrate the projected 2030 site traffic generation of the Neighbourhood 9/10/11 Development. The volumes below have been approved by the Town of Oakville.

Figure 14: Neighbourhood 9/10/11 Part A 2024 Traffic Generation



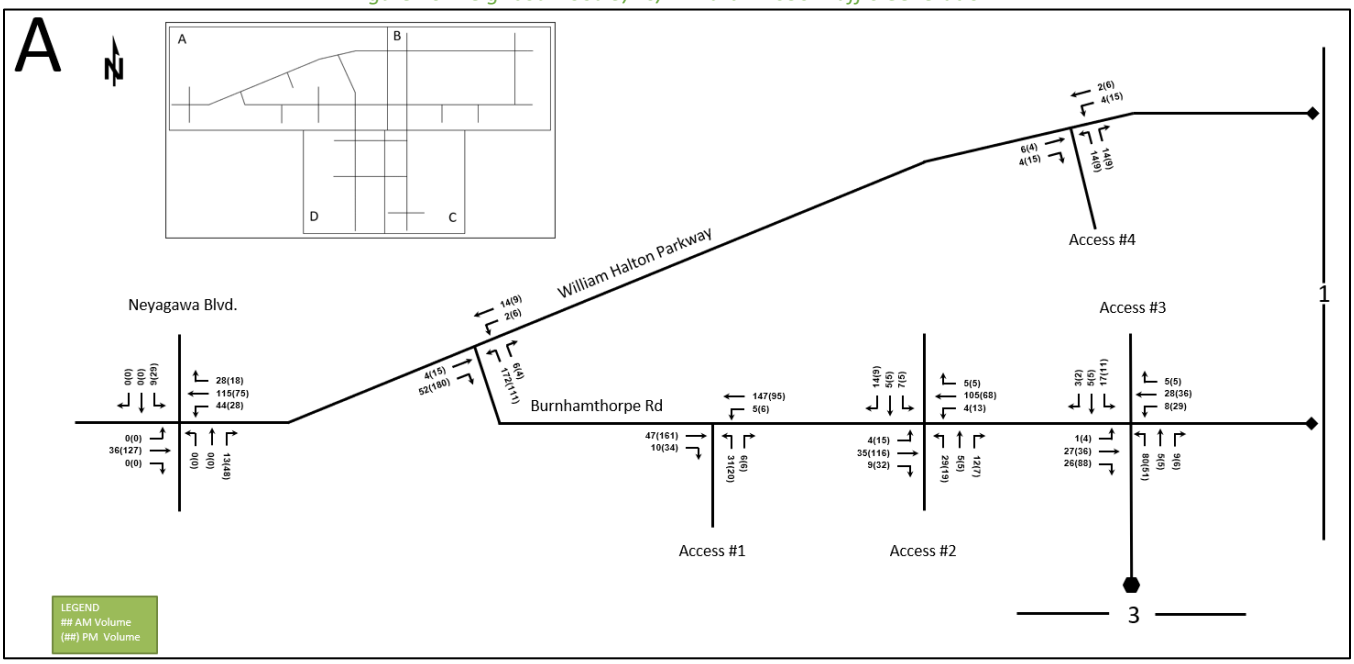
Source: Neighbourhood 9/10/11 Transportation Impact Study; CGH Transportation; 2021

Figure 15: Neighbourhood 9/10/11 Part B 2024 Traffic Generation



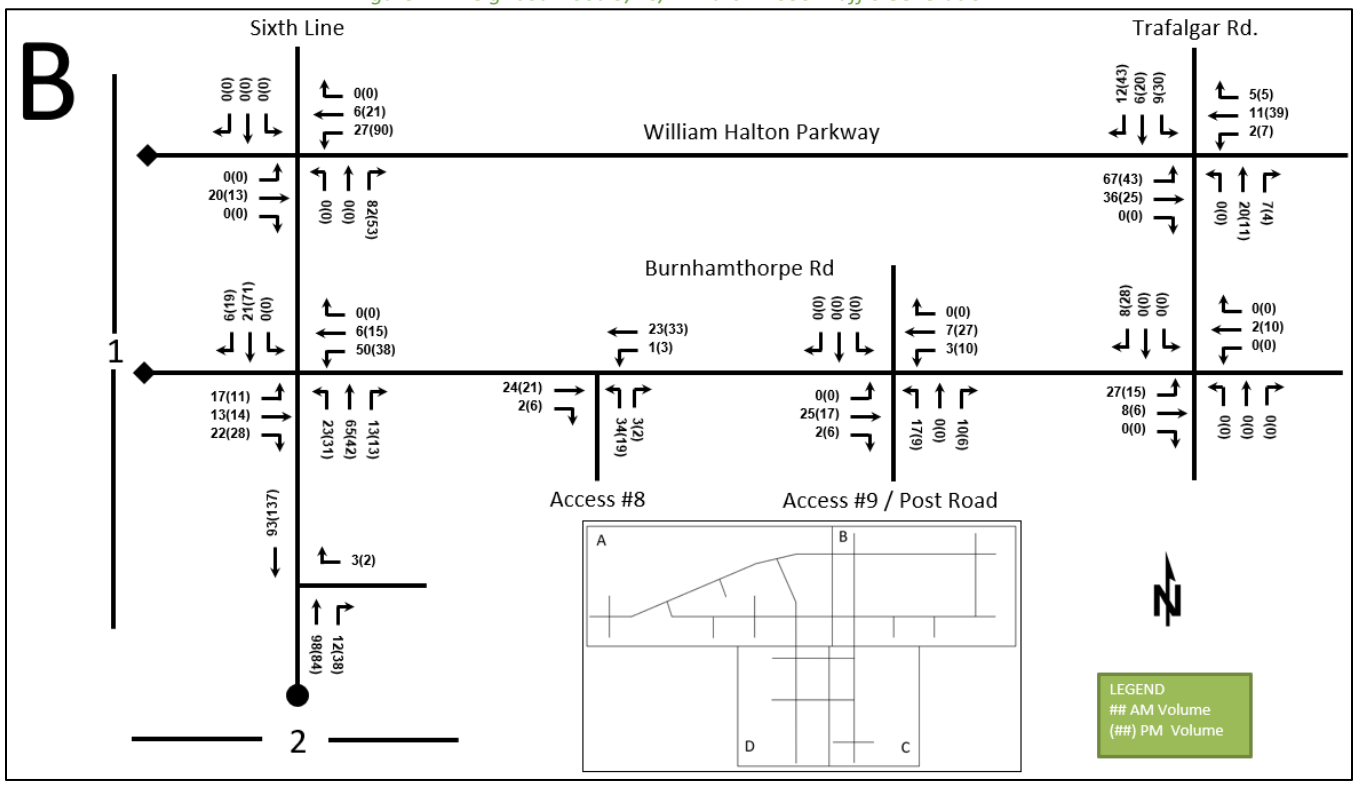
Source: Neighbourhood 9/10/11 Transportation Impact Study; CGH Transportation; 2021

Figure 16: Neighbourhood 9/10/11 Part A 2030 Traffic Generation



Source: Neighbourhood 9/10/11 Transportation Impact Study; CGH Transportation; 2021

Figure 17: Neighbourhood 9/10/11 Part B 2030 Traffic Generation

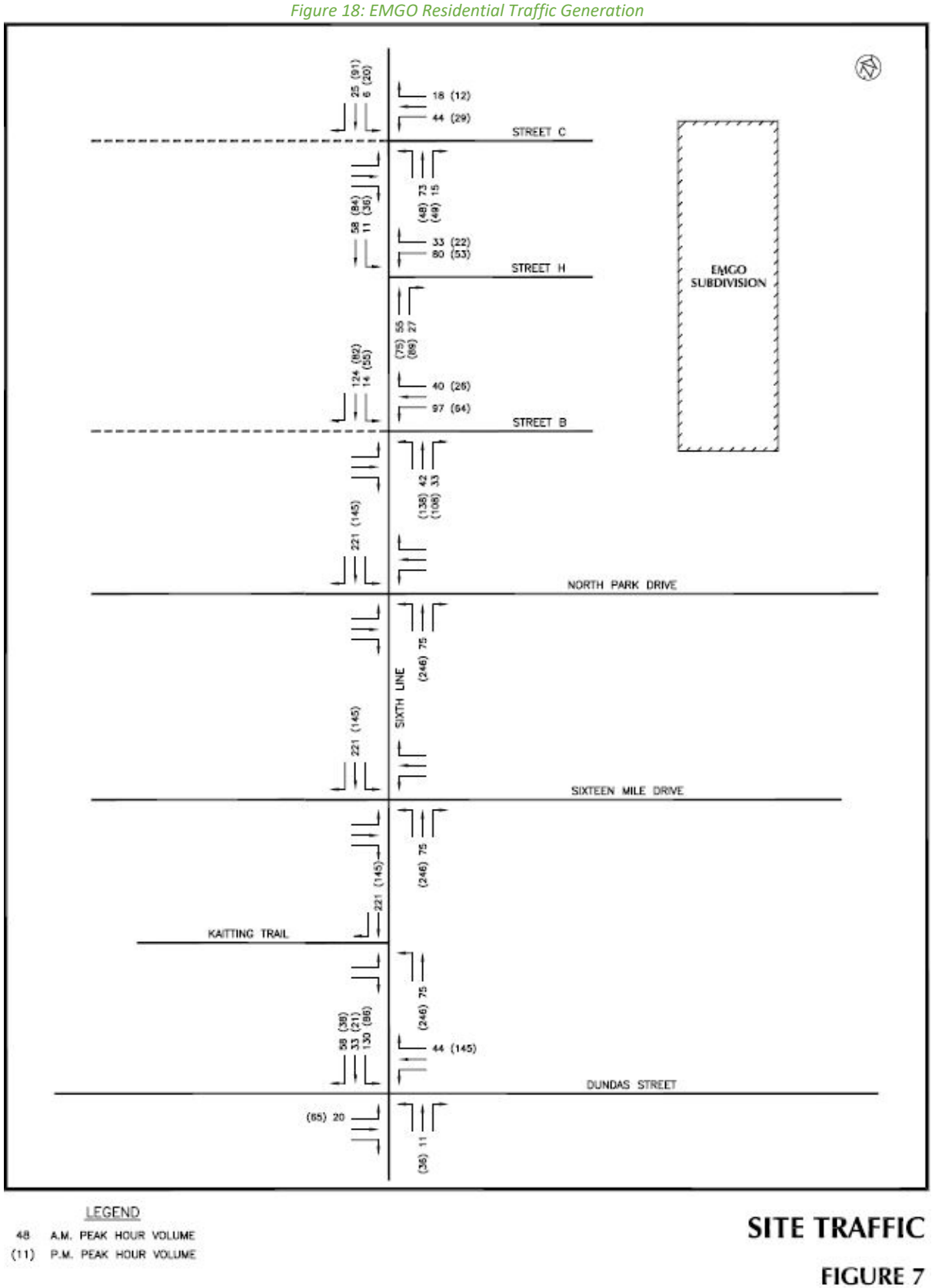


Source: Neighbourhood 9/10/11 Transportation Impact Study; CGH Transportation; 2021

3.1.5.2 EMGO North Oakville

The EMGO North Oakville development is located along the east side of Sixth Line between Dundas Street and Burnhamthorpe Road. This development includes 544 detached single-family residential units, and 74 townhouse units. Access to this development will be via three accesses on Sixth Line. The traffic generated by the EMGO development is summarized in Figure 18.

Figure 18: EMGO Residential Traffic Generation

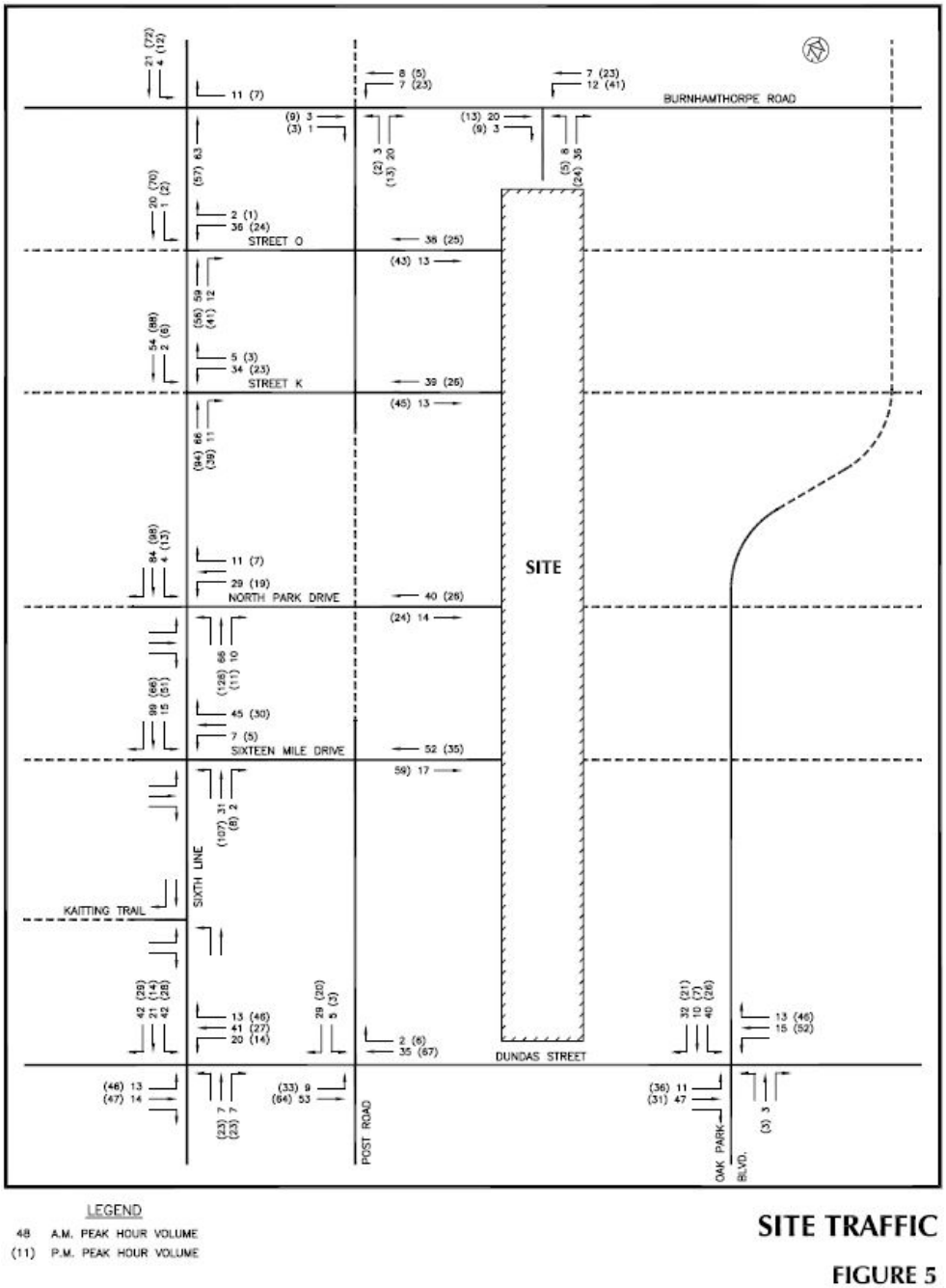


Source: Traffic Impact Study EMGO Draft Plan North Oakville; Reed, Voorhees & Associates; September 2012

3.1.5.3 Petgor

The Petgor Draft Plan North Oakville development is located to the east of Sixth Line, approximately halfway between Sixth Line and Trafalgar Road. This development includes 631 detached single-family units, and 149 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. The traffic generated by the Petgor development is summarized in Figure 19.

Figure 19: Petgor Traffic Generation

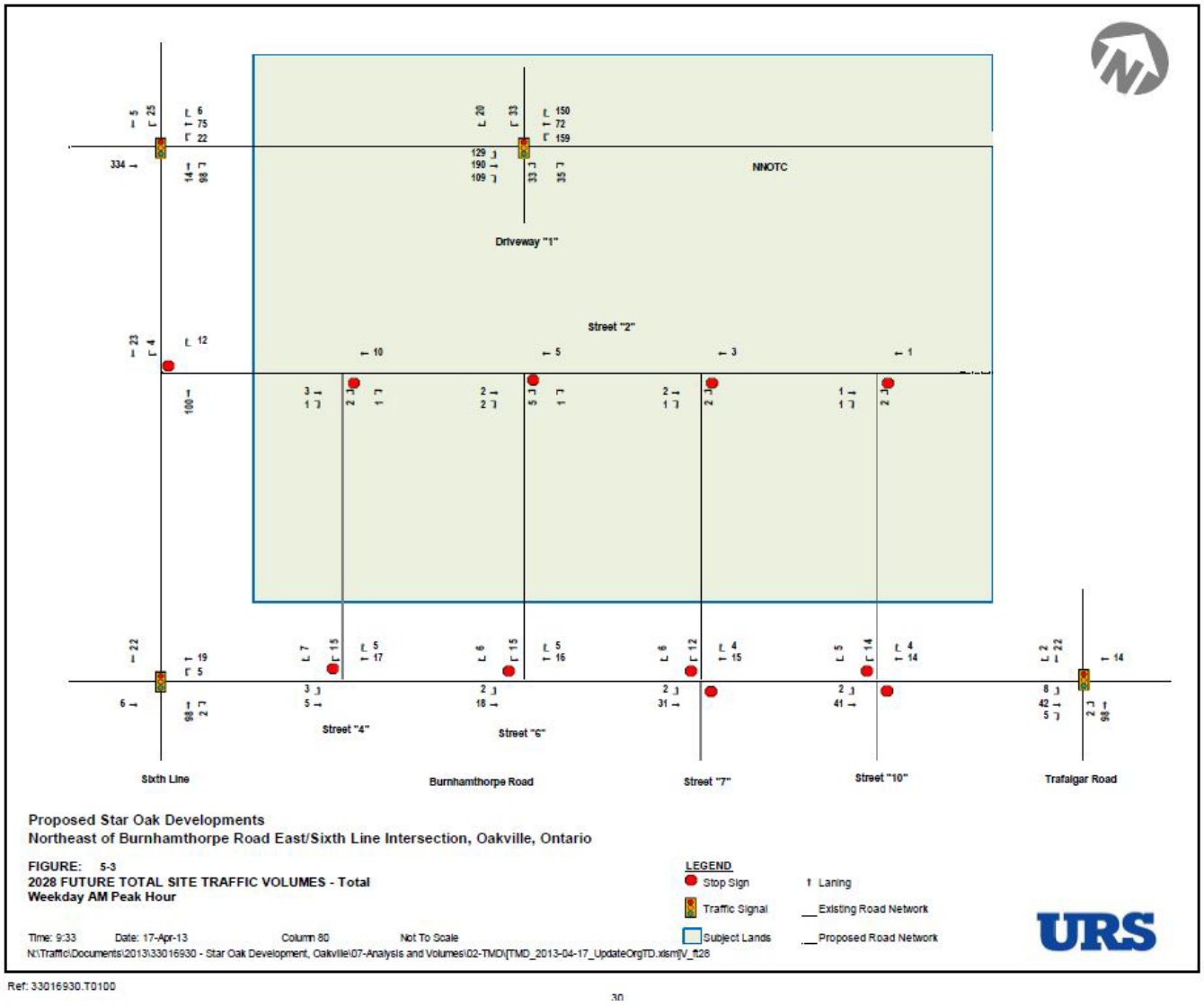


Source: Traffic Impact Study Petgor Draft Plan North Oakville; Reed, Voorhees & Associates; December 2012

3.1.5.4 Star Oak Development

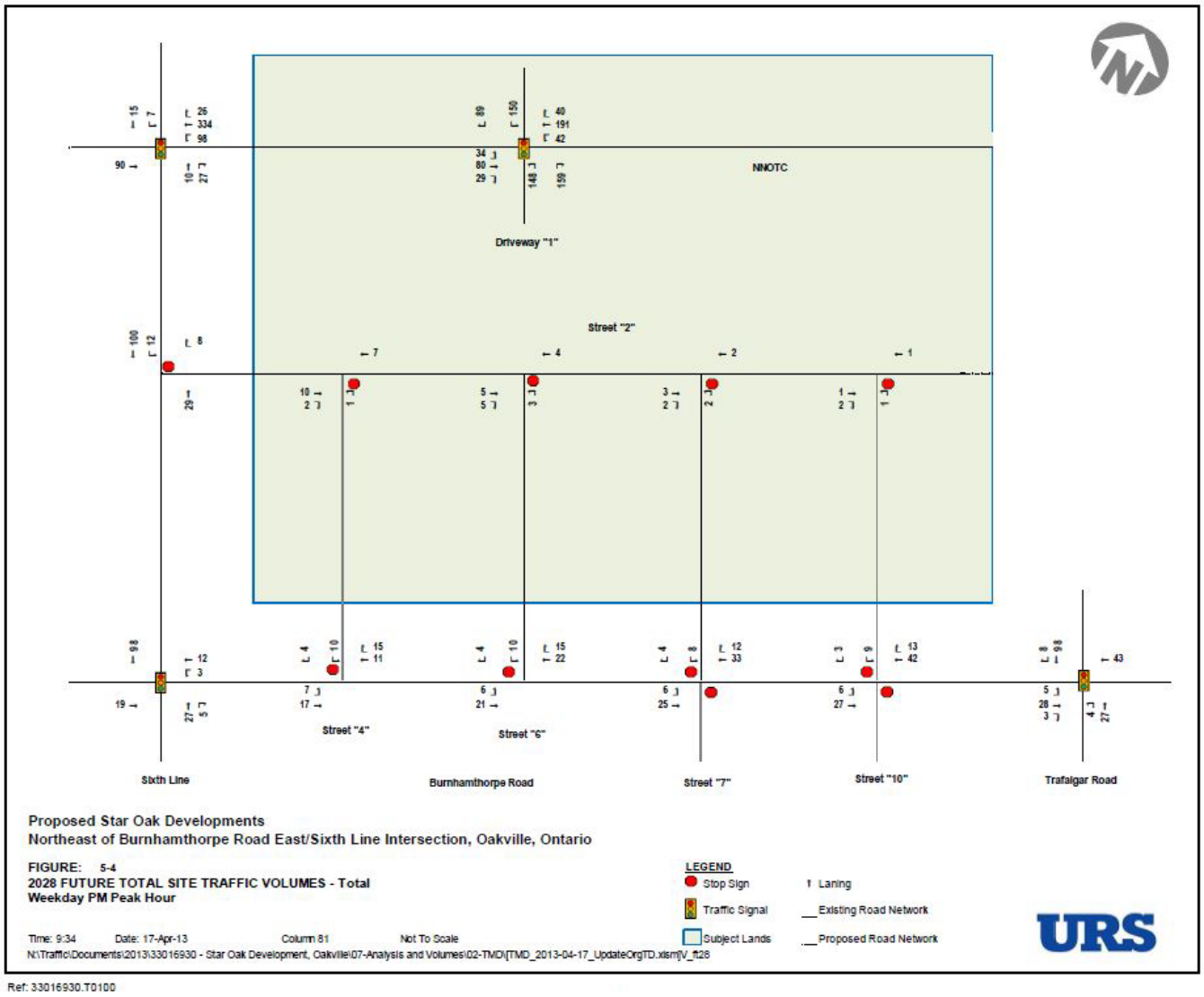
The Star Oak development is located at the northeast quadrant of Burnhamthorpe Road at Sixth Line. This development includes 217 residential units with a mix of detached single-family units, and townhouse type units and 154,000 square metres of employment uses. The construction will be completed in two phases. Phase I includes all the residential units and 10% of the employment buildings while Phase II consists of 90% of the employment development. The residential portion of the development is completed prior to the existing conditions. 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. The traffic generated by the Star Oak Development is summarized in Figure 20 and Figure 21.

Figure 20: Star Oak 2028 AM Peak Hour Site Trip Generation



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

Figure 21: Star Oak 2028 PM Peak Hour Site Trip Generation



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

3.1.6 Background Growth

Historical traffic counts have been reviewed to determine the historical growth rate. A 2% compound annual growth rate (CAGR) was selected for all existing streets within the Study Area. This rate has been confirmed with the Region.

3.1.7 William Halton Parkway Extension Reassignment

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 would remain on Burnhamthorpe Road. The peak hour volume assumption of 2100 vehicles per hour in each direction in future conditions for William Halton Parkway is also added into the background at each intersection. The William Halton Parkway adjustment volumes form a substantial portion of the future

background trips comparing to the annual background growths and the site-generated trips from background development, taking up 95% of all future background trips in the morning peak hour and 94% of all future background trips in the afternoon peak hour in the 2025 horizon, and 95% and 92% in the 2030 horizon. The changes on William Halton Parkway are illustrated in Figure 22 and Figure 23.

Figure 22: 2025 William Halton Parkway Reassignment Traffic Volumes

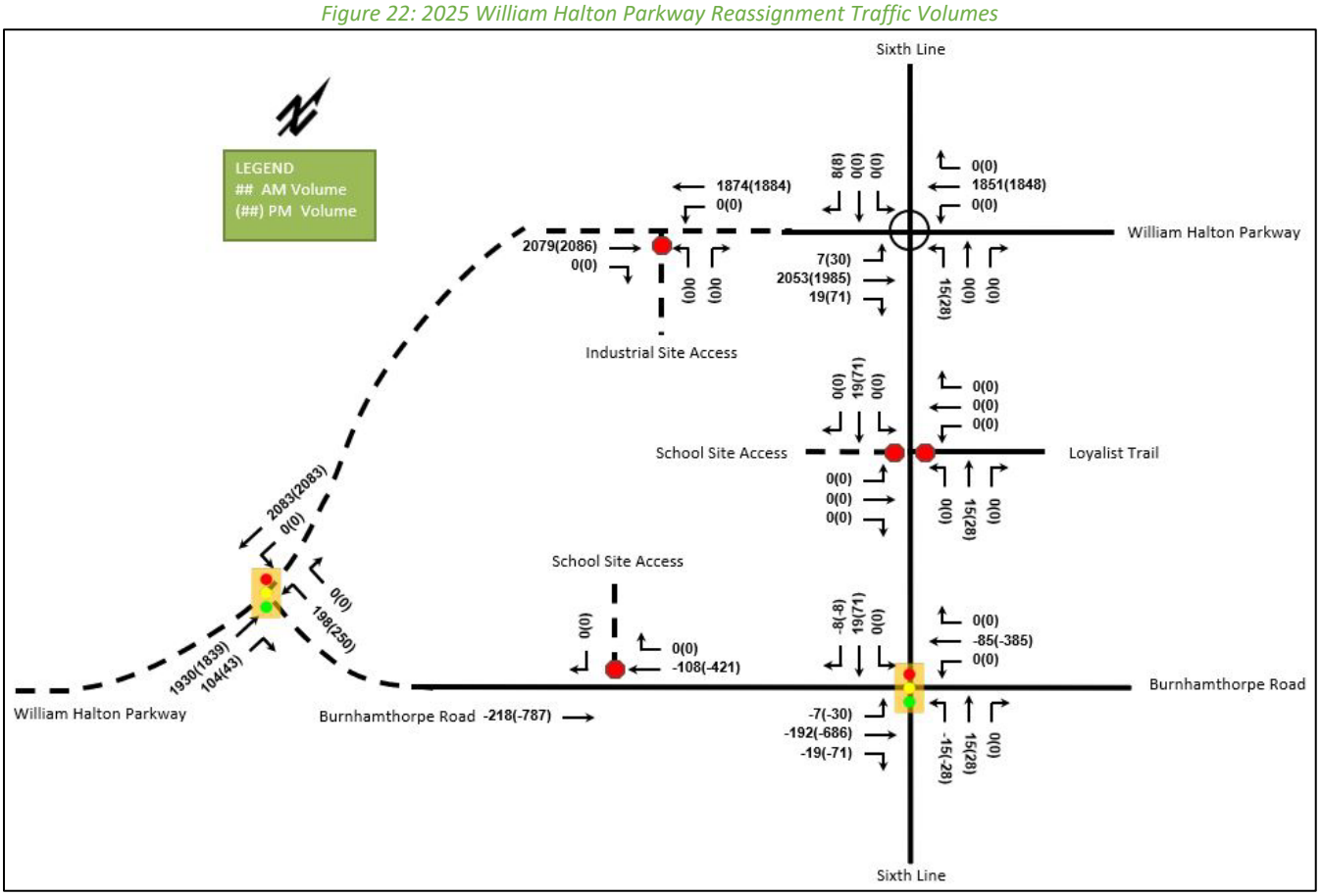
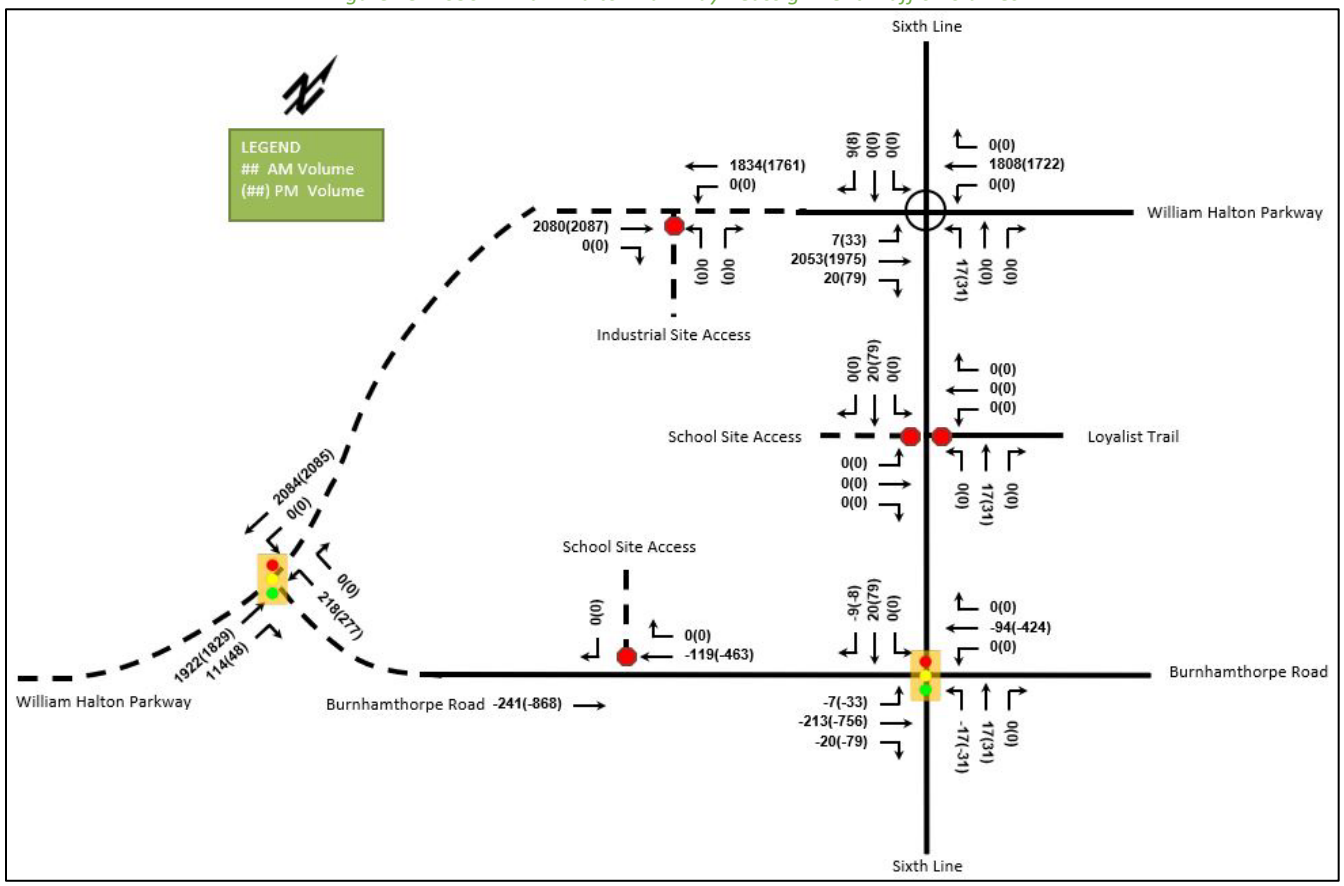


Figure 23: 2030 William Halton Parkway Reassignment Traffic Volumes



3.1.8 Future Background Traffic Volumes

Combining the background development traffic, the background growth rate, the William Halton Parkway traffic reassignment, and the existing traffic volumes, the Future Background traffic volumes were projected. Figure 24 illustrates the 2025 Future Background traffic volumes and Figure 25 illustrates the 2030 Future Background traffic volumes.

Figure 24: 2025 Future Background Traffic Volumes

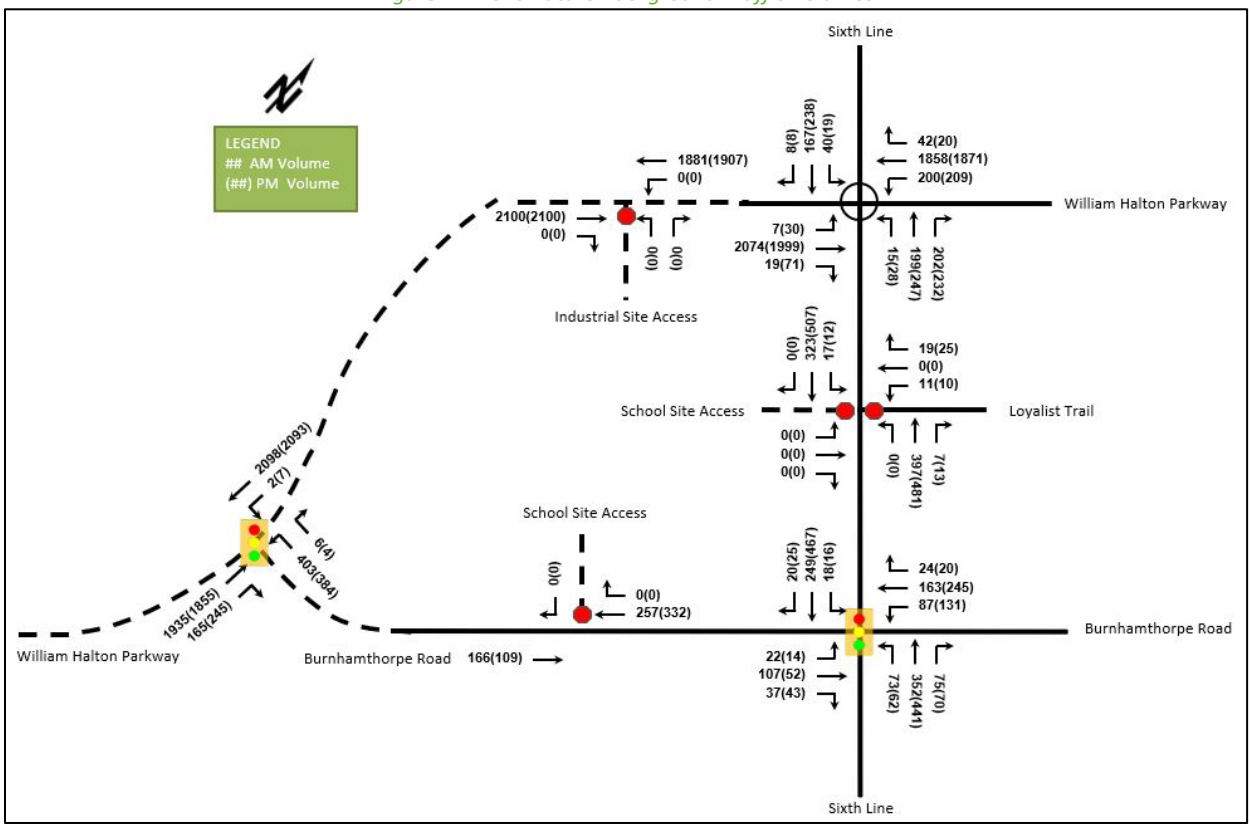
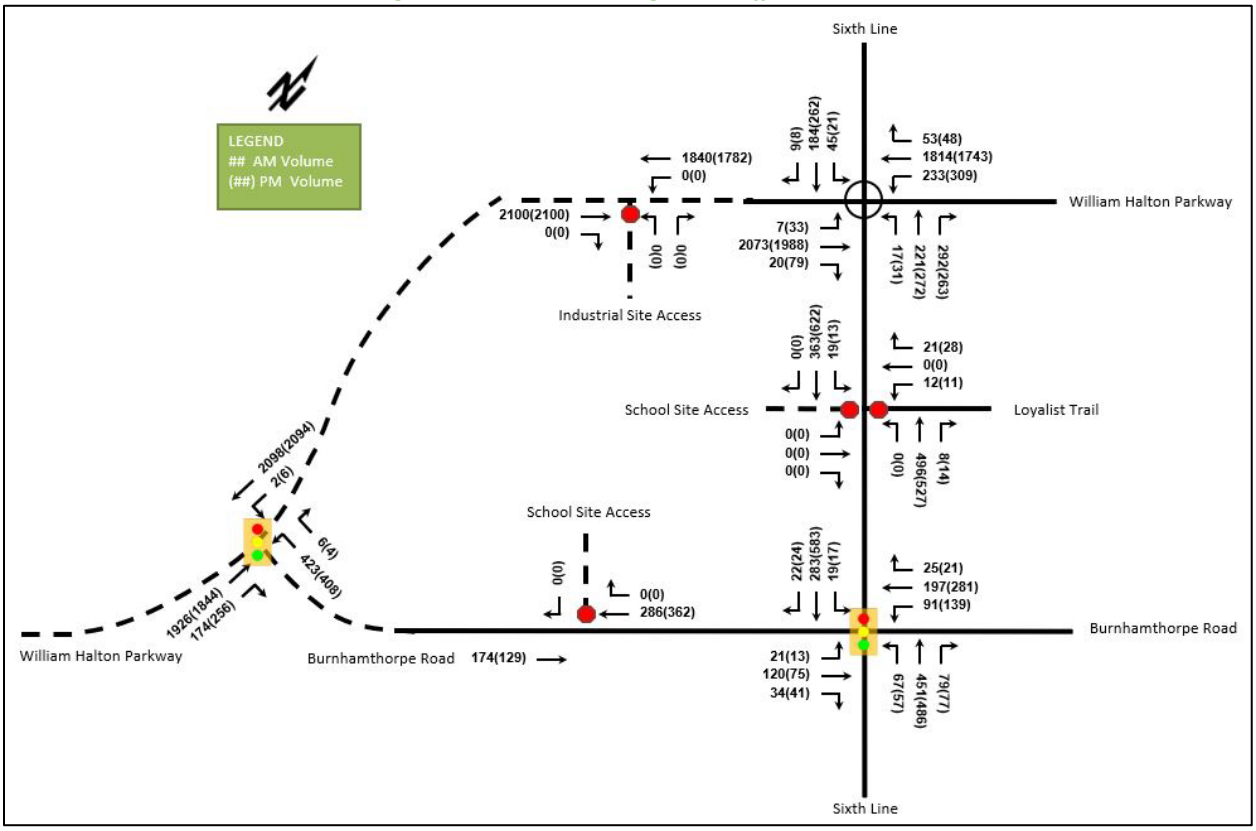


Figure 25: 2030 Future Background Traffic Volumes



4 Forecasting

4.1 Development-Generated Travel Demand

4.1.1 Trip Generation and Mode Shares

The proposed development contains three major land uses: secondary school, childcare, and industrial facilities. Trips of all modes are generated for each land use separately. Different methodologies of trip generation have been applied.

The ITE Trip Generation Manual 11th Edition has been reviewed for appropriate trip generation rates for the each of the proposed land uses. Table 2 summarizes the vehicle trip rates for the proposed land uses.

Table 2: ITE Trip Generation Person Trip Rates

Land Use	ITE Land Use Code	# of students / 1000 sq ft GFA	Peak Hour	Vehicle Trip Rate	Directional Split		Method
Secondary School	525	1,614	AM	0.52	In	68%	Weighted Average
					Out	32%	
			PM	0.14	In	48%	Weighted Average
					Out	52%	
Day Care Centre	565	8	AM	11.00	In	47%	Weighted Average
					Out	53%	
			PM	11.12	In	53%	Weighted Average
					Out	47%	
General Light Industrial	110	281.6	AM	0.74	In	88%	Weighted Average
					Out	12%	
			PM	0.65	In	14%	Weighted Average
					Out	86%	

The secondary school is projected to serve 1,614 pupils at its peak consisting of 1,200 permanent and 414 temporary enrollments upon its completion before both the 2025 and 2030 horizons. The High School land use category (LUC 525) was used to estimate trips for the HDSB secondary school. The weighted average rate equations were used to determine appropriate vehicle trip generation rates. While there is a sufficient number of surveys included for each time period, the R^2 value is 0.56 for AM, less than 0.75, which suggests a poor fit with the data. and no fitted curve equation is available for PM. As recommended by ITE's guideline *Transportation Impact Analyses for Site Development*, the weighted average equations are chosen in this case.

The childcare adjacent to the secondary school was calculated using the Day Care Centre land use. The childcare facility has an estimated gross floor area of 8,000 square feet the size of this facility will be further refined through the site plan process and has only been estimated here for trip generation purposes. Only the weighted averages were provided in the ITE Trip Generation Manual. The size and projected trips may change when the detailed site plan becomes available.

The General Light Industrial land use category was used to estimate trips for the 281,600 square feet one-storey industrial employment buildings. The weighted averages were used because the R^2 values were around 0.6 for both cases.

Using the above vehicle trip rates, the total person trip generation for the developments is summarized in Table 3. No synergy or pass-by trip reduction factors have been applied to the trip generation. The functions of the

proposed developments do not support great synergy effects. Location-wise, there is no interconnectivity between Block 1 which consists of the school and childcare land uses and Block 2 which contains the industrial employment land use since they are separated by Natural Heritage System Areas.

Table 3: Total Vehicle Trip Generation - ITE

Land Use	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Secondary School	571	268	839	108	118	226
Childcare	42	47	89	48	42	90
General Light Industrial	183	25	208	26	157	183
Total Vehicle Trips	**796**	**340**	**1136**	**182**	**317**	**499**

However, the ITE Trip Generation Manual contains little data on the transit and active modes of trips for the secondary school category, which are major modes for this land use. It is not ideal to use the ITE rates as a basis for trip generation of transit and active modes. Therefore, the "first principles" methodology has been used to determine the total trips generated for the secondary school land use. The ITE rates were reserved for the other two land uses.

Using "first principles", the secondary school trip generation was estimated in two parts: the school trips by the students, and the work trips by the staff, with different mode share percentages. The conservative assumption of no carsharing was applied, thus each person would be making their own trips. It was also assumed that the drop-off/pick-up vehicles would leave the premise of school immediately, thus all the incoming auto passenger trips made by the students during the peak hour would be leaving within the same hour.

The mode share scenarios were determined for the secondary school students based on the existing data provided by the School Board as well as the 2016 Transportation Tomorrow Survey (TTS) data in nearby zones containing secondary schools. The data showed that most secondary school students get to school in active modes of walking and cycling, or by using transit services (including both the school bus services and the Oakville Transit School Specials routes services). Some students get dropped off by their parents. A few students in their senior years may drive to school themselves. The AM peak hour and PM peak hour mode share percentages differ from each other. The AM peak hour of school was assumed to coincide with the AM adjacent street peak hour as the start time of school generally corresponds to the start time of work. However, the PM peak hour of school was different from the PM peak hour on the streets since secondary schools generally end before 3 PM, earlier than typical PM commuter traffic would be expected to start. The number of students leaving school during the PM street peak hour was assumed to be around 20% of the total students. The percentage of auto passenger trips increases during the PM street peak hour comparing to the school peak, because the school bus services are generally no longer available during this time. Both the PM street peak hour and PM school peak hour trips have been calculated. The school was anticipated to open by 2025. It was assumed that the school would be operating at capacity for both the 2025 and 2030 horizons. The mode share percentages and number of trips generated during peak hours are summarized in Table 4.

Table 4: 2025 and 2030 Trip Generation by Mode – Secondary School Students

Travel Mode	AM Peak Hour				PM Street Peak Hour				PM School Peak Hour			
	Mode Share	In	Out	Total	Mode Share	In	Out	Total	Mode Share	In	Out	Total
Auto Driver	1%	16	0	16	1%	0	3	3	1%	0	13	13
Auto Passenger	20%	323	323	646	34%	110	110	220	15%	194	194	388
School Bus	20%	323	0	323	0%	0	0	0	20%	0	258	258
Public Transit	5%	81	0	81	10%	0	32	32	5%	0	65	65
Cycle	15%	242	0	242	15%	0	48	48	15%	0	194	194
Walk	39%	629	0	629	40%	0	129	129	44%	0	568	568
Total	**100%**	**1614**	**323**	**1937**	**100%**	**110**	**322**	**432**	**100%**	**194**	**1292**	**1486**

The vehicle trip analyses would use the AM peak hour and PM street peak hour as the critical periods due to the background traffic volumes. The secondary school was estimated to generate 662 and 223 two-way auto driver and auto passenger trips during the AM and PM Street peak hour, respectively. The school was also estimated to generate 323 trips by school bus during the AM peak hour, and 81 and 32 trips by public transit during the AM and PM Street peak hours. The pedestrian and cycling analyses would use the AM peak hour and PM school peak hour as the critical periods since the school would be the major generator of walking and cycling trips within the Study Area transportation network. The two-way cycling trips generated during the peak hours are 242 and 194 while the two-way walking trips generated are 629 and 568.

HDSB estimated a total staff count of 135 on site at peak enrollment, aiming for a staff to student ratio of 1:12 based on proxy school sites. A staff count of 135 was used in the calculations. It has been assumed that auto-passenger trips for staff would be carpooling. The mode shares used for 2025 and 2030, however, were interpolated using the 2016 TTS work-purposed trips to secondary school zones and the mode share targets achievable by Scenario D outlined in Town of Oakville's Transportation Master Plan Review, as indicated by the Town staff. Scenario D sees growth in active transportation, transportation demand management, and local transit, and higher growth in inter-regional transit. The 20% transit mode split target identified under the previous TMP is still the goal, however, it is considered to be beyond 2031. This mode split has a lower transit percentage than the Halton Region Transportation Master Plan to 2031 projections which is more accurate in describing the mode share changes in the Town of Oakville rather than the entire Region. The mode share percentages during peak hours are summarized in Table 5. The trip generation by mode for each land use is summarized in Table 6 and Table 7. The staff will generate 113 two-way vehicle trips during both the AM and PM peak hours in 2025, and similarly 104 two-way vehicle trips in 2030.

Table 5: Mode Share Assumptions – Secondary School Staff

Travel Mode	2016 TTS Work-Purposed Trips AM & PM	2031 Oakville Projection Scenario D	2031 Regional Projection	2025 Applied	2030 Applied
Auto Driver	95%	76%	72%	84%	77%
Transit	3%	12%	20%	8%	11%
Active Modes	1%	6%	5%	4%	6%
TDM	1%	6%	3%	4%	6%
Total	**100%**	**100%**	**100%**	**100%**	**100%**

Table 6: 2025 Trip Generation by Mode – Secondary School Staff

Travel Mode	Mode Share	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Auto Driver	84%	113	0	113	0	113	113
Transit	8%	11	0	11	0	11	11
Active Modes	4%	5	0	5	0	5	5
TDM	4%	5	0	5	0	5	5
Total	**100%**	**135**	**0**	**135**	**0**	**135**	**135**

Table 7: 2030 Trip Generation by Mode – Secondary School Staff

Travel Mode	Mode Share	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Auto Driver	77%	104	0	104	0	104	104
Transit	11%	15	0	15	0	15	15
Active Modes	6%	8	0	8	0	8	8
TDM	6%	4	0	4	0	4	4
Total	**100%**	**135**	**0**	**135**	**0**	**135**	**135**

Therefore, the total two-way vehicle trips generated by the secondary school are 775 and 336 during the AM and PM street peak hours for 2025 and 766 and 327 for 2030.

The mode share for the childcare centre attached to the secondary school is determined based on the TTS data for all childcare facilities in Oakville. The current mode share percentages are 85% auto driver, 5% auto passenger, 5% transit and 5% walking. The percentages of transit and walking modes are expected to rise with the transit corridor improvement in the future horizons. However, other factors should be considered for childcare-destined trips including safety concerns, convenience as well as the components of linked trips. Therefore, the same mode share percentages were maintained in the 2025 and 2030 horizons to be conservative. Due to the low volumes of trips generated by the childcare facility, such assumptions will not have discernible impact on the traffic analysis in the Study Area. The mode share is applied to the total person trips generated. To estimate person trip generation, the calculated vehicle trip generation rates in Table 3 were multiplied by a factor of 1.28. The mode share percentages and number of trips generated during peak hours are summarized in Table 8. The childcare facility will generate 97 and 98 two-way vehicle trips during the AM and PM peak hour.

Table 8: 2025 and 2030 Trip Generation by Mode – Childcare

Travel Mode	Mode Share	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Auto Driver	85%	46	51	97	52	46	98
Auto Passenger	5%	3	3	6	3	3	6
Transit	5%	3	3	6	3	3	6
Cycle	0%	0	0	0	0	0	0
Walk	5%	3	3	6	3	3	6
Total	**100%**	**54**	**60**	**114**	**61**	**54**	**115**

Similar to the school staff, the mode share used for the industrial lands in 2025 and 2030 were interpolated using the 2016 TTS data and the mode share targets outlined in Town of Oakville's Transportation Master Plan Review. The Study Area and its surroundings have not been fully developed and TTS data cannot be pulled from these zones. The data in industrial zones in Oakville were pulled from TTS which indicates that about 90% of the work trips are made in auto driver mode. The Regional projection for 2031 is seen as too aggressive for the industrial land use as well. Although transit corridor improvements will be made in the following years and the proximity to the GO Bus stops will encourage travellers to use the transit mode, it is unknown how effective this will be in reducing the auto driver in order to reach the projected future transit mode share of 20% in 2031 from the 2016 level of 6% even with the mode shift towards transit in the future horizons. The Town of Oakville's Scenario D projection is more realistic which can be achieved with new local transit routes along the arterials within the Study Area. The 2016 active mode share of almost 0% also would need to increase to the target mode share projections of 6% by 2031, which could potentially be achieved with the installation of pedestrian and cyclist facilities multi-use paths and bicycle lanes along William Halton Parkway. The existing and projected mode shares are summarized in Table 9.

Table 9: Mode Share Assumptions

Travel Mode	2016 TTS Industrial Trips AM Mode Share	Mode Share 2031 Oakville Projection Scenario D	2031 Regional Projection	2025 Mode Share	2030 Mode Share
Auto Driver	90%	76%	72%	81.5%	77%
Transit	6%	12%	20%	9.5%	11.5%
Active Modes	0%	6%	5%	4%	5.5%
TDM	4%	6%	3%	5%	6%
Total	**100%**	**100%**	**100%**	**100%**	**100%**

Using the above mode shares and vehicle trip rates, the person trips by mode have been projected. Table 10 summarizes the 2025 trip generation by mode.

Table 10: 2025 Trip Generation by Mode – Industrial

Travel Mode	Mode Share	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Auto Driver	81.5%	149	20	170	21	128	149
Transit	9.5%	17	2	20	2	15	17
Active Modes	4%	7	1	8	1	6	7
TDM	5%	9	1	10	1	8	9
Total	**100%**	**183**	**25**	**208**	**26**	**157**	**183**

Table 11 summarizes the 2030 trip generation by mode.

Table 11: 2030 Trip Generation by Mode – Industrial

Travel Mode	Mode Share	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Auto Driver	77%	141	19	160	20	121	141
Transit	11.5%	21	3	24	3	18	21
Active Modes	5.5%	10	1	11	1	9	10
TDM	6%	11	2	12	2	9	11
Total	**100%**	**183**	**25**	**208**	**26**	**157**	**183**

As shown above, the site is projected to generate 170 AM and 149 PM peak hour two-way auto trips during the 2025 horizon. With the shift in mode share, it will generate 160 AM and 141 PM peak hour two-way vehicle trips in 2030.

The total site trip generation of all three land uses in 2025 and 2030 are summarized in Table 12 and Table 13.

Table 12: 2025 Trip Generation by Mode – Total

Travel Mode	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Auto Driver	324	71	396	73	290	363
Auto Passenger	340	327	667	114	126	240
School Bus	323	0	323	0	0	0
Transit	112	5	118	5	61	66
Cycle	249	1	249	1	54	55
Walk	639	4	642	4	138	142
Total	**1986**	**408**	**2394**	**197**	**668**	**865**

Table 13: 2030 Trip Generation by Mode – Total

Travel Mode	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Auto Driver	307	70	377	72	274	346
Auto Passenger	345	328	672	115	130	245
School Bus	323	0	323	0	0	0
Transit	120	6	126	6	68	74
Cycle	251	1	251	1	56	57
Walk	641	4	645	4	141	144
Total	**1986**	**408**	**2394**	**197**	**668**	**865**

4.1.2 Trip Distribution

To understand the travel patterns of the secondary school, information has been obtained from the Halton District School Board (HDSB) on the catchment area. The boundary map, scatter map, and walking distance map are attached in Appendix C. Most of the residential units where students come from are located to the south of the school.

Table 14 below summarizes the distribution.

Table 14: Proposed School Catchment Area Trip Distribution

To/From	2025 Percent of Trips	2030 Percent of Trips
North	3%	3%
South	57%	55%

East	20%	17%
West	20%	25%
Total	100%	100%

The 2030 percentage of trips to the west increases slightly since the background developments to the south of Burnhamthorpe Road and to the west of Sixth Line consist of mostly residential units will be completed in that horizon. The development in the northeast corner of Sixth Line at Burnhamthorpe Road is mostly commercial, thus it generates few trips to the school. The childcare facility was assumed to have similar trip distribution pattern as the secondary school.

To understand the travel patterns of the industrial developments, the Transportation Tomorrow Survey (TTS) data for work purpose trips in Oakville has been used as a reference. Table 15 summarizes the distribution.

Table 15: 2016 TTS Oakville Work Purpose Trip Distribution

To/From	Percent of Trips
North	15%
South	35%
East	25%
West	25%
Total	100%

4.1.3 Trip Assignment

Using the distribution outlined above, turning movement splits, intersection turning restrictions, and access to major transportation infrastructure, the trips generated by the site have been assigned to the Study Area road network. Based on the number of parking spaces provided in the latest school site plan, the access on Sixth Line is assumed to be the main entrance to the secondary school while the access on Burnhamthorpe Road is assumed to be the minor entry point. The childcare facility will be sharing the access with the secondary school on Burnhamthorpe Road. The turning restriction at the access on Burnhamthorpe Road will also cause some people to reroute. All trips to the industrial development will access the site from the access on the extended portion of William Halton Parkway. The 2025 and 2030 site trip generation at the secondary school, based on the auto driver volumes in Table 4, Table 6, and Table 7, are illustrated in Figure 26 and Figure 27, respectively. The site trip generation at the childcare centre, based on the auto driver volumes in Table 8, is illustrated in Figure 28. The projected 2025 and 2030 industrial trip generation, based on the auto driver volumes in Table 10 and Table 11,are illustrated in Figure 29 and Figure 30.

Figure 26: 2025 Secondary School Site Trip Generation

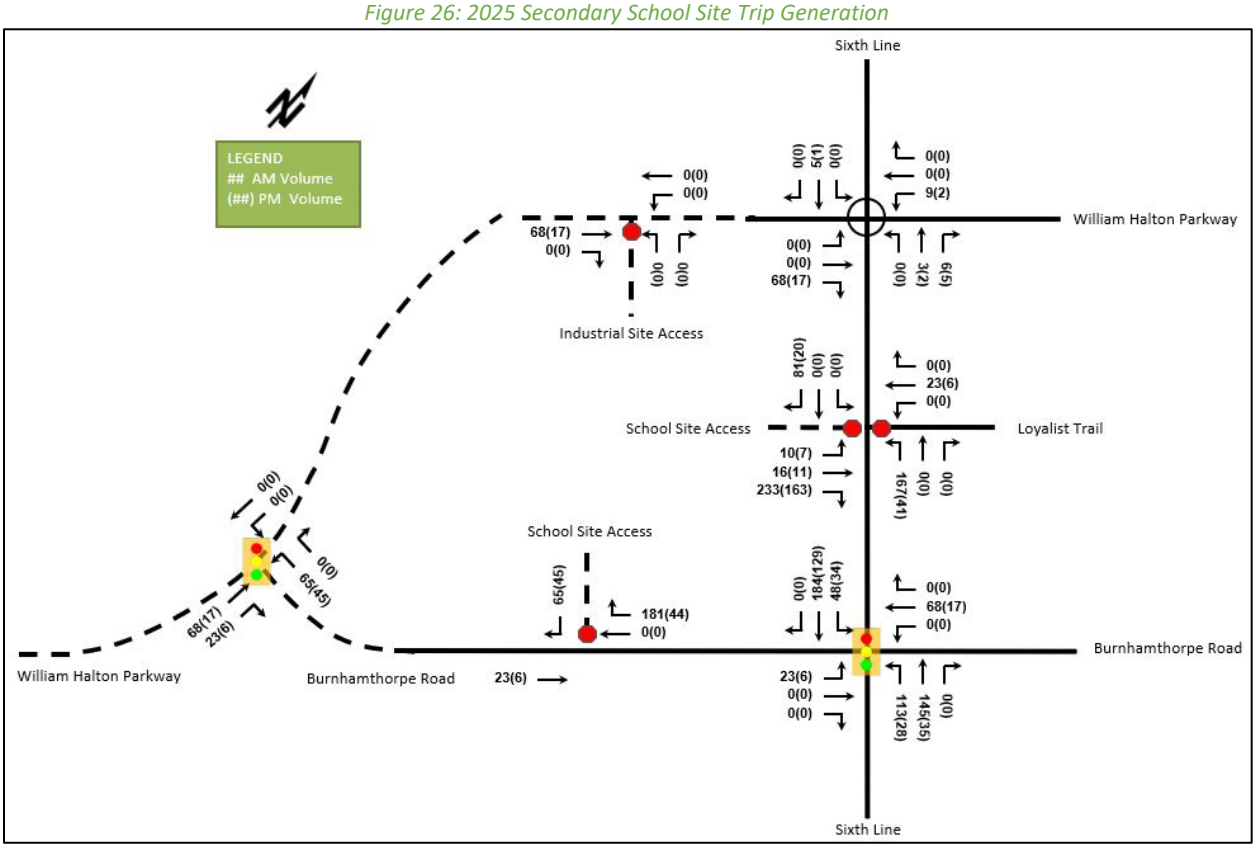


Figure 27: 2030 Secondary School Site Trip Generation

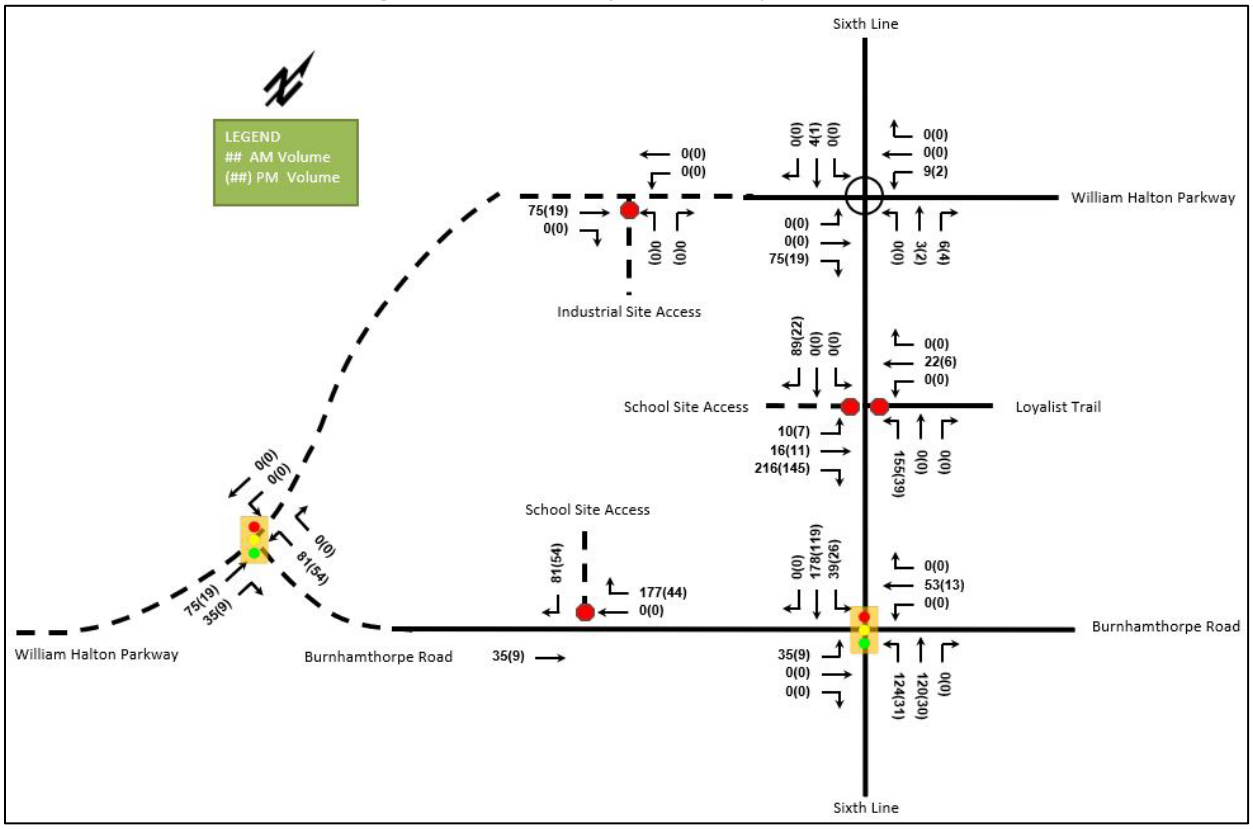


Figure 28: Childcare 2025 and 2030 Site Trip Generation

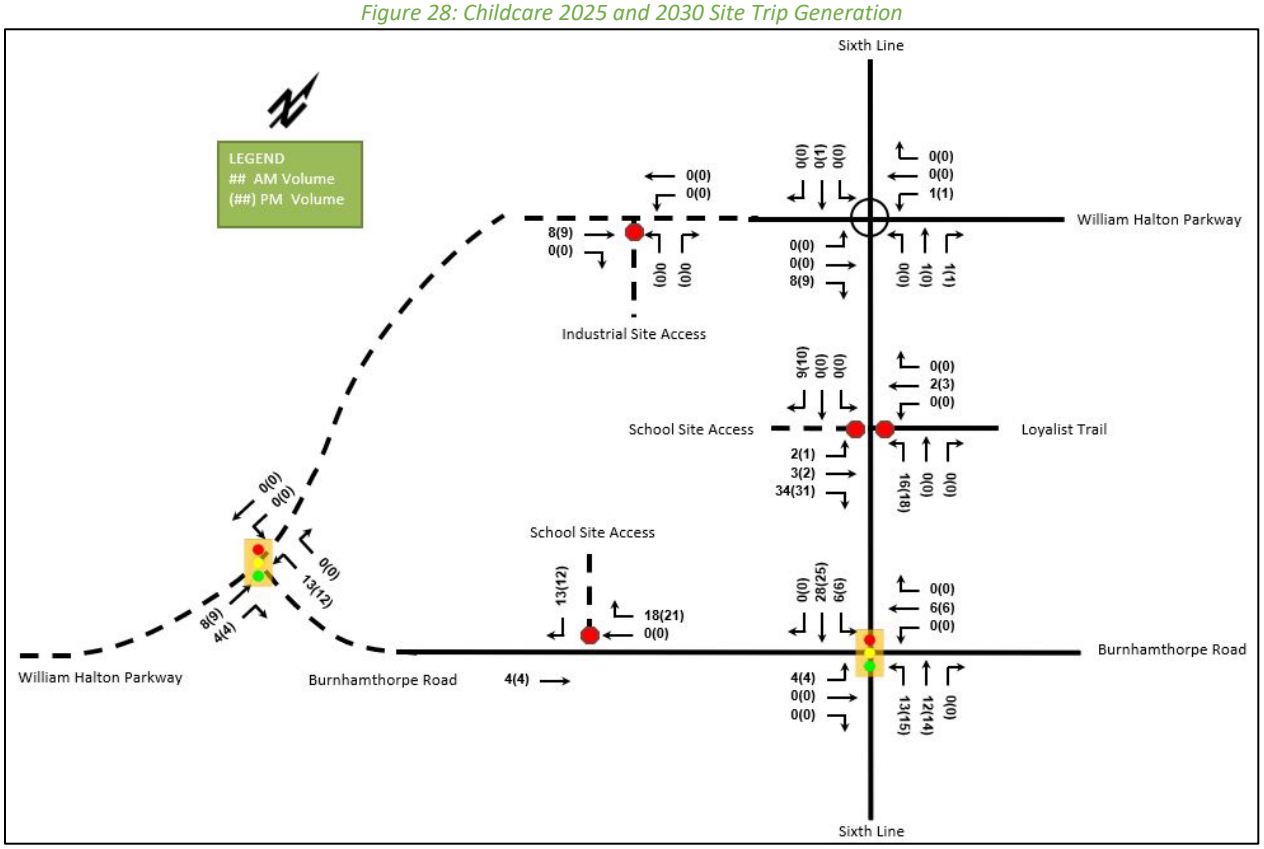


Figure 29: 2025 Industrial Site Trip Generation

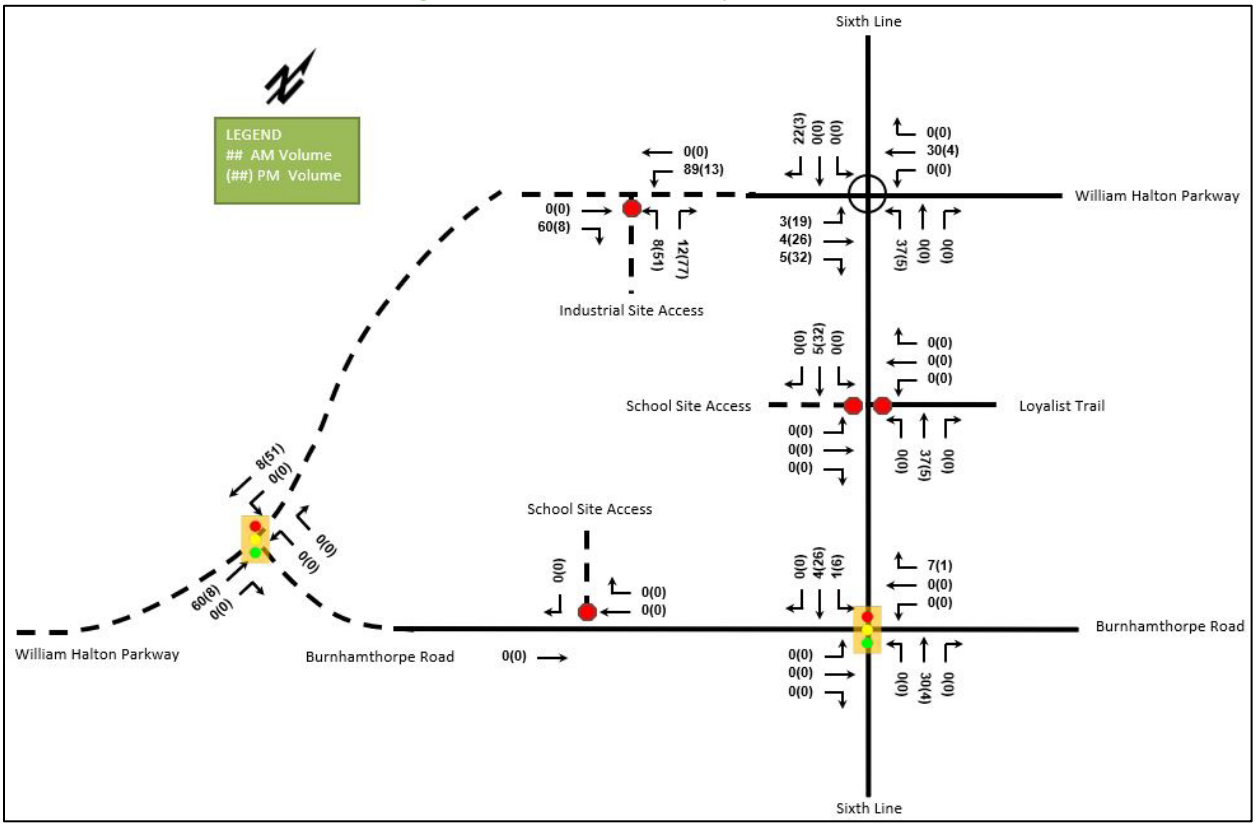


Figure 30: 2030 Industrial Site Trip Generation

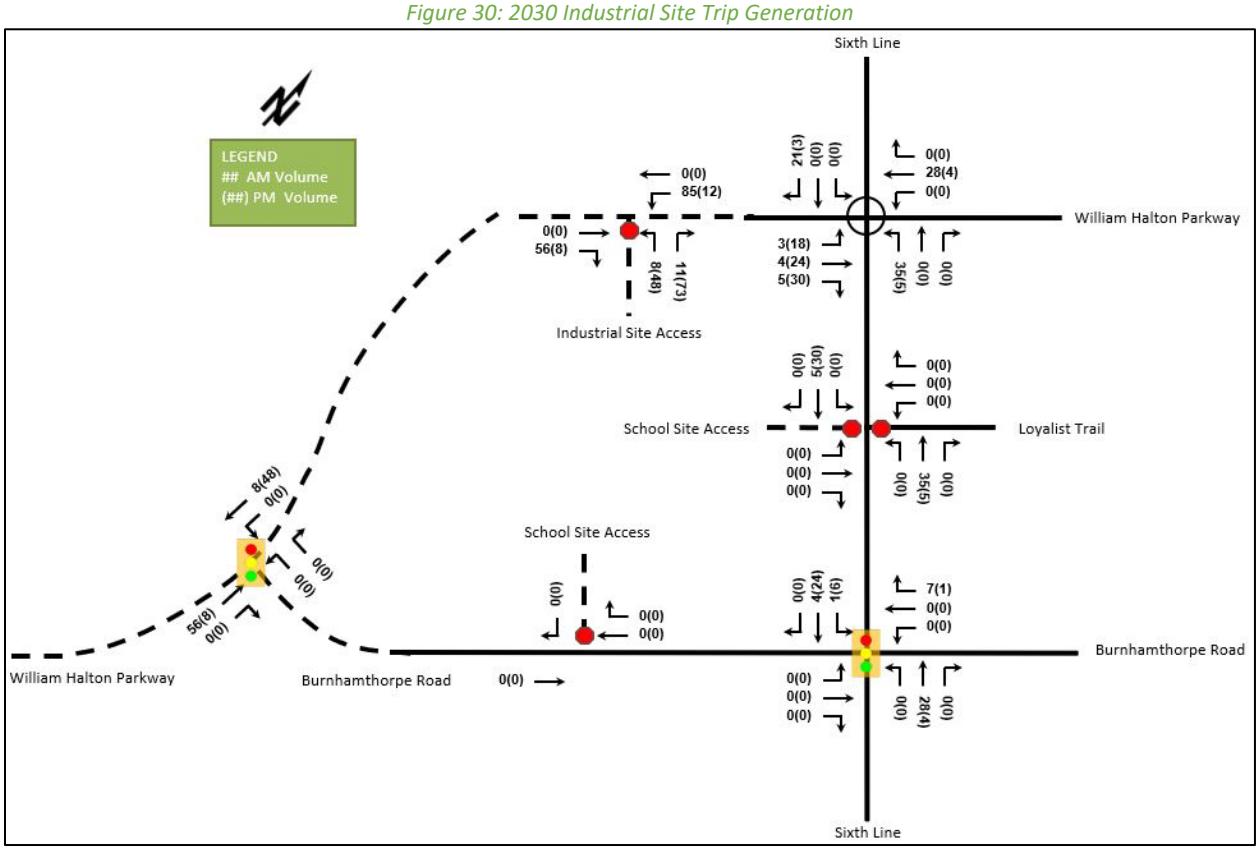


Figure 31: 2025 Total Site Trip Generation

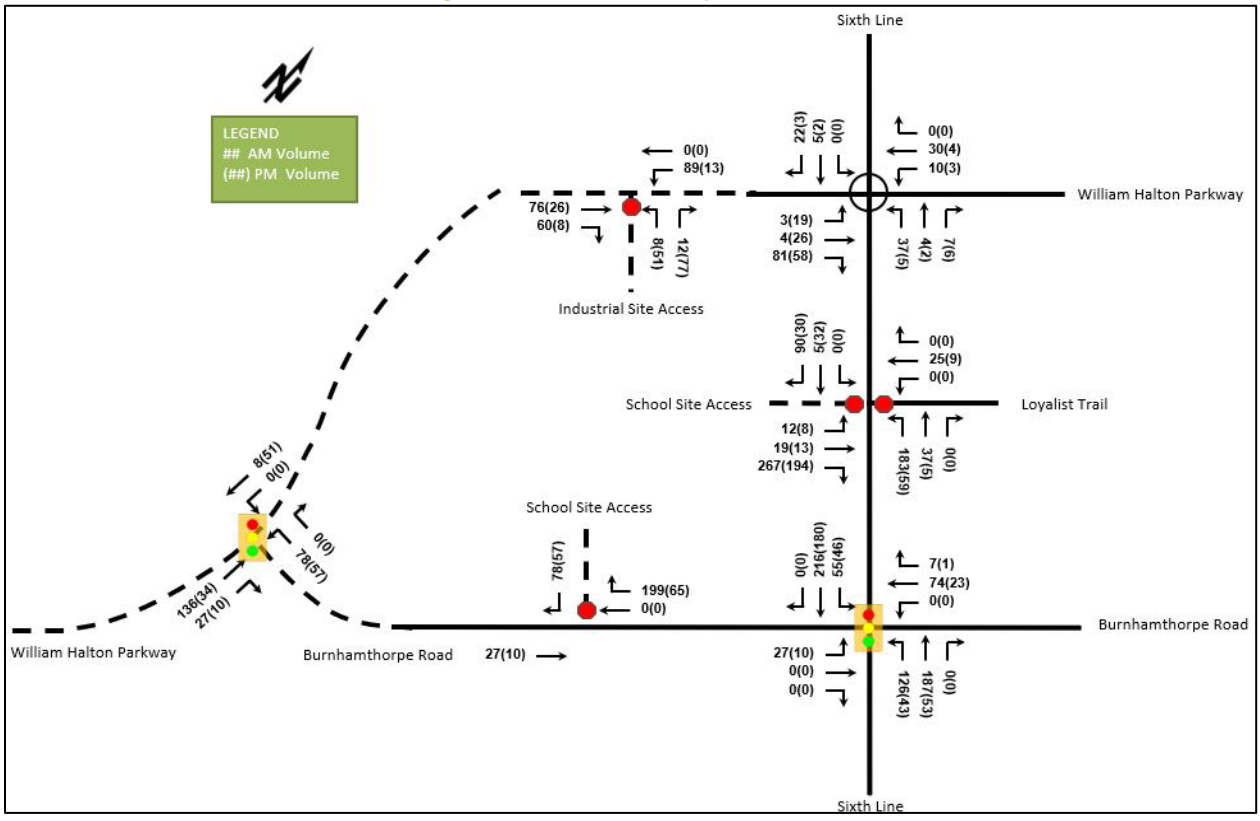
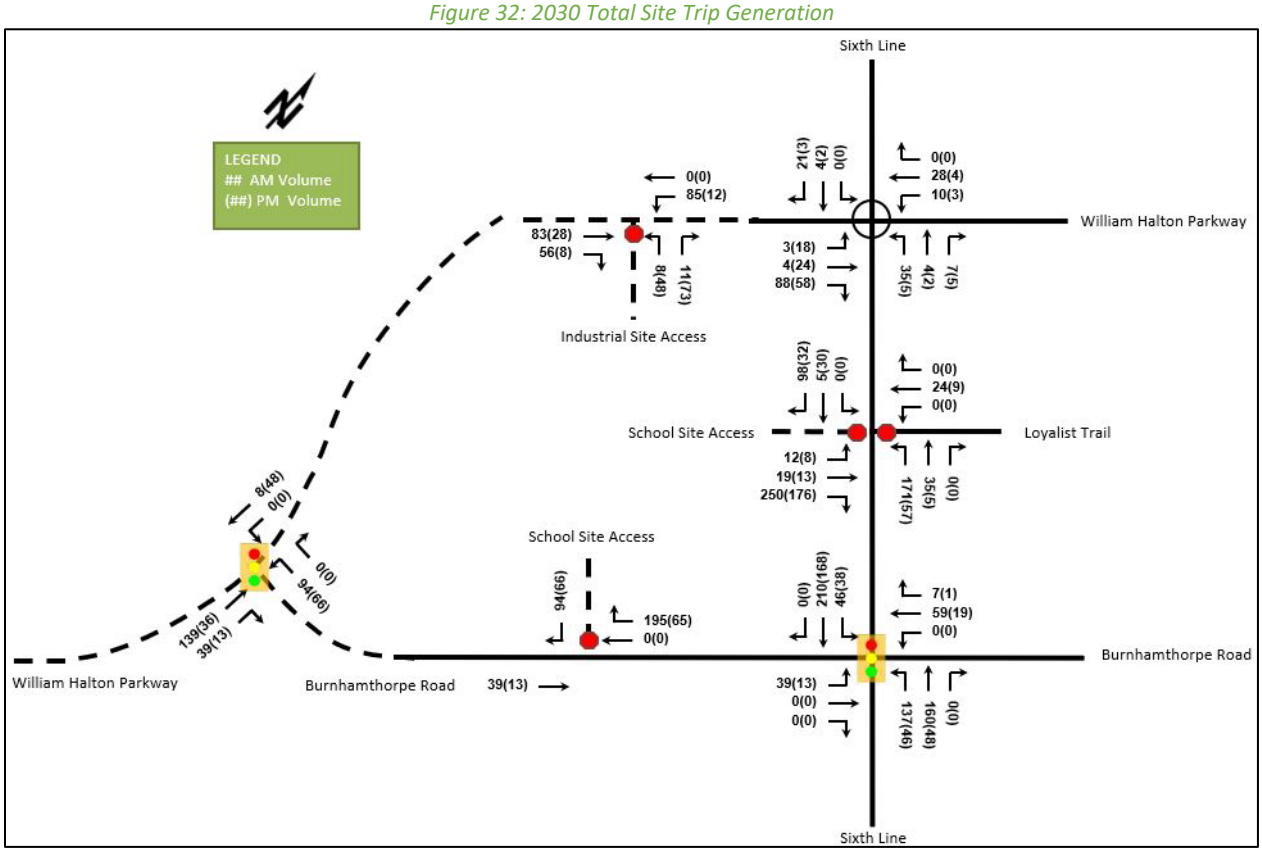


Figure 32: 2030 Total Site Trip Generation



4.1.4 Pedestrian and Cyclist Trip Assignment

Since one of the land uses in the proposed development is a secondary school, the active modes of walking and cycling account for a large portion of total trip generation. The pedestrian and cyclist trips have been distributed in similar manner as the vehicle trips, with further consideration in the distance. The pedestrians from the transit were not considered in this case given that the school bus would stop within the school site, rather than stopping by the street, and few trips would be generated by public transit. Figure 33 and Figure 34 illustrate the pedestrian and cyclist trips generated by the secondary school in 2025 and 2030.

Figure 33: 2025 and 2030 Secondary School Peaks Pedestrian Site Trips

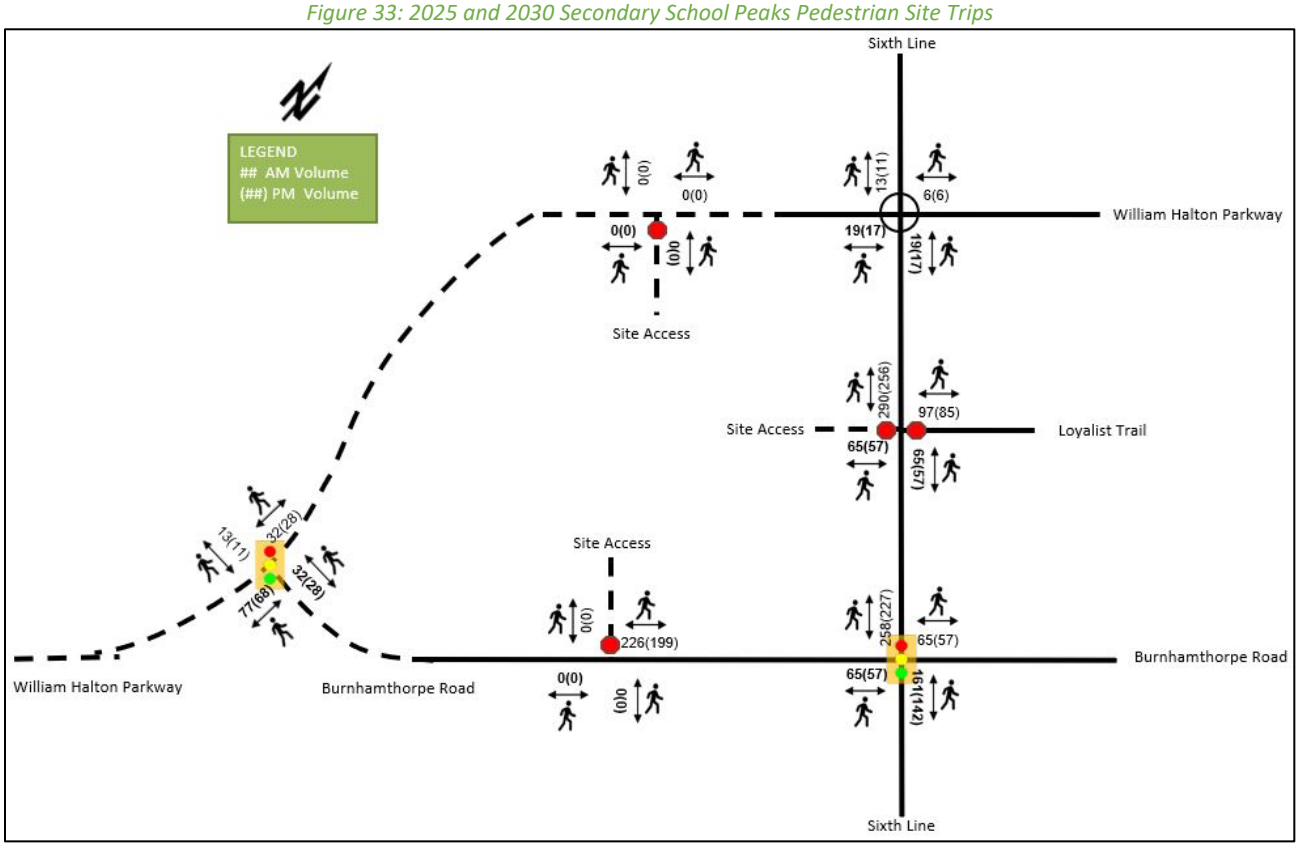
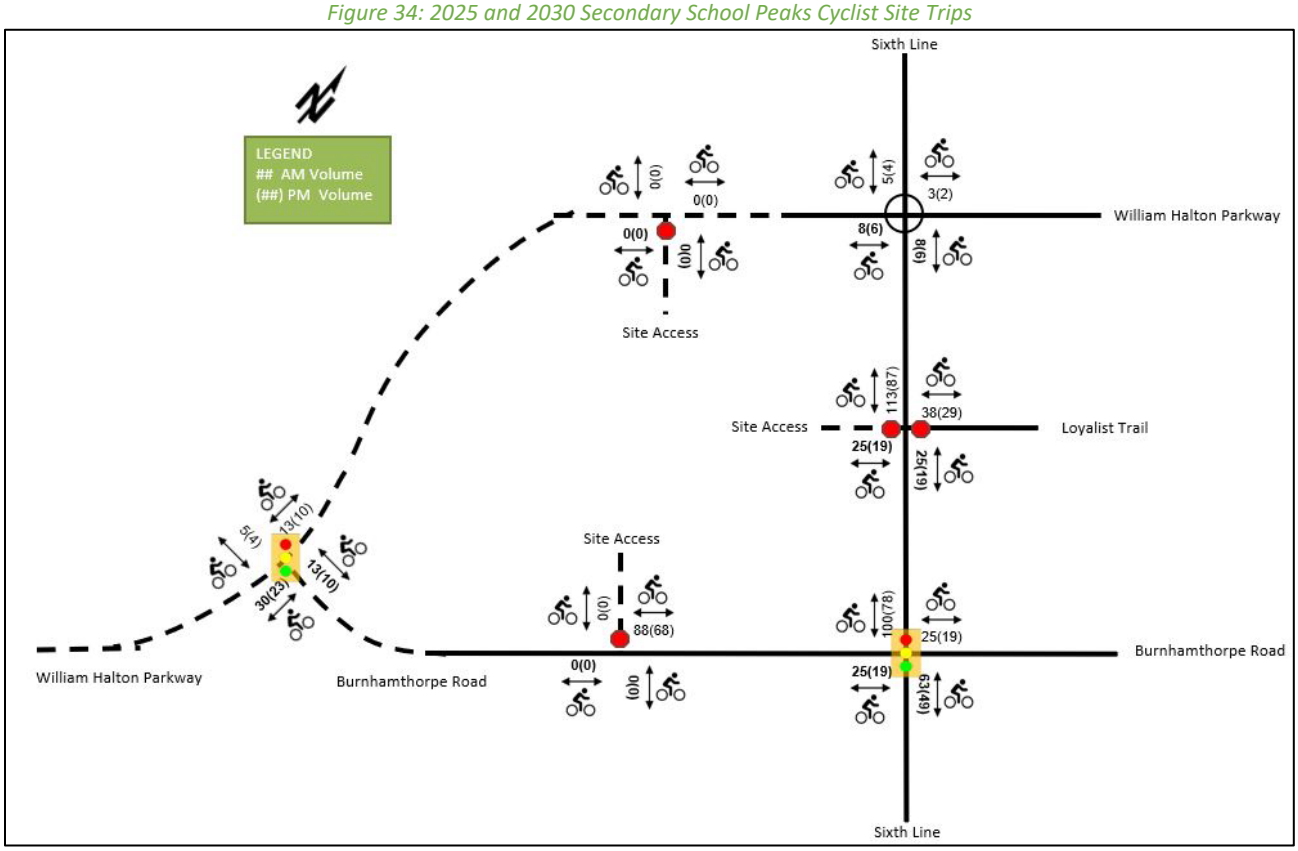


Figure 34: 2025 and 2030 Secondary School Peaks Cyclist Site Trips



4.1.5 Future Total Travel Demands

The site generated vehicle traffic has been combined with the 2025 and 2030 Future Background traffic volumes to estimate the Future Total traffic volumes. Figure 35 illustrates the 2025 Total Future traffic volumes and Figure 36 illustrates the 2030 Total Future traffic volumes.

Figure 35: 2025 Future Total Traffic Volumes

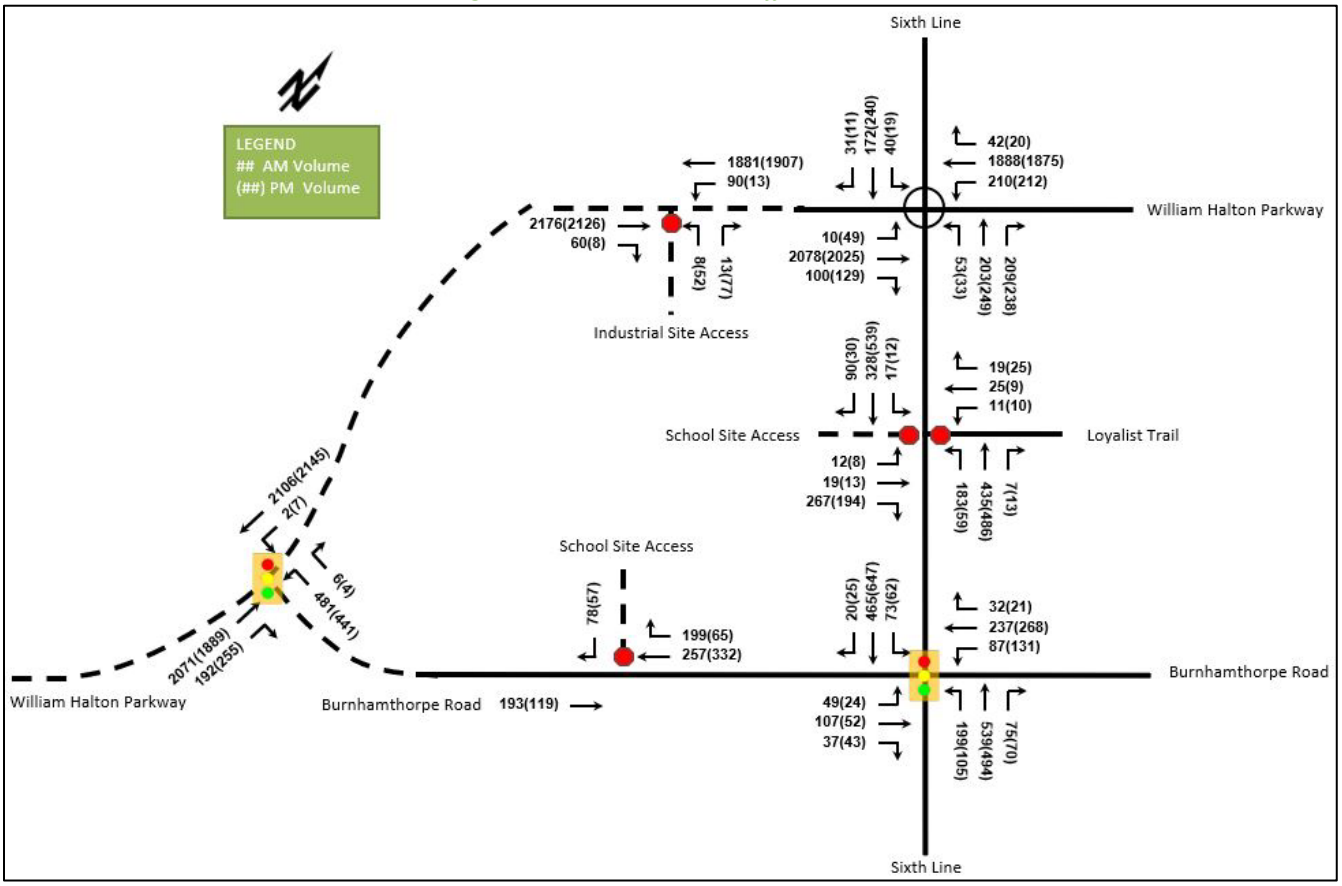
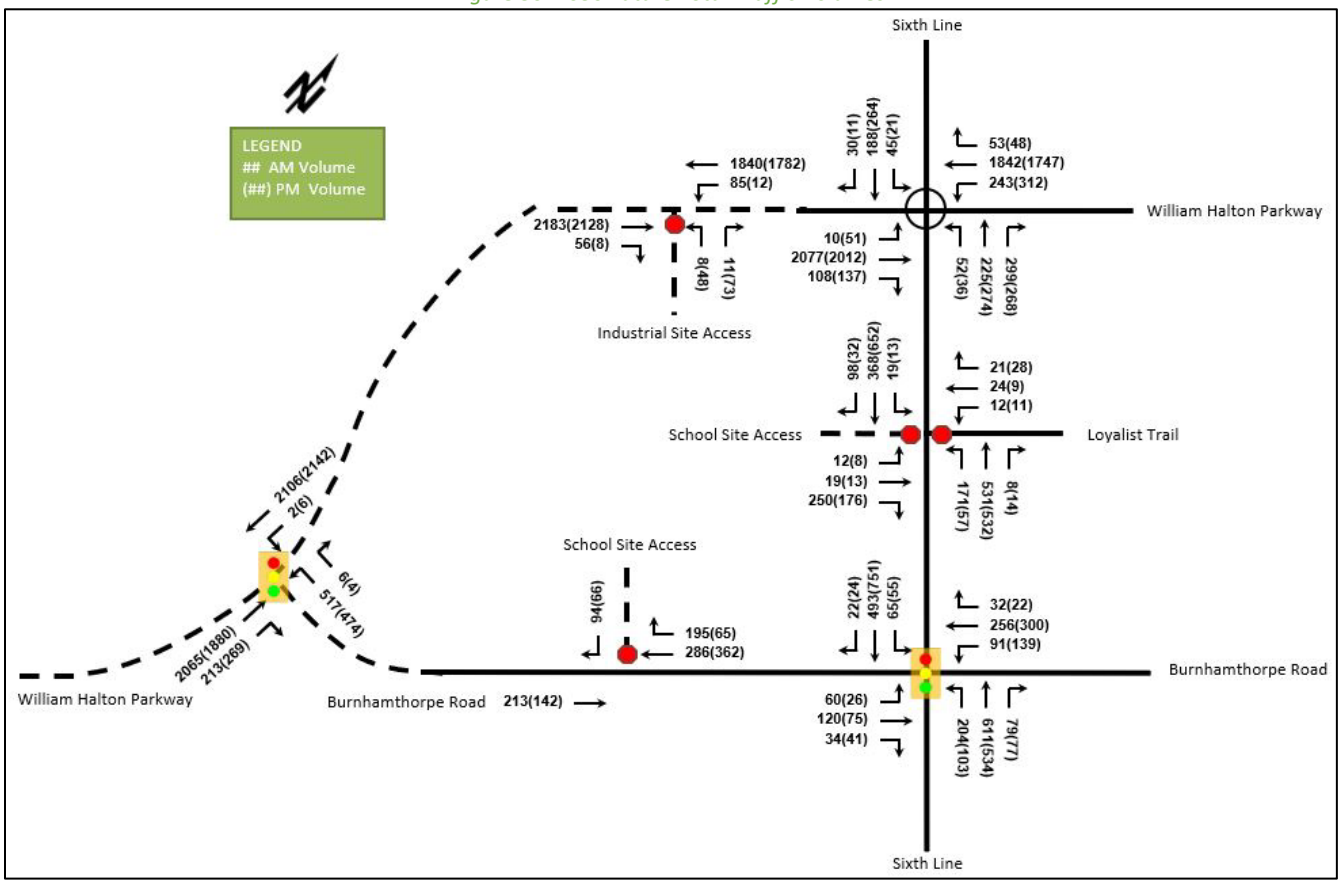


Figure 36: 2030 Future Total Traffic Volumes



5 Development Design

5.1.1 Transportation Demand Management

The proposed development includes a secondary school, a childcare centre, and industrial facilities. In these types of development, one of the most effective Transportation Demand Management (TDM) measures address access and usability of transit, cycling, and pedestrian facilities. To this end, the following plans have been created to illustrate the appropriate cycling (Figure 37), transit (Figure 38), and pedestrian (Figure 39) facilities. Transit stops have been assumed at all intersections of collector and arterial roads. As a result, the entire development is within a 400-metre walking distance to transit facilities.

The following TDM Measures are anticipated to be provided, but the details will be confirmed through the final design and implementation of the site:

- Provide excessive bicycle parking spaces at the secondary school
- Design a school bus route to cover the catchment area of the school
- Provide a multimodal travel option information package to new employees at the industrial land uses, and for secondary school staff

Figure 34: Cycling Concept Plan

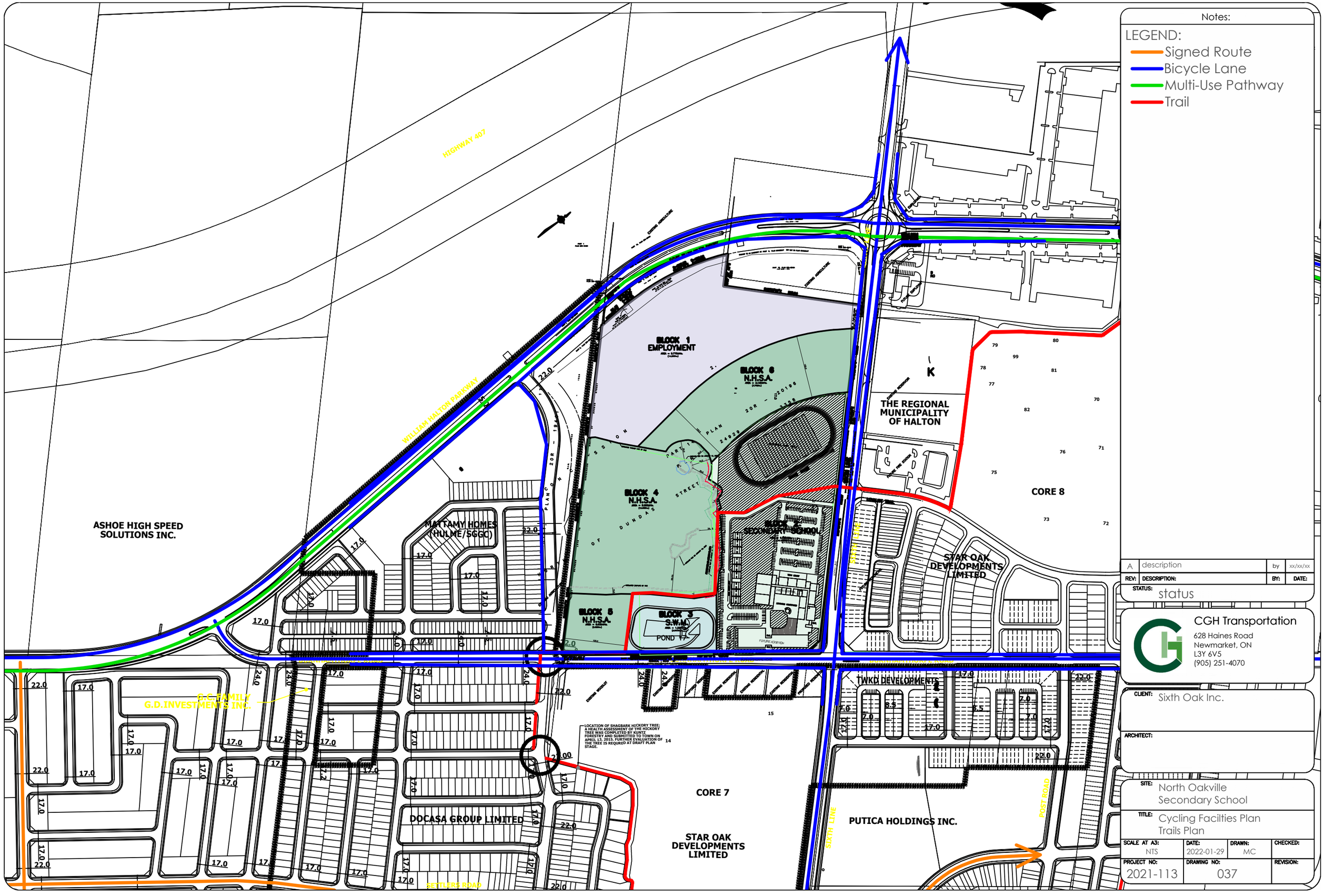


Figure 35: Transit Concept Plan

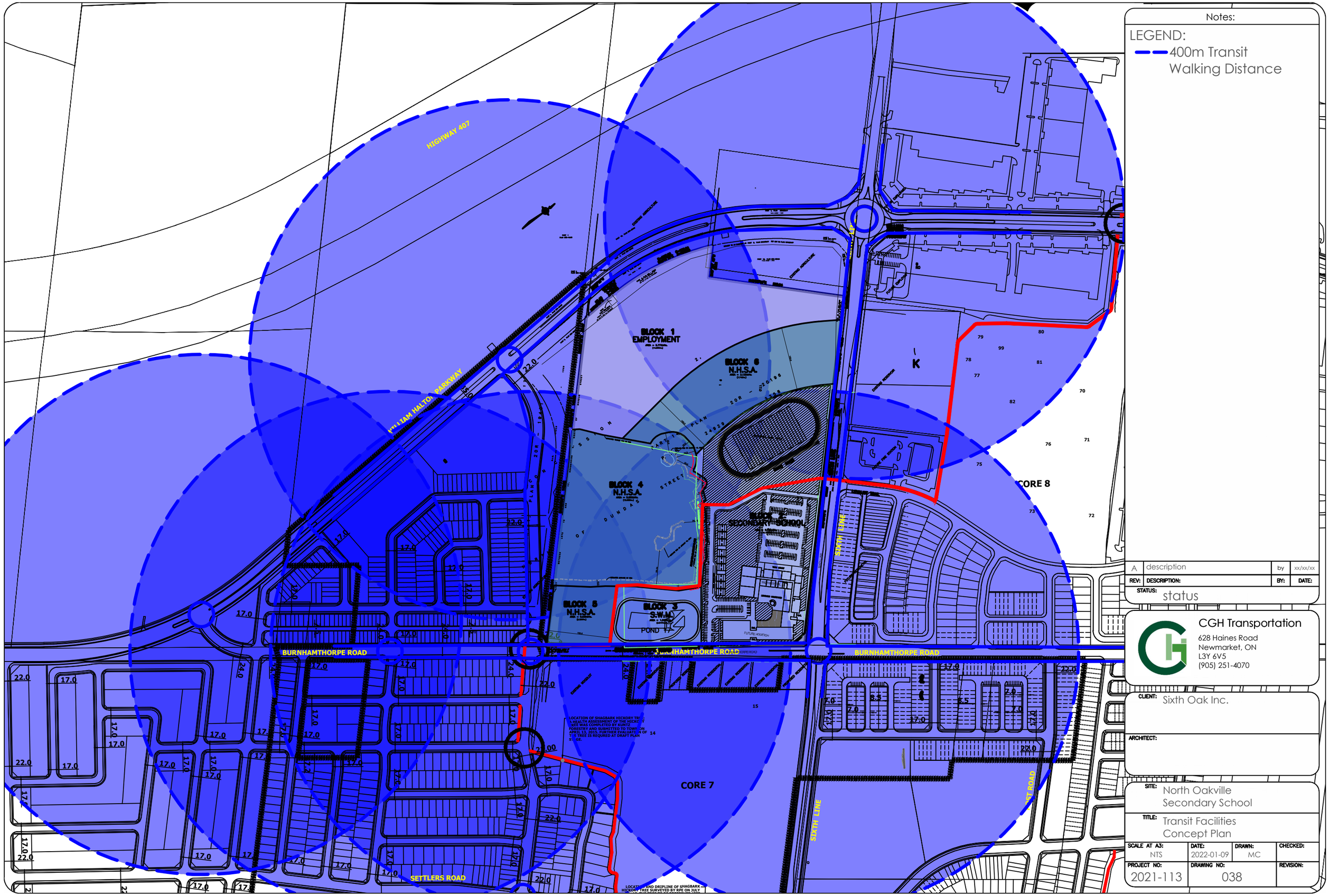
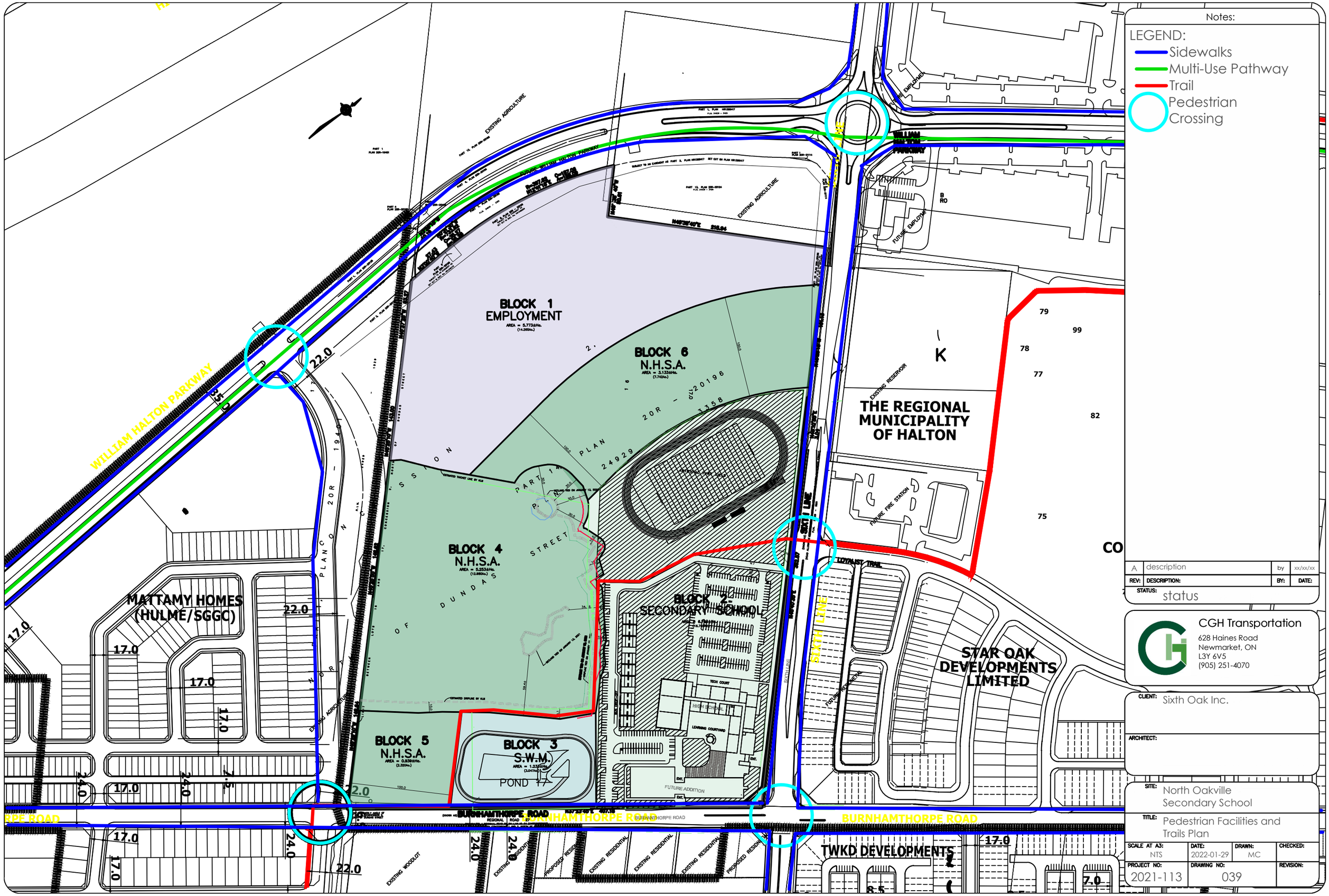


Figure 36: Pedestrian Concept Plan



5.1.2 Parking

The parking provisions for the proposed development have been reviewed using the North Oakville Zoning By-law 2009-189. Table 16 documents the required parking along with the parking provisions.

Table 16: Vehicle Parking Requirements - North Oakville Zoning By-law

Land Use Type	Classrooms / GFA (m^2)	Minimum Parking Rate	Maximum Parking Rate	Minimum Spaces Required	Maximum Spaces Permitted	Parking Spaces Provided
Public School, Secondary	80	*1 parking spaces per classroom*	*3 parking spaces per classroom*	80	240	205
Day Care Centre	750	*1 parking space per 40 square metres of leasable floor area*	*1 parking space per 30 square metres of leasable floor area*	19	25	
			Block 2 Total	99	265	205
Industrial use (Light or General)	26,165	*1 parking space per 200 square metres of leasable floor area*	NA	131	NA	131
			Block 1 Total	**131**	**NA**	**131**

As shown in the table above based on the by-law requirements, a total of 80 to 240 parking stalls are required for the secondary school with 80 classrooms and 131 parking stalls are required for the one-storey industrial lands with a total GFA of 26,165 square metres. A total of 205 spaces are provided to the secondary school and the daycare combined. The parking spaces provided will meet the zoning by-law requirements.

Garth Webb Secondary School located between Bronte Road and Third Line to the north of Upper Middle Road is considered a proxy site to the proposed school. Table 17 summarizes the parking spaces available at Garth Webb Secondary School and the number of parking spaces proposed for the new secondary school. In addition, Garth Webb is located beside a community park where another 114 parking spaces are provided and connected via driveways to the parking lots at the school.

Table 17: Vehicle Parking Requirements – Proxy Site

Location	Number of Students	Parking Spaces Provided	Parking Spaces Rate
Garth Webb	1,560	197	0.13
Proposed	1,614	205	0.13

It is shown that the proposed number of parking spaces at the new secondary school is at the same rate as an established secondary school in the Town of Oakville.

The number of accessible parking spaces are calculated based on the total number of parking spaces required. Table 18 summarizes the required parking along with the parking provisions for each land use.

Table 18: Accessible Vehicle Parking Requirements

Land Use Type	Number of Parking Spaces Required	Range	Minimum Spaces Required	Accessible Parking Spaces Provided

Public School, Secondary **Day Care Centre**	205	*201 to 300*	7	7
Block 2 Total			**7**	**7**
Industrial use (Light or General)	131	*101 to 150*	5	5
Block 1 Total			**5**	**5**

The 7 accessible parking spaces to the secondary school and daycare combined meets the zoning by-law requirement. The accessible parking spaces provided to the industrial facilities will also meet the zoning by-law prescriptions.

The bicycle parking provisions for the proposed development have been reviewed using the North Oakville Zoning By-law 2009-189. Table 19 documents the required parking along with the parking provisions. The bicycle parking spaces shall not exceed the maximum requirement of 200.

Table 19: Bicycle Parking Requirements

Land Use		Vehicle Parking Spaces	Minimum Parking Rate	Minimum Spaces Required	Bicycle Parking Spaces Provided
Non-Residential uses that require 15 or more non-residential parking spaces	Secondary School	80	*Bicycle Parking Spaces required at a rate of 7% of automobile parking spaces, as required by the Zoning Bylaw, including a minimum of 5 Bicycle Parking Spaces-Visitor*	6	6
	Day Care Centre	19		2	2
	Block 2 Total			**8**	**8**
	Industrial Lands	131		9	9
	Block 1 Total			**9**	**9**

Based on the by-law requirements, a minimum of 6 bicycle parking spaces is required for the secondary school, 2 for the childcare centre, and 9 for the industrial buildings. The bicycle parking spaces will be provided in the detailed site plan conforming with the zoning by-law requirements.

5.1.3 Development Access

Access to the proposed school and childcare facility will be accommodated via one driveway on Sixth Line and a second on Burnhamthorpe Road. The 6-metre-wide access on the Sixth Line allows full movement and aligns with the existing intersection of Loyalist Trail with Sixth Line, which leads to the Star Oak residential development on the east side of Sixth Line. The majority of the parking spaces provided for the secondary school and the childcare centre can be accessed via this driveway. This future four-legged intersection was modelled as a two-way stop intersection as an initial assumption. Using OTM Book 12 Justification 7, and the volume projections herein, the traffic control signal warrant for this intersection has been assessed in Appendix D for the 2025 Future Total horizon. A signal is not warranted for this intersection using Justification 7. However, in the future, it is still proposed to be signalized to address high delays in the east-west direction as indicated by the Synchro results which are summarized in Section 6. A Left Turn Lane warrant has also been assessed for the access, which can be found in Appendix E. It has been found that a northbound left lane is warranted with a storage length of 40 metres. However, the northbound left turning lane was not modelled in the analysis because it provided minimal improvements to the traffic movements at this intersection – either such improvements being unnecessary after

the widening of Sixth Line or such improvements being ineffective in reducing the eastbound and westbound delays caused by the large through volumes before the widening.

The access on Burnhamthorpe Road is right-in right-out only due to the current designation of Burnhamthorpe Road as a Regional road. Upon completion of the extension on William Halton Parkway, Burnhamthorpe Road's function as an east-west corridor will be replaced as discussed in Section 2.1. However, the transfer of the Regional road status may or may not be done before the future horizons. Therefore, the access was modelled as right-in right-out only in the future scenarios. The school bus lay-by area can be reached via this access.

Access to the industrial employment lands will be accommodated via driveways on William Halton Parkway. The access is currently assumed to be 300 metres to the west of the roundabout of William Halton Parkway at Sixth Line, which is also 350 metres away to one of the accesses to background development of Neighbourhood 9/10/11. More details of the access design will become available in subsequent iterations of the plan. The configuration and spacing will be designed adhering to Halton Region's Access Management Guideline. A signal is not warranted for this intersection using Justification 7. However, it has been proposed to signalize the access to address the high delays due to large traffic volumes on William Halton Parkway. A Left Turn Lane warrant has also been assessed for the access, which can be found in Appendix E, and the westbound left turning lane is warranted. The northbound left turning lane is not warranted, but it has also been proposed at the intersection to reduce the long delays and queues at the northbound movements.

5.1.4 Site Design

A preliminary demonstration plan has been created for the entirety of the subject development to illustrate the potential site layout and configuration. This site design will be refined through the Site Plan Application. It is recommended, based on preliminary feedback from Town of Oakville staff, that the York Region School Sites Design Guidelines be used as a reference document to inform the site design.

A site plan has been provided for the secondary school. The school building is located on the southern half of the site while the sport facilities are on the northern half. A parking lot is provided to the west of the building. There is a two-way circulation driveway on the west, north, and east sides of the site around the building areas and activity spaces starting from the access on Burnhamthorpe Road and ends with the drop-off loop in front of the entrance court facing Sixth Line. Extra parking spaces and drop-off laybys are provided along the driveway. Accessible parking spaces are provided at the end of the drop-off loop, beside a car drop-off layby, and inside the parking lot.

5.1.5 Car Drop-Off Layby and Bus Layby

Included along this driveway is a bus drop off layby that is approximately 96 metres long. Based on the peak enrollment of 1200 permanent students and 414 temporary students and a 20% school bus mode share during the AM peak hour, 7 big school buses are projected to be required and another 2 are recommended for future growth as indicated by HDSB. The bus layby area can be accessed from the full movement access on Sixth Line and an immediate left turn once the buses enter the circulation driveway. The bus layby area can accommodate 7 big school buses at the same time which is sufficient for current demand. An extra 23-metre layby just north of the loop can accommodate further demands.

There are three sections of drop-off layby for passenger vehicles, one is to the west of the practice field facing a row of parking spaces with a length of 50 metres. Another is to the north of the practice field with a length of 55 metres, and the third one is on the opposite side of the previous one with a length of 40 metres. Based on the Town of Oakville's Zoning By-law, the minimum length of a parallel parking space is 7.0 metres. Therefore, the

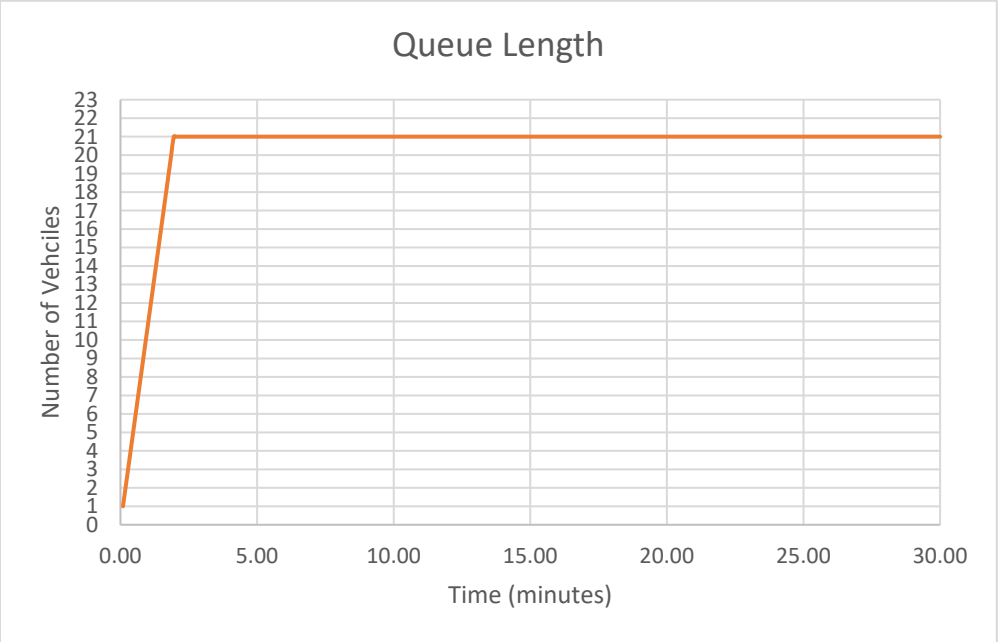
total length of the laybys has been divided by 7.0 and rounded down to estimate the parking capacity of the three layby areas. A total of 19 vehicles can fit into these three laybys at the same time.

The layby areas provided on the site plan have been reviewed to determine if they are sufficient to store all of the required vehicles during the peak drop-off period. To calculate the demand, the AM drop-off period is considered the peak period as it is anticipated that the PM pick-ups are scattered across a longer time frame due to extracurricular activities after school. The queues of the drop-off cars are calculated based on few assumptions:

- Based on the trip generation calculations in Section 4.1.1, a total of 323 vehicles are anticipated to arrive and depart the site in the AM peak hour.
- While the operational analysis has been completed using a one-hour period, the on-site queuing has been examined assuming all vehicles arrive and depart within a 30-minute period, to ensure a conservative analysis.
- Each vehicle is anticipated to occupy a layby space approximately 2 minutes to allow for drop-offs.
- The queue is assumed to be in steady state. The vehicle arrivals and departures are assumed to be evenly spread across the analysis period (i.e. a vehicle arrives every 5.6 seconds).

The queue length in number of vehicles across the 30-minute drop-off time periods is illustrated in Figure 40. The first departure of drop-off vehicles occurs after 21 vehicles are stacked in the layby and levels off at 21 vehicles till the end of the drop-off period. The detailed arrivals and departures chart is provided in Appendix F.

Figure 40: Queue Length vs Time



This estimation shows that layby storage space for 21 vehicles will be required. Therefore, it is recommended that, as the concept plan is refined and a site plan application is put forward, the laybys be extended such that at least two additional vehicles can be accommodated on site. The current concept plan would allow for additional layby space to be added without revisions to the access, parking, or building layout.

6 Operational Analysis

To understand the operational characteristics of the Study Area intersections, Synchro (Version 11), and Sidra (Version 8.0) have been used to model the Study Area intersections. The vehicle LOS for roundabouts modelled in Sidra has been based on the HCM 2010 average delay criteria.

Peak Hour Factors (PHF) have been calculated based on the existing turning movement counts and will be applied to both existing and future analysis horizons. Peak Hour Factors can be seen in the collected traffic data shown in Appendix B.

The Heavy Vehicle percentage (HV %) has been calculated for each turning movement at the Study Area intersections. All Heavy Vehicle percentages calculated to be less than 2% were entered into the Synchro model as 2% in order to produce a conservative analysis. These calculations are shown in Appendix G.

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 19) and unsignalized intersections (Table 20).

Table 20: 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 21: Level of Service Criteria for Unsignalized Intersections

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

6.1 2022 Existing Conditions

The existing intersection volumes have been analyzed to establish a baseline condition and determine the impact of the subject development as well as the surrounding background developments on the Study Area road network.

Table 21 summarizes the operational analysis of the 2021 existing conditions. Appendix H contains the 2022 Existing Conditions Synchro and Sidra worksheets.

Table 22: 2022 Existing Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Del (s)	Q (95th)	LOS	V/C	Del. (s)	Q (95th)
Sixth Line at Burnhamthorpe Road *(Unsignalized)*	EBL/T/R	B	0.06	14	2	F	1.79	385	47
	WBL/T/R	B	0.20	14	3	F	1.50	256	31
	NBL/T/R	B	0.08	13	2	E	0.80	37	7
	SBL/T/R	B	0.05	12	1	C	0.49	20	2
	Overall	**B**	**-**	**13**	**-**	**F**	**-**	**249**	**-**
Sixth Line at Loyalist Trail *(Unsignalized)*	WBL/R	B	0.04	10	1	B	0.06	11	1
	NBT/R	-	0.10	0	0	-	0.18	0	0
	SBL/T	A	0.01	0	<1	A	0.01	1	<1
	Overall	**A**	**-**	**1**	**-**	**A**	**-**	**1**	**-**
William Halton Parkway at Sixth Line *(Roundabout)*	East Leg	A	0.19	5	4	A	0.11	4	2
	North Leg	A	0.10	5	2	A	0.05	4	1
	South Leg	A	0.11	4	2	A	0.15	5	3
	Overall	**A**	**0.19**	**5**	**-**	**A**	**0.15**	**4**	**-**
Notes:	# - 95% percentile exceeds capacity m - volume for the 95th percentile queue is metered by an upstream signal								

The above table summarizes the intersection operational analysis of the 2022 volumes. Generally, the Study Area intersections are operating with good overall LOS of A or B and low delays under 15 seconds. The exception to this is the traffic condition at the intersection of Sixth Line at Burnhamthorpe Road where the are high v/c ratios of 1.79 and 1.50 and long delays for the east and west approaches during the PM peak hour. These operational constraints will not impact the future horizons because mitigation strategies have already been proposed for this intersection as part of the Sixth Line Widening Project as discussed in Section 3.1.2. The intersection will be signalized in the future conditions which will improve the traffic operations along Burnhamthorpe Road.

6.2 2025 Future Background Conditions

The 2025 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. While the widening of Sixth Line within the Study Area is planned for the 2025 horizon, if there are delays to the construction timing this development may proceed in advance of the widening. Therefore, two scenarios have been analyzed. Sixth Line has been modelled with the existing lane geometry, with one lane each way and the future geometry, two lanes each way along with turning lanes at the signalized intersection with Burnhamthorpe Road. The intersection of Sixth Line at Burnhamthorpe Road, however, will be signalized for both scenarios to address operational constraints that were shown to occur in the existing conditions.

In the 2025 future analysis horizons, the intersection of William Halton Parkway has been modelled as a two-lane, four-legged roundabout. Both the east and west intersection legs consist of shared left-turn / through lane and a shared through/right-turn lane, and both the north and south intersection legs consist of a shared left-turn / through lane and an auxiliary shared through / right-turn lane. On the north leg, the northbound lanes taper from two to one lane approximately 100 metres north of the intersections and on the south leg, the southbound lanes taper from two to one lane approximately 140 metres south of the intersection.

Table 22 summarizes the operational analysis of 2025 Future Background conditions. Synchro and Sidra worksheets have been included in Appendix I.

Table 23: 2025 Future Background Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Del (s)	Q (95th)	LOS	V/C	Del. (s)	Q (95th)
Sixth Line at Burnhamthorpe Road *(Signalized)*	Before Widening of Sixth Line								
	EBL/T/R	C	0.40	30	36	C	0.15	21	18
	WBL/T/R	D	0.81	46	67	C	0.76	32	91
	NBL/T/R	A	0.49	10	80	B	0.67	19	115
	SBL/T/R	A	0.26	7	39	B	0.54	14	90
	Overall	**C**	**0.64**	**20**	-	**C**	**0.78**	**21**	-
	After Widening of Sixth Line								
	EBL	C	0.12	28	8	D	0.10	35	7
	EBT/R	C	0.32	29	30	D	0.15	36	23
	WBL	D	0.46	36	27	D	0.56	39	42
	WBT/R	D	0.64	40	48	D	0.78	48	76
	NBL	A	0.12	9	16	B	0.14	11	16
	NBT/R	A	0.21	9	33	B	0.28	11	46
	SBL	A	0.03	6	4	A	0.03	7	4
	SBT/R	A	0.12	6	17	A	0.24	8	35
	Overall	**B**	**0.31**	**18**	-	**C**	**0.40**	**20**	-
William Halton Parkway at Sixth Line *(Roundabout)*	East Leg	F	1.43	216	1149	F	1.24	136	721
	West Leg	F	1.61	297	1291	F	1.37	192	838
	North Leg	C	0.46	24	11	C	0.47	24	11
	South Leg	E	0.78	45	30	E	0.76	40	29
	Overall	F	1.61	228	1291	F	1.37	144	838
William Halton Parkway at Burnhamthorpe Road *(Signalized)*	EBT	C	0.90	24	245	B	0.88	20	194
	EBR	A	0.12	8	9	A	0.17	7	8
	WBL	A	0.03	8	1	A	0.11	10	3
	WBT	C	0.98	34	#329	D	1.00	36	#284
	NBL	E	0.97	78	#165	E	0.97	78	#143
	NBR	C	0.00	33	4	C	0.00	31	m1
	Overall	**C**	**0.98**	**33**	-	**C**	**0.99**	**31**	-
Sixth Line at Loyalist Trail *(Unsignalized)*	EBL/T/R	A	0.00	0	0	A	0.00	0	0
	WBL/T/R	B	0.07	14	2	C	0.11	17	3
	NBL/T/R	-	0.00	0	0	-	0.00	0	0
	SBL/T/R	A	0.02	1	<1	A	0.01	0	<1
	Overall	**A**	-	**1**	-	**A**	-	**1**	-
Notes:	# - 95% percentile exceeds capacity; m - volume for the 95th percentile queue is metered by an upstream signal								

With the addition of background traffic growth as well as the nearby background development traffic, the Study Area intersections are still operating with good overall LOS of C or lower except for the roundabout at William Halton Parkway at Sixth Line. The signalization at Sixth Line at Burnhamthorpe Road is sufficient for reducing delays and improving the level of service. The traffic conditions are improved with widening of Sixth Line, although both configurations operate well under the 2025 Future Background volumes. At the roundabout, the traffic approaching from east and west legs (William Halton Parkway) experiences V/C ratios of 1.43 and 1.61 during the AM peak hour and 1.24 and 1.37 during the PM peak hour. The delays at these movements could reach as high as 5 minutes. The v/c ratios are also close to 1 for the eastbound through, westbound through and northbound left movements at the intersection of William Halton Parkway at Burnhamthorpe Road. Long queues that exceed the storage lengths are also observed at the northbound left movement. The conditions could not be mitigated by optimizing the signals, considering that the opposing movements of northbound left and eastbound through are both approaching capacity and neither has the residual green time to accommodate the traffic from the other direction.

Given that the volumes used on William Halton Parkway are 2100 vehicles per hour as provided by the Region, high v/c ratios and delays are expected. The intersections along William Halton Parkway are projected to operate over capacity. Since 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.

6.3 2025 Future Total Conditions

The analysis parameters used to analyze the 2025 Future Background conditions have been carried forward as part of the analysis of 2025 Total Future conditions. The 2025 site-generated volumes have been added.

Table 23 summarizes the results of the operational analysis for 2025 Future Total conditions. Synchro and Sidra worksheets have been included in Appendix J.

Table 24: 2025 Total Future Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Del (s)	Q (95th)	LOS	V/C	Del. (s)	Q (95th)
Sixth Line at Burnhamthorpe Road *(Signalized)*	Before Widening of Sixth Line								
	EBL/T/R	D	0.61	37	56	C	0.23	21	23
	WBL/T/R	F	1.02	90	#130	E	0.94	55	#120
	NBL/T/R	D	1.02	55	#245	C	0.89	30	#164
	SBL/T/R	B	0.60	13	89	C	0.84	23	#166
	Overall	**D**	**1.02**	**47**	-	**C**	**0.91**	**32**	-
	After Widening of Sixth Line								
	EBL	C	0.26	25	13	C	0.15	21	7
	EBT/R	C	0.26	25	28	C	0.16	21	14
	WBL	C	0.37	32	25	C	0.45	24	27
	WBT/R	D	0.73	41	65	C	0.69	29	53
	NBL	C	0.52	21	#54	A	0.28	8	19
	NBT/R	B	0.37	15	55	A	0.29	7	31
	SBL	A	0.17	8	13	A	0.14	7	11
	SBT/R	A	0.24	9	34	A	0.34	7	39
	Overall	**B**	**0.55**	**19**	-	**B**	**0.44**	**12**	-
William Halton Parkway at Sixth Line *(Roundabout)*	East Leg	F	1.52	254	1244	F	1.27	146	744
	West Leg	F	1.69	329	1422	F	1.44	222	961
	North Leg	D	0.51	26	13	C	0.47	24	11
	South Leg	E	0.84	50	38	E	0.75	38	29
	Overall	F	1.69	257	1422	F	1.44	161	961
William Halton Parkway at Burnhamthorpe Road *(Signalized)*	EBT	E	1.04	61	#424	C	0.92	31	#308
	EBR	B	0.20	13	23	B	0.22	11	21
	WBL	B	0.04	13	2	B	0.15	17	4
	WBT	E	1.06	67	#437	E	1.05	59	#415
	NBL	E	0.96	78	#219	E	0.94	75	#190
	NBR	D	0.01	35	4	D	0.00	35	3
	Overall	**E**	**1.03**	**63**	-	**D**	**1.02**	**47**	-
	Mitigation Measure: Signal Optimization								
	EBT	E	1.04	56	#395	C	0.93	27	#249
	EBR	B	0.20	12	21	A	0.20	9	12
	WBL	B	0.04	12	2	B	0.12	12	3
	WBT	E	1.05	62	#406	E	1.06	58	#332
	NBL	E	0.96	77	#210	E	0.99	78	#168
	NBR	C	0.01	33	4	C	0.00	29	3
	Overall	**E**	**1.02**	**59**	-	**D**	**1.04**	**45**	-
Sixth Line at Loyalist Trail/Access on Sixth	Before Widening of Sixth Line								
	EBL/T/R	F	1.49	283	148	E	0.72	40	40
	WBL/T/R	F	1.82	649	51	F	0.49	74	16

Intersection	Mvmnt	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Del (s)	Q (95th)	LOS	V/C	Del. (s)	Q (95th)
Line *(Unsignalized)*	NBL/T/R	A	0.23	6	7	A	0.07	2	2
	SBL/T/R	A	0.02	1	<1	A	0.01	0	<1
	Overall	**E**	**-**	**88**	**-**	**D**	**-**	**9**	**-**
	Mitigation Measure: Signalization								
	EBL/T/R	C	0.42	35	29	C	0.25	21	16
	WBL/T/R	C	0.29	33	16	B	0.13	20	8
	NBL/T/R	A	0.68	8	118	A	0.54	6	55
	SBL/T/R	A	0.38	4	46	A	0.51	6	54
	Overall	**B**	**0.64**	**14**	**-**	**A**	**0.49**	**9**	**-**
	After Widening of Sixth Line								
	EBL/T/R	F	1.04	99	90	C	0.53	22	23
	WBL/T/R	F	0.86	169	32	D	0.27	33	8
	NBL/T/R	A	0.23	6	7	A	0.16	3	2
	SBL/T/R	A	0.16	1	<1	A	0.19	1	<1
	Overall	**B**	**-**	**29**	**-**	**B**	**-**	**5**	**-**
	Mitigation Measure: Signalization								
	EBL/T/R	B	0.55	14	24	B	0.45	15	17
	WBL/T/R	B	0.11	11	7	B	0.09	13	5
	NBL/T/R	A	0.55	8	35	A	0.36	5	22
	SBL/T/R	A	0.28	6	18	A	0.34	5	22
	Overall	**A**	**0.55**	**9**	**-**	**A**	**0.38**	**7**	**-**
Access at Burnhamthorpe Road *(Unsignalized)*	EBT	-	0.12	0	0	-	0.08	0	0
	WBT/R	-	0.29	0	0	-	0.25	0	0
	SBR	B	0.16	13	4	B	0.10	11	2
	Overall	**A**	**-**	**1**	**-**	**A**	**-**	**1**	**-**
Access at William Halton Parkway *(Unsignalized)*	EBT/R	-	0.93	0	0	-	0.91	0	0
	WBL	E	0.51	42	20	C	0.07	23	2
	WBT	-	0.60	0	0	-	0.61	0	0
	NBL	F	4.77	Err	Err	F	10.70	Err	Err
	NBR	D	0.08	28	2	E	0.45	39	16
	Overall	**D**	**-**	**21**	**-**	**C**	**-**	**126**	**-**
	Mitigation Measure: Signalization								
	EBT/R	D	1.01	41	#359	C	0.96	23	#254
	WBL	D	0.71	52	#33	A	0.17	6	4
	WBT	A	0.76	9	144	B	0.86	14	159
	NBL	D	0.03	43	7	C	0.16	30	18
	NBR	D	0.01	43	6	C	0.23	31	23
	Overall	**C**	**0.84**	**27**	**-**	**B**	**0.79**	**19**	**-**
Notes:	# - 95% percentile exceeds capacity m - volume for the 95th percentile queue is metered by an upstream signal								

The projected 2025 Total Future conditions are similar to those projected for the 2025 Future Background conditions, with the east-west volumes on William Halton Parkway projected to operate close to or over capacity. At Sixth Line and Burnhamthorpe Road in the AM peak period, the westbound shared left/through/right movement operates with a V/C slightly above 1 before the widening of Sixth Line. After widening, the intersection operates with good overall v/c ratio of B or lower and short delays for all movements. Therefore, the operational constraints will only be temporary and can be resolved with the widening of Sixth Line. The stop-controlled right-in right-out access onto Burnhamthorpe Road operates under good conditions with LOS of A. The two-way stop intersection of Sixth Line at Loyalist Trail and School Site Access experiences high delay at the eastbound and westbound shared left/through/right movements during the AM and PM peak hours due to traffic demand of vehicles entering the school site. The conditions persist even with the widening of Sixth Line. Signalizing the

intersection is proposed to mitigate the operational constraints experienced projected at this intersection. After signalization, the overall v/c ratios can be reduced to 0.55 and 0.38 during the AM and PM peak hours and an LOS of A is achieved. Signalization is also recommended to improve the safety and efficiency of pedestrian and cyclist movements at the school site.

The intersection of William Halton Parkway at Burnhamthorpe Road will operate with v/c ratios close to 1.0 on the eastbound through, westbound through, and northbound left movements, especially during the AM peak hour. The northbound left movement experiences a long queue which exceeds the storage length. Overall, the delays are still acceptable for these movements. The roundabout at Sixth Line and William Halton Parkway, however, will have operational constraints with v/c ratios of 1.52 and 1.69 during AM peak hour and 1.27 and 1.44 during PM peak at the east and west legs. The maximum 95th percentile queue will reach 1.4 kilometres for the west leg due to the high volumes on William Halton Parkway, spilling over to adjacent accesses and intersections. Since the roundabout is significantly over capacity, minor mitigation strategies will not solve the issue. However, conditions are expected to improve as the traffic volume on William Halton Parkway will likely be smaller than that provided by the Region. At the access to the industrial buildings on William Halton Parkway, the northbound left movement will be constrained by the high volumes on the major road as the left-turning vehicles will have hard time getting onto William Halton Parkway. Signalizing the intersection is proposed as a mitigation strategy to improve the traffic at the access, which would allow all movements to operate under or at capacity.

6.4 2030 Future Background Conditions

The 2030 Future Background horizon has 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. In the 2030 future analysis horizons, the intersection of William Halton Parkway at Sixth Line has been modelled as a two-lane, four-legged roundabout with yield control on each approach. All intersection approaches consist of shared left-turn / through lane and a shared through/right-turn lane. By 2030, it is also assumed that the widening of Sixth Line to Highway 407 will be completed, and the intersection of Sixth Line at Burnhamthorpe Road will have auxiliary left turning lanes at all approaches. The configuration has been coded into Synchro to be generally consistent with the Sixth Line Widening EA Preliminary Design. The signal timing has been optimized for the new configuration. Table 24 summarizes the operational analysis of 2030 Future Background conditions. Synchro and Sidra worksheets are included as Appendix K.

Table 25: 2030 Future Background Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Del (s)	Q (95th)	LOS	V/C	Del. (s)	Q (95th)
Sixth Line at Burnhamthorpe Road *(Signalized)*	EBL	C	0.12	27	7	C	0.10	25	5
	EBT/R	C	0.32	28	31	C	0.20	25	21
	WBL	C	0.43	34	27	C	0.52	32	38
	WBT/R	D	0.68	40	55	D	0.77	41	74
	NBL	A	0.12	10	16	B	0.15	12	16
	NBT/R	B	0.28	11	45	B	0.33	13	53
	SBL	A	0.04	6	5	A	0.04	8	5
	SBT/R	A	0.14	7	20	A	0.31	9	47
	Overall	**B**	**0.37**	**18**	-	**B**	**0.46**	**19**	-
William Halton Parkway at Sixth Line *(Roundabout)*	East Leg	F	1.46	230	1168	F	1.27	242	743
	West Leg	F	1.68	325	1346	F	1.49	147	946
	North Leg	D	0.49	25	12	C	0.49	25	12
	South Leg	F	1.02	75	93	E	0.77	39	32
	Overall	F	1.68	244	1346	F	1.53	167	946

Intersection	Mvmnt	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Del (s)	Q (95th)	LOS	V/C	Del. (s)	Q (95th)
William Halton Parkway at Burnhamthorpe Road *(Signalized)*	EBT	C	0.93	26	#245	C	0.89	23	219
	EBR	A	0.13	8	9	A	0.18	9	11
	WBL	A	0.03	8	1	B	0.10	11	3
	WBT	D	1.01	42	#313	D	1.01	43	#315
	NBL	E	0.97	74	#161	E	0.96	71	#153
	NBR	C	0.00	30	4	C	0.00	30	3
	Overall	**D**	**1.00**	**37**	**-**	**D**	**1.00**	**35**	**-**
Sixth Line at Loyalist Trail *(Unsignalized)*	EBL/T/R	A	0.00	0	0	A	0.00	0	0
	WBL/T/R	B	0.07	13	2	B	0.09	13	2
	NBL/T/R	-	0.16	0	0	-	0.18	0	0
	SBL/T/R	A	0.12	1	<1	A	0.20	1	<1
	Overall	**A**	**-**	**1**	**-**	**A**	**-**	**1**	**-**
Notes:	# - 95% percentile exceeds capacity; m - volume for the 95th percentile queue is metered by an upstream signal								

The addition of background traffic growth to the 2030 horizon as well as additional nearby background developments reaching full build-out and occupancy is projected to increase the background traffic, thus the overall operational performance of the Study Area intersections is slightly worse than the 2025 Future Background horizon. The operational performance at the Sixth Line and Burnhamthorpe Road intersection is projected to operate well due to the widening of Sixth Line to two lanes each direction and the re-configuration of the intersection. All movements have lower delays and shorter queues at this intersection and the V/C ratios are lower than 1.0. The stop-controlled intersection of Sixth Line at Loyalist Trail is also projected to operate with good LOS and minimal delays at all approaches. The main operational constraints still occur along William Halton Parkway, examples being the east and west legs of the roundabout with LOS of F which have queues over 1 km long. Long delays are also observed at the eastbound through, westbound through, and northbound left movements at the intersection at Burnhamthorpe Road with V/C ratios at around 1.0. Similar to the 2025 horizon, there is little residual capacity left at the eastbound and westbound approaches to accommodate the high northbound left turning volumes due to the high projected volumes along William Halton Parkway.

6.5 2030 Future Total Conditions

The analysis parameters used to analyze the 2030 Future Background conditions have been carried forward as part of the analysis of 2030 Total Future conditions. The 2030 site-generated volumes were added. Table 25 summarizes the results of the operational analysis for 2030 Future Total conditions. Synchro and Sidra worksheets have been included in Appendix L.

Table 26: 2030 Total Future Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Del (s)	Q (95th)	LOS	V/C	Del. (s)	Q (95th)
Sixth Line at Burnhamthorpe Road *(Signalized)*	EBL	C	0.47	33	20	C	0.18	27	9
	EBT/R	C	0.38	31	35	C	0.20	27	26
	WBL	C	0.39	31	26	D	0.55	37	44
	WBT/R	D	0.74	40	67	D	0.85	53	#103
	NBL	A	0.41	9	37	B	0.36	18	30
	NBT/R	A	0.31	7	40	B	0.38	16	59
	SBL	A	0.16	7	11	A	0.14	9	10
	SBT/R	A	0.23	6	29	B	0.40	11	59
	Overall	**B**	**0.49**	**15**	**-**	**C**	**0.53**	**22**	**-**
William Halton Parkway at Sixth Line	East Leg	F	1.55	266	1263	F	1.29	157	765
	West Leg	F	1.76	360	1484	F	1.56	273	1066

Intersection	Mvmnt	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Del (s)	Q (95th)	LOS	V/C	Del. (s)	Q (95th)
(Roundabout)	North Leg	D	0.54	27	14	C	0.49	24	12
	South Leg	F	0.99	80	85	E	0.77	37	32
	Overall	F	1.76	273	1484	F	1.56	185	1066
William Halton Parkway at Burnhamthorpe Road *(Signalized)*	EBT	E	1.06	68	#401	D	0.95	35	#337
	EBR	B	0.23	14	25	B	0.24	13	25
	WBL	B	0.04	13	2	B	0.13	12	4
	WBT	E	1.08	75	#414	E	1.08	72	#421
	NBL	E	0.98	78	#227	E	0.96	75	#205
	NBR	C	0.01	32	4	C	0.00	33	3
	Overall	**E**	**1.05**	**70**	-	**D**	**1.04**	**54**	-
Sixth Line at Loyalist Trail/Access on Sixth Line *(Unsignalized)*	EBL/T/R	F	1.17	149	105	D	0.55	25	24
	WBL/T/R	F	1.13	286	40	D	0.29	34	9
	NBL/T/R	A	0.23	6	7	A	0.18	3	2
	SBL/T/R	A	0.18	1	<1	A	0.23	1	<1
	Overall	**C**	-	**40**	-	**B**	-	**5**	-
	Mitigation Measure: Signalization								
	EBL/T/R	B	0.54	14	24	B	0.48	15	18
	WBL/T/R	B	0.11	11	7	B	0.09	13	6
	NBL/T/R	A	0.60	9	#44	A	0.39	5	25
	SBL/T/R	A	0.32	6	20	A	0.41	5	28
	Overall	**A**	**0.58**	**9**	-	**A**	**0.43**	**7**	-
Access at Burnhamthorpe Road *(Unsignalized)*	EBT	-	0.14	0	0	-	0.09	0	0
	WBT/R	-	0.31	0	0	-	0.27	0	0
	SBR	B	0.19	14	5	B	0.11	11	3
	Overall	**A**	-	**2**	-	**A**	-	**1**	-
Access at William Halton Parkway *(Unsignalized)*	EBT/R	-	0.93	0	0	-	0.91	0	0
	WBL	E	0.48	40	18	C	0.06	23	2
	WBT	-	0.59	0	0	-	0.57	0	0
	NBL	F	4.29	Err	Err	F	8.69	Err	Err
	NBR	D	0.07	27	2	E	0.42	37	15
	Overall	**D**	-	**21**	-	**C**	-	**119**	-
	Mitigation Measure: Signalization								
	EBT/R	D	1.00	38	#356	C	0.96	23	#254
	WBL	D	0.66	46	#28	A	0.16	6	3
	WBT	A	0.73	8	134	B	0.80	12	135
	NBL	D	0.03	43	7	C	0.14	30	17
	NBR	D	0.01	43	6	C	0.22	31	22
	Overall	**C**	**0.83**	**25**	-	**B**	**0.79**	**18**	-
Notes:	# - 95% percentile exceeds capacity m - volume for the 95th percentile queue is metered by an upstream signal								

The addition of the site generated traffic to the 2030 Future Background volumes at the Study Area intersections generally does not change the traffic conditions comparing to the Background scenario. The site vehicle traffic volumes have been slightly reduced from the level in the 2025 horizon with increased usage of transit and active modes.

The projected 2030 Future Total conditions project operational constraints at the intersections along William Halton Parkway. The intersection of William Halton Parkway at Burnhamthorpe Road is projected to operate with v/c ratios around 1.0 on the eastbound through, westbound through, and northbound left movements. The roundabout at Sixth Line is projected to have heavier operational constraints with v/c ratios of 1.55 and 1.76 during the AM peak and 1.29 and 1.56 during the PM peak. The 95th percentile queue are almost 1.5 kilometres

for the east leg. Similar to the 2025 Future Total horizon, it is anticipated that these volumes may not be realized as the traffic volume on William Halton Parkway may be less than those provided by the Region. At the access to the industrial buildings on William Halton Parkway, the northbound left movement will be constrained by the high volumes on the major road where the left-turning vehicles are not able to find the gap to complete the turning manoeuvre. Signalizing the intersection was shown to improve the traffic at the access to reduce the V/C ratios and allow all movements to operate under or at the capacity.

The Sixth Line and Burnhamthorpe Road intersection operates with good V/C ratios and low delays after the widening of Sixth Line. The eastbound and westbound shared left/through/right movements at the two-way stop intersection of Sixth Line at Loyalist Trail and School Site Access is shown to have improved from the 2025 Future Total conditions but still experience LOS F due to high delays during the AM peak hour. This is due to the priority given to the north-south traffic along Sixth Line. Implementing a traffic signal at the intersection is proposed to mitigate these delays. As a result, the delays at the school site access and Loyalist trail will be largely reduced. While the delays at the north and south approaches slightly increase with this change, the performance at these movements remain LOS A. This change can also improve the efficiency and safety of the pedestrian and cyclist traffic from the school.

7 Recommendations

Based on the Synchro and Sidra analysis results, the proposed development will fit into the existing road network except for William Halton Parkway. It is noted that, due to the large peak hour volumes on William Halton Parkway provided by the Region, the intersections and driveways along William Halton Parkway are projected to operate with capacity constraints. This capacity issue cannot be resolved by minor modifications to lane configurations or signal optimization at the intersections. As mentioned in Section 3.1.7, the adjustments to the eastbound and westbound trips volumes along William Halton Parkway consist of over 90% of all AM and PM peak hour Future Background trips in the 2025 and 2030 horizons, a substantial arbitrary addition to the volumes projected otherwise. The Future Total scenarios are adding the site-generated volumes on top of that, which means these volumes have been double counted as the maximum volumes on William Halton Parkway would include those from this proposed development as well. Further studies will be required along William Halton Parkway to determine whether significant changes need to be made to this road and these intersections. Nevertheless, it is anticipated that these volumes may not be realized as the traffic volume on William Halton Parkway is likely to be less than those provided by the Region, which will likely relieve the delays and queues.

The access on William Halton Parkway is proposed to be signalized to address the issue of high through volumes restricting the vehicles turning onto the major road, so that the delay experienced by the northbound left movement at the access could be reduced to the acceptable range. The intersection formed by the access and Loyalist Trail on Sixth Line is also proposed to be signalized as well to ensure the school-bound vehicles can access the school without high delays, which will also benefit the pedestrians and cyclists at the school site.

The three accesses will support the proposed development as well as the surrounding background developments. The layby areas for the buses and passenger vehicles can be adjusted with minor changes to the concept plan to accommodate the demand during the AM drop-off periods and PM pickup periods. This can be further refined at the Site Plan Application stage.

8 Conclusions

This Transportation Impact Study has examined the trip generation, access requirements, and Study Area road network impact of the proposed Sixth Oak's school and industrial employment development. The TIS has shown the following:

a) The proposed development analyzed herein will include a secondary school with a capacity of 1614 pupils, an 8,000 square feet childcare facility, and 281,600 square feet one-storey industrial buildings separated from the rest by natural heritage service areas.
b) The proposed development will have one stop-controlled full-movement access on Sixth Line and one right-in right-out access on Burnhamthorpe Road for Block 2 containing the secondary school and the childcare facility. The proposed industrial buildings will share one full-movement access on the extended William Halton Parkway.
c) The adjacent developments by the landowners' group in Neighbourhood 9,10,11, the EMGO, the Star Oak with direct connections between the developments, have been included in the background traffic projections.
d) The proposed Block 2 development, including the secondary school, and daycare uses, will include 205 vehicle parking spaces, including 7 accessible parking stalls. This will meet the zoning bylaw requirements for the proposed development.
e) The proposed Block 1 industrial buildings include 131 parking spaces in total, 5 of which are accessible spaces. This will meet the zoning bylaw requirements for the proposed development.
f) With respect to bike parking, 26 parking spaces are provided for the combined school and childcare centre land uses (Block 2) and 9 are provided for the industrial buildings (Block 1).
g) The Region of Halton proposed a compound annual growth rate of 2% along Sixth Line, Burnhamthorpe Road, William Halton Parkway, and Loyalist Trail. This conservative estimate of traffic growth was applied to the Study Area turning movement counts and traffic volumes. To reflect the functional change of William Halton Parkway and Burnhamthorpe Road, some east-west through trips were shifted from Burnhamthorpe Road to William Halton Parkway in the 2025 and 2030 horizons.
h) To estimate the impact of the subject development on the Study Area, a person trip generation exercise has been undertaken for each land use. The trip generation of the secondary school used the "first principles" method, while the trip generation of the childcare centre, and industrial buildings used the corresponding ITE rates. The mode shares have been determined using information from the school board, 2016 TTS mode shares for different trip purposes, and the Town of Oakville's Transportation Master Plan Review released in 2018. The secondary school is anticipated to generate 775 AM and 336 PM two-way auto trips for the 2025 horizon. The childcare is anticipated to generated 97 AM and 98 PM two-way auto trips for the 2025 horizon. The industrial development is anticipated to generate 170 AM and 149 PM two-way auto trips for the 2025 horizon. With the shift in mode share projected to occur by 2030, the secondary school will decrease to 766 AM and 327 PM peak hour two-way auto trips, while the childcare site trip generated remains the same. The auto trips generated by the industrial lands also have a minor reduction to 160 in the AM and 141 in the PM.
i) Using the existing traffic volumes in 2022, an operational analysis of existing conditions is undertaken. Through this analysis, it is determined that the Study Area intersections generally operate with acceptable overall LOS except for the intersection of Sixth Line at Burnhamthorpe during the PM peak hour. Several movements experience V/C ratios above one and the overall delay reaches almost 250 seconds. No mitigation measures are proposed in this TIS because the widening of Sixth Line and signalization of Sixth

Line at Burnhamthorpe Road has been planned for the future horizons, which will improve traffic conditions for the eastbound and westbound critical movements.

j) The 2025 Future Background traffic volumes, including background growth and the nearby background developments, are analysed. Two scenarios are analyzed for the 2025 Future Background horizon where Sixth Line is modelled as a two-lane road in one case and a four-lane road in the other due to the uncertainty in the completion date of the widening project. The Sixth Line at Burnhamthorpe intersection operates well both before and after the widening. It is projected that traffic volumes exceed theoretical capacity for many movements at the intersections along William Halton Parkway. The east and west legs of the roundabout at the Sixth Line experience delays and queues. The east-west through traffic and the northbound left movement at the intersection at Burnhamthorpe Road are also above capacity. These results are expected due to the high peak hour volumes along William Halton Parkway given by the Region.

k) The 2025 Future Total horizon operates similarly to the 2025 Future Background horizon. The two scenarios regarding Sixth Line widening are also considered for this horizon. Intersections along William Halton Parkway were still operating with constraints. The V/C ratios and delays for the eastbound and westbound through movements at the intersection at Burnhamthorpe Road cannot be reduced with optimized signal timing plan. The roundabout is also operating over capacity. The signalized Burnhamthorpe Road and Sixth Line intersection operates close to the capacity before the widening of Sixth Line and operates in good conditions with residual capacity after the widening. The school access on Sixth Line experienced constraints at the minor streets of Loyalist Trail and the access driveway due to the saturated volume in the opposing north-south direction both before and after the widening during the AM peak hour. Signalizing this intersection is proposed to address this issue, which is sufficient in relieving the delays at the eastbound and westbound movements.

l) The traffic operations within the Study Area in the 2030 Future Background horizon are similar to that in the 2025 Future Background horizon. The conditions are improved along Sixth Line with the additional capacity from the one lane widening in each direction while it becomes slightly worse along William Halton Parkway due to the additional background traffic on top of the already congested roadway. LOS F is observed at the roundabout and the intersection of William Halton Parkway at Burnhamthorpe Road. The eastbound and westbound movements at these intersections still experience capacity constraints that cannot be mitigated without significant geometric changes. With a less conservative projection of the volumes along William Halton Parkway, the traffic conditions could be improved.

m) In the 2031 Future Total horizon, the traffic conditions at Study Area intersections are similar to those in the 2030 Future Background horizon. The traffic constraints at the roundabout and Burnhamthorpe intersection on William Halton Parkway persist. The site traffic from the school and industrial lands create new operational constraints at the access on Sixth Line and the access on William Halton Parkway. The traffic from the east and west approaches at the school access on Sixth Line experience high delay during the peak hours due to the traffic on the major street. The proposed mitigation measure is to signalize the intersection as in other horizons which is shown to improve the operational performance for the movements getting into and out of the school while keeping the delays on Sixth Line at acceptable levels. The access on William Halton Parkway is proposed to be signalized to provide adequate time for the northbound outbound movements from the site.

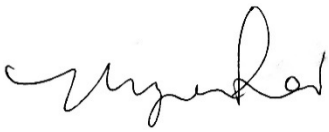
n) The access on William Halton Parkway is proposed to be signalized to address the delays of outbound vehicles from the industrial buildings. The access on Sixth Line is proposed to be signalized to accommodate the east-west traffic to/from the school. It is demonstrated through Synchro analysis that signalizing these two intersections is effective in improving the traffic conditions to LOS A or B.

o) A total of 7 big school buses are required for the 1614 students during the AM peak hour and another 2 buses could be used for future growth. The bus laybys can be accommodated with the layby area proposed on the site plan. A total of 21 car laybys are required for the passenger vehicle drop-offs. The current layby areas can accommodate 19 of them. The layby areas for the buses and passenger vehicles can be adjusted with minor changes to the concept plan to accommodate the demand during the AM drop-off periods and PM pickup periods. This can be further refined at the Site Plan Application stage.

p) TDM measures are proposed to further encourage commuters to shift away from single occupant vehicle trips. For this development, which primarily consists of school and employment land uses, the most effective measures involve access and usability of transit, cycling and pedestrian facilities. To ensure that the transit, cycling, and pedestrian modes are served appropriately by the proposed development, concept plans have been prepared.

The Sixth Oak developments will have a minor impact on the Study Area road network. The proposed accesses will operate with reasonable LOS and delays on the turning movements into and out of the site. The concept plan prepared 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:



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Appendix A

Scope Confirmation

Technical Memorandum

To:	Syed Rizvi – Town of Oakville Matt Krusto – Halton Region	Date:	2021-11-24
Cc:	Mark Crockford – CGH Transportation		
From:	Nasteha Abdullahi	Project Number:	2021-113

Re: Sixth Oak Inc. School & Employment Lands Development – Terms of Reference

We have been asked to undertake a Transportation Impact Study (TIS) for Sixth Oak Inc. properties located on the northwest corner of Burnhamthorpe Road at Sixth Line. The developments are surrounded by the proposed Neighbourhood 9, 10, and 11 developments in North Oakville. The school (~100,000 square feet GFA) will have accesses on both Burnhamthorpe Road and Sixth Line, while the single-storey employment lands (~250,000 square feet GFA) will have an access on William Halton Parkway. Access to the employment lands will be guided by the Halton Region Access Management Guidelines. CGH undertook a TIS for large portions of Neighbourhoods 9, 10, and 11. That study will be used to inform the proposed TIS including network background volumes and growth rates, as well as projected volumes along William Halton Parkway.

We have prepared the following TIS scope of work for review. Please let us know if you have any comments or additions.

Transportation Impact Study Requirements (TIS):

The following intersections have been proposed for the Transportation Impact Study Area:

- Burnhamthorpe Road at Sixth Line
- Sixth Line at William Halton Parkway
- Burnhamthorpe Road at William Halton Parkway
- One School Access on Burnhamthorpe Road
- Up to Two School accesses on Sixth Line
- One Employment Access on William Halton Parkway

Analysis Assumptions:

- Horizon years: 2021, 2025 (Buildout), and 2030 (+ 5 years).
- Sixth Line will be analyzed as two general purpose lanes for year 2021 (based on existing conditions), and as four lanes for years 2025 and 2030.

The TIS report will include:

- Site Plan and Map,
- Type and Size of Proposed Land Uses
- Existing Conditions (Study Area Intersections, Road Network, Pedestrian Routes, Cycling Routes, Transit Services),
- Existing Traffic Conditions (Site Operating Characteristics, Data Collection/Traffic Counts, Analysis Periods)
- Future Background Conditions (Horizon Years, Horizon Year Volumes)
- Background Traffic Demand (with TMC's < 2 years old)
- Background Traffic Demand Forecast (with acceptable growth rates)

- Site Generated Traffic (Transit Modal Split, Trip Generation/Distribution/Assignment)
- Future Total Traffic Demand
- Capacity Analysis (by Intersection, with LOS, Avg. Delay, V/C ratios)
- Traffic Impacts (Tables – Total Traffic with/without Mitigation)
- Access Considerations – Existing, Proposed, Geometrics (turn lanes, sight lines)
- Recommendations
- TDM recommendations (Transit, Pedestrian & Cycling Facilities Analysis)
- Conclusions

Background Traffic:

- A CAGR of 2% from the Neighbourhood 9, 10, and 11 study will be implemented for Burnhamthorpe Road and Sixth Line.
- Background development assumptions for the proposed Neighbourhood 9, 10, and 11 developments directly across from the subject development, which include developments by:
    - Timsin Holding Corp.
    - Docasa Group Ltd.
    - Star Oak Developments Ltd.
    - Diagram Developments Inc.
    - ARGO (West Morrison Creek) Ltd.
    - Lower Fourth Development Ltd. & Pendent Development Ltd.
    - Crosstrail Estates Inc. and TWKD Developments Inc.
    - Mattamy Homes / SGGC
    - G.C. Family Investments
- Background development assumptions for other nearby developments by:
    - EMGO (North Oakville)
    - Petgor
    - Sixth Line Corp.

Mode Share:

Halton's Transportation Master Plan 2011 utilizes a transit mode split of 10% for 2021, 15% for 2026 and 20% for 2031. For the purposes of this study, a transit mode split of 15% will be utilized for the buildout year 2025 and a transit mode split of 20% will be utilized for the 2030 horizon. In 2030, assumption of travel via other modes (active transportation i.e.: walk, cycle) should utilize a 5% mode split, and 3% will be assigned to TDM (i.e. telecommuting). Transit mode splits will be adjusted from the 2011 TMP assumptions to reasonable percentages based on current year (2021), 2026 and 2031 planned and proposed mode splits based on existing facilities and service in the area to date (planned &/or proposed). Reasonable assumptions and rationale will be outlined clearly in the Study.

Site Access:

- Study will be in accordance with Halton Region's Transportation Impact Guidelines and Town of Oakville's Terms of Reference for Transportation Impact Studies and Transportation Functional Design Studies
- Required/recommended road improvements either as a result of the development impacts, or general non-development improvements will be identified

From:	Nasteha Abdullahi
To:	May Lai
Subject:	FW: Sixth Oak Inc. School and Employment Lands TIS - Terms of Reference
Date:	January 11, 2022 8:16:17 PM
Attachments:	image001.png

FYI

From: Pasquini-Smith, Alexsandria <Alex.Pasquini-Smith@halton.ca>
Sent: December 3, 2021 9:01 AM
To: Nasteha Abdullahi <nasteha.abdullahi@cghtransportation.com>
Subject: RE: Sixth Oak Inc. School and Employment Lands TIS - Terms of Reference

Hello Nasteha,

Regional staff have reviewed the provided TOR and offer the following comments:

As noted in the terms of references, the following intersections will be analyzed:
- Burnhamthorpe Road at Sixth Line
- Sixth Line at William Halton Parkway
-Burnhamthorpe Road at William Halton Parkway
-One School Access on Burnhamthorpe Road
-Up to Two School accesses on Sixth Line
-One Employment Access on William Halton Parkway
The study area intersections and accesses are acceptable for the study review.

The analysis years of 2021, 2025 and 2030 are acceptable.

The Study must be in accordance to Halton Region's Transportation Impact Study Guidelines (2015), Halton's Access By-Law 32-17 and Halton's Access Management Guidelines (2015). Any proposed development access to a Regional road will only be reviewed as part of the Transportation Impact Study. Any access to a Regional road must be reasonably justified in the study.

For the traffic volume counts and traffic signal timing (from Halton Region), information can be requested from our Road Operations group at trafficdatarequests@halton.ca.

All other items in the terms of references appear acceptable.

Have a great day.
Alex

Alexsandria Pasquini-Smith, MCIP, RPP
Intermediate Planner
Planning Services
Legislative & Planning Services
Halton Region

905-825-6057 ext. 7185 | 1-866-442-5866

Halton Region logo

From: Nasteha Abdullahi <nasteha.abdullahi@cghtransportation.com>
Sent: Wednesday, November 24, 2021 6:30 PM
To: Pasquini-Smith, Alexsandria <Alex.Pasquini-Smith@halton.ca>
Subject: Sixth Oak Inc. School and Employment Lands TIS - Terms of Reference

Good evening Alex,

CGH Transportation has been retained by Sixth Oak Inc. to undertake a Transportation Impact Study for their school and employment lands development at Burnhamthorpe Road and Sixth Line in Oakville. We have drafted the attached terms of reference for this development for your review. Please let us know if you have any comments or questions.

Thank you,
Nasteha

Nasteha Abdullahi, M. Eng
CGH Transportation Inc.
P: 647-965-2835
E:nasteha.abdullahi@CGHTransportation.com

From:	Nasteha Abdullahi
To:	May Lai
Subject:	FW: Sixth Oak Inc. School and Employment Lands TIS - Terms of Reference
Date:	January 11, 2022 8:16:01 PM
Attachments:	image001.png

FYI

From: Syed Rizvi <syed.rizvi@oakville.ca>
Sent: November 30, 2021 11:23 PM
To: Nasteha Abdullahi <nasteha.abdullahi@cghtransportation.com>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>
Subject: RE: Sixth Oak Inc. School and Employment Lands TIS - Terms of Reference

Hi Nasteha,

Thanks for providing opportunity to comment on TOR for the High School future site TIS.

In addition to the attached sections of TOR, please add following assessment in the study:

- Enrolment/Catchment area – HS intended to serve residential areas from each direction
- Internal Traffic Circulation
- Drop-off/Pick-up by parents – Consider peak 10 minutes Drop-off/Pick-up rates. You may consult " York Region Safety and Traffic Circulation at School Sites Guidelines Study". You may apply Average Rate/Student from schools survey data.
- Bus lay-by
- Parking

Please feel free to contact if you have any questions.

Thanks,
Syed

Syed Rizvi, M.Sc., P. Eng
Transportation Engineer
Transportation and Engineering
Town of Oakville | 905-845-6601, ext.3981 | www.oakville.ca

From: Nasteha Abdullahi <nasteha.abdullahi@cghtransportation.com>

Sent: November 24, 2021 6:33 PM
To: Syed Rizvi <syed.rizvi@oakville.ca>
Subject: Sixth Oak Inc. School and Employment Lands TIS - Terms of Reference

Good evening Syed,

Thank you for your comments on the previous TIS terms of reference.

In addition, CGH Transportation has been retained by Sixth Oak Inc. to undertake a Transportation Impact Study for their school and employment lands development at Burnhamthorpe Road and Sixth Line in Oakville. We have drafted the attached terms of reference for this development for your review. Please let us know if you have any comments or questions.

Thank you,
Nasteha

Nasteha Abdullahi, M. Eng
CGH Transportation Inc.
P: 647-965-2835
E:nasteha.abdullahi@CGHTransportation.com

Official Plan Amendment, Zoning By-law Amendment, Plan of Subdivision Circulation Review – Transportation Comments

Date:	2022-03-25
To:	Rob Thun
From:	Syed Rizvi
File #:	OPA.1216.01, Z.1216.01, 24T-22002/1216
Address:	103 Burnhamthorpe Road West
Circulation Number	1

Sustainable Transportation (C.Clapham)

1. [Circ. 1] Staff recognizes the applicant has acknowledged the North Oakville Trails Plan network and is proposing the network to connect through the school site. Further discussion and coordination with Transportation staff and Parks and Open Space staff will be necessary to understand the details of this proposal.

Oakville Transit (F. Tse)

1. [Circ. 1] Sixth Line, William Halton Parkway, Burnhamthorpe Road and the new street immediately to the west of the property are designated transit corridors as stated in the North Oakville Secondary Plan.
2. [Circ. 1] Additional bus stops should be located on either side of Sixth Line at Loyalist Trail.
3. [Circ. 1] Acknowledging the fact that fixed route service Route 1 is currently provided on Trafalgar Road approximately 1.3km away, Oakville Transit also provides On Demand service in the area called Home to Hub. Registered customers can book a ride within the Home to Hub service hours and get transported from the bottom of their driveway to the nearest transit hub to connect with regular fixed route service. The current transit hub is the Uptown Core Terminal located near Trafalgar and Dundas.

Transportation Services (S. Rizvi)

Based on the Site Plan and TIS prepared by CGH Transportation dated Feburary 2022, Transportation Services provides the following comments:

[Circ. 1] The applicant should provide assessment of the number of buses to be accommodated at school site during peak hour time, and requirement of minimum number of laybys to be provided at site plan stage (considering TAC guidelines for school bus length).
Drop-off/Pick-up by parents – calculate minimum number of laybys based on number of students expected to drop-off/pick-up by parents during peak hour timing of the day. The minimum number of laybys should be shown on plans at site plan application stage.

[Circ. 1] It is reported that the traffic signal and turn lanes are not warrented for the future horizon year (2025 and 2030) at any study area intersections. However the results of the traffic analysis reported in the tables shows an improvement in LOS from F to C by changing traffic control from unsignailzed (Stop control) to signalized intersections. The traffic consultant is advised to update the recommendations regarding traffic control type for the horizon years accordingly for record and implementation purposes following the Halton Region and Town's TIS guidelines for intersection capacity analysis.
[Circ. 1] Widening of Sixth Line and Burnhamthorpe Road are planned for year 2025, the traffic consultant should have considered road improvements that includes additional lanes for Horizon year 2030 capacity analysis. The traffic consultant should update the TIS accordingly for year 2030 analysis and resubmit results for review and comments by Transportation Services.
[Circ. 1] It is noted that the design vehicle turning and circulation plan for the school buses, para transit van, garbage trucks, and passanger cars following TAC guidelines is required to be submitted at Site Plan stage for review by the Transportation Services.

These represent comments based on the information provided to date.

Syed Rizvi, P. Eng
Transportation Engineer West
Transportation and Engineering
Syed.rizvi@oakville.ca
(905) 845-6601, Ext: 3981

Appendix B

Turning Movement Count Data

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Project #22-015 - CGH Transportation

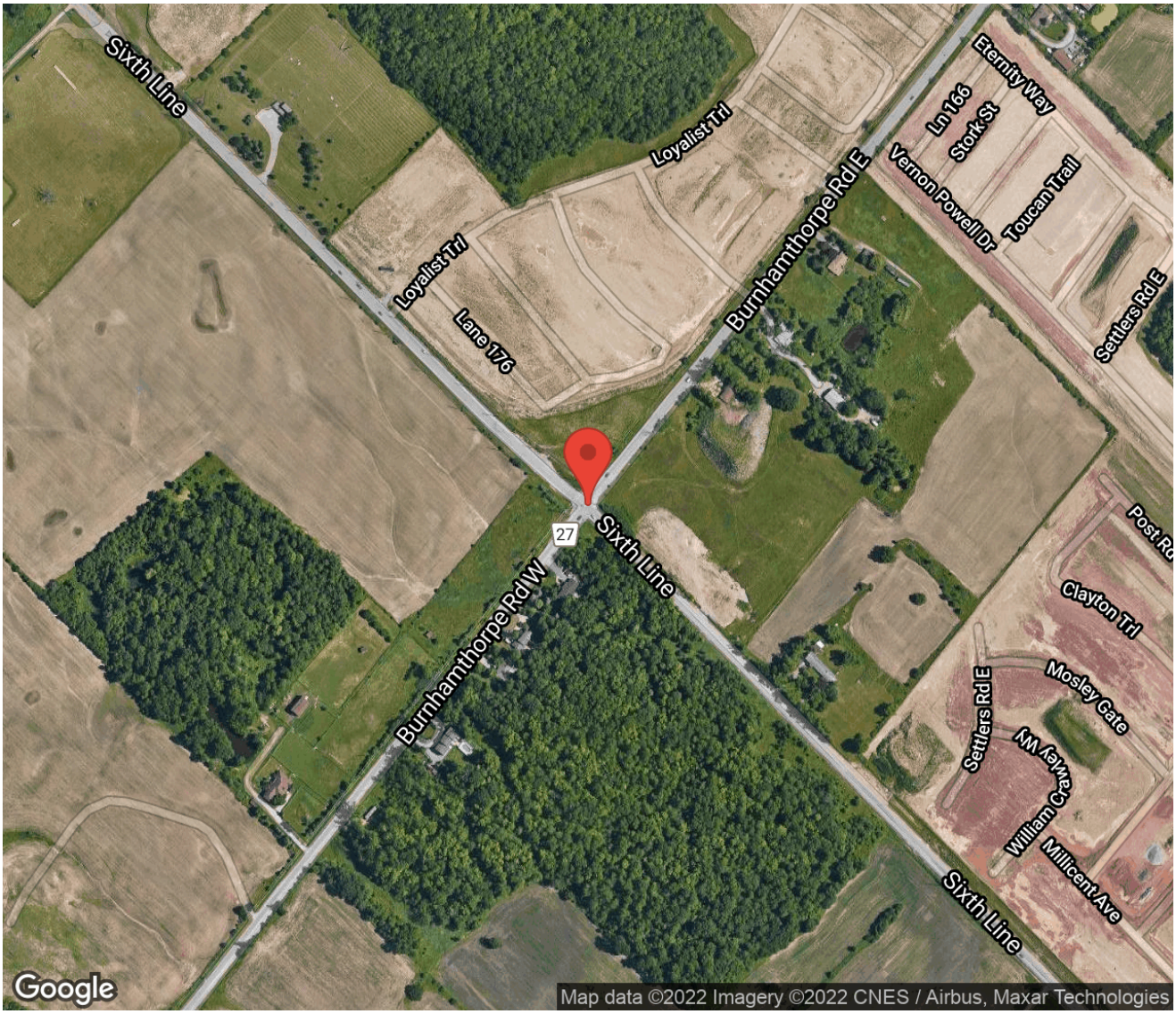
Intersection Count Report

Intersection:	Burnhamthorpe Rd W & Sixth Line
Municipality:	Oakville
Count Date:	Jan 26, 2022
Site Code:	2201500001
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-10:00, 15:00-18:00
Weather:	Clear

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Map

Intersection:	Burnhamthorpe Rd W & Sixth Line
Site Code:	2201500001
Municipality:	Oakville
Count Date:	Jan 26, 2022



Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection: Burnhamthorpe Rd W & Sixth Line
Site Code: 2201500001
Municipality: Oakville
Count Date: Jan 26, 2022

Sixth Line - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	12	181	11	0	204	0	19	146	21	0	186	0	390
08:00 - 09:00	19	205	18	0	242	0	39	143	32	0	214	0	456
09:00 - 10:00	11	154	18	0	183	0	32	151	25	0	208	0	391
BREAK													
15:00 - 16:00	13	172	8	0	193	0	19	181	17	0	217	0	410
16:00 - 17:00	14	165	16	0	195	0	50	192	35	0	277	0	472
17:00 - 18:00	4	166	11	0	181	0	42	245	42	0	329	0	510
GRAND TOTAL	**73**	**1043**	**82**	**0**	**1198**	**0**	**201**	**1058**	**172**	**0**	**1431**	**0**	**2629**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Burnhamthorpe Rd W & Sixth Line
Site Code:	2201500001
Municipality:	Oakville
Count Date:	Jan 26, 2022

Burnhamthorpe Rd W - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	16	95	5	0	116	0	6	147	9	0	162	0	278
08:00 - 09:00	32	154	12	0	198	0	11	204	24	0	239	0	437
09:00 - 10:00	21	225	11	0	257	0	9	268	25	0	302	0	559
BREAK													
15:00 - 16:00	30	306	11	0	347	0	13	368	47	0	428	0	775
16:00 - 17:00	55	431	30	0	516	0	21	540	63	0	624	0	1140
17:00 - 18:00	56	579	12	0	647	0	30	681	71	0	782	0	1429
GRAND TOTAL	**210**	**1790**	**81**	**0**	**2081**	**0**	**90**	**2208**	**239**	**0**	**2537**	**0**	**4618**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Burnhamthorpe Rd W & Sixth Line
Site Code: 2201500001
Municipality: Oakville
Count Date: Jan 26, 2022

North Approach - Sixth Line

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	1	36	2	0	39	0	2	0	0	2	0	0	0	0	0	0
07:15	3	29	2	0	34	0	5	0	0	5	0	0	0	0	0	0
07:30	2	43	3	0	48	0	6	0	0	6	0	0	0	0	0	0
07:45	5	58	4	0	67	1	2	0	0	3	0	0	0	0	0	0
08:00	3	74	2	0	79	0	5	0	0	5	0	1	0	0	1	0
08:15	5	37	6	0	48	0	4	1	0	5	0	0	0	0	0	0
08:30	6	42	4	0	52	1	5	0	0	6	0	0	0	0	0	0
08:45	4	33	5	0	42	0	4	0	0	4	0	0	0	0	0	0
09:00	5	32	7	0	44	0	2	0	0	2	0	0	0	0	0	0
09:15	3	34	5	0	42	0	2	1	0	3	0	0	0	0	0	0
09:30	1	41	3	0	45	0	2	0	0	2	0	0	0	0	0	0
09:45	2	38	2	0	42	0	3	0	0	3	0	0	0	0	0	0
SUBTOTAL	40	497	45	0	582	2	42	2	0	46	0	1	0	0	1	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Burnhamthorpe Rd W & Sixth Line
Site Code: 2201500001
Municipality: Oakville
Count Date: Jan 26, 2022

North Approach - Sixth Line

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	1	43	2	0	46	0	3	0	0	3	0	0	0	0	0	0
15:15	2	36	1	0	39	0	2	0	0	2	0	0	0	0	0	0
15:30	4	36	3	0	43	1	4	0	0	5	0	1	0	0	1	0
15:45	5	44	2	0	51	0	3	0	0	3	0	0	0	0	0	0
16:00	3	40	5	0	48	1	4	1	0	6	0	0	0	0	0	0
16:15	5	35	4	0	44	0	4	0	0	4	0	0	0	0	0	0
16:30	4	36	2	0	42	0	2	0	0	2	0	0	0	0	0	0
16:45	1	41	3	0	45	0	3	1	0	4	0	0	0	0	0	0
17:00	2	47	5	0	54	0	2	0	0	2	0	0	0	0	0	0
17:15	1	42	3	0	46	0	1	0	0	1	0	0	0	0	0	0
17:30	0	38	1	0	39	0	0	0	0	0	0	0	0	0	0	0
17:45	1	35	2	0	38	0	1	0	0	1	0	0	0	0	0	0
SUBTOTAL	29	473	33	0	535	2	29	2	0	33	0	1	0	0	1	0
GRAND TOTAL	69	970	78	0	1117	4	71	4	0	79	0	2	0	0	2	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Burnhamthorpe Rd W & Sixth Line
Site Code: 2201500001
Municipality: Oakville
Count Date: Jan 26, 2022

South Approach - Sixth Line

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	5	36	4	0	45	0	4	0	0	4	0	0	0	0	0	0
07:15	3	38	6	0	47	0	4	1	0	5	0	0	0	0	0	0
07:30	6	32	5	0	43	1	3	0	0	4	0	0	0	0	0	0
07:45	4	25	3	0	32	0	4	2	0	6	0	0	0	0	0	0
08:00	5	36	7	0	48	1	6	0	0	7	0	0	0	0	0	0
08:15	8	39	5	0	52	2	3	0	0	5	0	0	0	0	0	0
08:30	10	29	9	0	48	0	3	1	0	4	0	0	0	0	0	0
08:45	12	25	10	0	47	1	2	0	0	3	0	0	0	0	0	0
09:00	11	31	8	0	50	0	5	0	0	5	0	1	0	0	1	0
09:15	8	30	7	0	45	0	3	1	0	4	0	0	0	0	0	0
09:30	7	35	5	0	47	1	4	0	0	5	0	0	0	0	0	0
09:45	5	39	4	0	48	0	3	0	0	3	0	0	0	0	0	0
SUBTOTAL	84	395	73	0	552	6	44	5	0	55	0	1	0	0	1	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Burnhamthorpe Rd W & Sixth Line
Site Code: 2201500001
Municipality: Oakville
Count Date: Jan 26, 2022

South Approach - Sixth Line

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	3	46	2	0	51	0	2	0	0	2	0	0	0	0	0	0
15:15	4	37	5	0	46	0	4	1	0	5	0	0	0	0	0	0
15:30	6	41	3	0	50	1	3	0	0	4	0	0	0	0	0	0
15:45	5	45	6	0	56	0	3	0	0	3	0	0	0	0	0	0
16:00	8	42	4	0	54	0	6	1	0	7	0	0	0	0	0	0
16:15	12	38	8	0	58	1	3	0	0	4	0	0	0	0	0	0
16:30	15	39	11	0	65	1	4	1	0	6	0	1	0	0	1	0
16:45	13	57	9	0	79	0	2	1	0	3	0	0	0	0	0	0
17:00	11	52	12	0	75	0	2	0	0	2	0	0	0	0	0	0
17:15	12	51	14	0	77	1	0	0	0	1	0	0	0	0	0	0
17:30	10	64	9	0	83	0	1	0	0	1	0	0	0	0	0	0
17:45	8	75	7	0	90	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	107	587	90	0	784	4	30	4	0	38	0	1	0	0	1	0
GRAND TOTAL	191	982	163	0	1336	10	74	9	0	93	0	2	0	0	2	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Burnhamthorpe Rd W & Sixth Line
Site Code: 2201500001
Municipality: Oakville
Count Date: Jan 26, 2022

East Approach - Burnhamthorpe Rd W

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	3	12	0	0	15	0	4	0	0	4	0	0	0	0	0	0
07:15	2	13	2	0	17	0	6	0	0	6	0	0	0	0	0	0
07:30	6	27	1	0	34	1	5	0	0	6	0	0	0	0	0	0
07:45	4	21	2	0	27	0	7	0	0	7	0	0	0	0	0	0
08:00	7	23	3	0	33	1	9	1	0	11	0	0	0	0	0	0
08:15	8	28	1	0	37	0	8	0	0	8	0	1	0	0	1	0
08:30	7	21	4	0	32	1	9	0	0	10	0	0	0	0	0	0
08:45	6	47	2	0	55	2	8	1	0	11	0	0	0	0	0	0
09:00	5	53	3	0	61	1	9	0	0	10	0	0	0	0	0	0
09:15	7	45	5	0	57	0	6	0	0	6	0	0	0	0	0	0
09:30	4	54	1	0	59	1	5	0	0	6	0	0	0	0	0	0
09:45	3	50	2	0	55	0	3	0	0	3	0	0	0	0	0	0
SUBTOTAL	62	394	26	0	482	7	79	2	0	88	0	1	0	0	1	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Burnhamthorpe Rd W & Sixth Line
Site Code: 2201500001
Municipality: Oakville
Count Date: Jan 26, 2022

East Approach - Burnhamthorpe Rd W

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	7	70	1	0	78	1	2	0	0	3	0	0	0	0	0	0
15:15	9	73	2	0	84	0	1	0	0	1	0	0	0	0	0	0
15:30	5	72	4	0	81	0	4	0	0	4	0	0	0	0	0	0
15:45	7	78	3	0	88	1	6	1	0	8	0	0	0	0	0	0
16:00	9	78	5	0	92	0	8	0	0	8	0	0	0	0	0	0
16:15	12	114	7	0	133	1	6	0	0	7	0	0	0	0	0	0
16:30	14	106	9	0	129	0	3	0	0	3	0	0	0	0	0	0
16:45	19	112	8	0	139	0	4	1	0	5	0	0	0	0	0	0
17:00	16	139	3	0	158	0	5	0	0	5	0	0	0	0	0	0
17:15	13	160	2	0	175	1	4	0	0	5	0	0	0	0	0	0
17:30	15	138	4	0	157	0	2	0	0	2	0	0	0	0	0	0
17:45	11	128	3	0	142	0	3	0	0	3	0	0	0	0	0	0
SUBTOTAL	137	1268	51	0	1456	4	48	2	0	54	0	0	0	0	0	0
GRAND TOTAL	199	1662	77	0	1938	11	127	4	0	142	0	1	0	0	1	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Burnhamthorpe Rd W & Sixth Line
Site Code: 2201500001
Municipality: Oakville
Count Date: Jan 26, 2022

West Approach - Burnhamthorpe Rd W

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	0	13	2	0	15	0	3	0	0	3	0	0	0	0	0	0
07:15	1	27	1	0	29	0	3	0	0	3	0	0	0	0	0	0
07:30	3	48	3	0	54	0	2	0	0	2	0	0	0	0	0	0
07:45	2	47	2	0	51	0	4	1	0	5	0	0	0	0	0	0
08:00	1	41	4	0	46	1	3	0	0	4	0	0	0	0	0	0
08:15	2	41	3	0	46	0	4	2	0	6	0	0	0	0	0	0
08:30	4	41	5	0	50	0	5	1	0	6	0	0	0	0	0	0
08:45	2	65	7	0	74	1	4	2	0	7	0	0	0	0	0	0
09:00	3	64	4	0	71	0	3	1	0	4	0	0	0	0	0	0
09:15	1	59	6	0	66	0	5	0	0	5	0	0	0	0	0	0
09:30	2	66	5	0	73	0	2	1	0	3	0	0	0	0	0	0
09:45	3	66	8	0	77	0	3	0	0	3	0	0	0	0	0	0
SUBTOTAL	24	578	50	0	652	2	41	8	0	51	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Burnhamthorpe Rd W & Sixth Line
Site Code: 2201500001
Municipality: Oakville
Count Date: Jan 26, 2022

West Approach - Burnhamthorpe Rd W

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	4	67	10	0	81	0	1	0	0	1	0	0	0	0	0	0
15:15	2	84	7	0	93	1	1	0	0	2	0	0	0	0	0	0
15:30	1	107	12	0	120	0	2	2	0	4	0	0	0	0	0	0
15:45	5	104	15	0	124	0	2	1	0	3	0	0	0	0	0	0
16:00	3	120	13	0	136	1	4	0	0	5	0	0	0	0	0	0
16:15	7	122	16	0	145	0	2	0	0	2	0	0	0	0	0	0
16:30	4	141	14	0	159	0	0	1	0	1	0	0	0	0	0	0
16:45	6	150	19	0	175	0	1	0	0	1	0	0	0	0	0	0
17:00	8	162	17	0	187	0	1	0	0	1	0	0	0	0	0	0
17:15	10	178	23	0	211	0	0	1	0	1	0	0	0	0	0	0
17:30	7	177	16	0	200	0	2	0	0	2	0	0	0	0	0	0
17:45	5	161	14	0	180	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	62	1573	176	0	1811	2	16	5	0	23	0	0	0	0	0	0
GRAND TOTAL	86	2151	226	0	2463	4	57	13	0	74	0	0	0	0	0	0

Peak Hour Diagram

Specified Period
From: 07:00:00
To: 10:00:00

One Hour Peak
From: 08:45:00
To: 09:45:00

Intersection: Burnhamthorpe Rd W & Sixth Line
Site Code: 2201500001
Count Date: Jan 26, 2022

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Sixth Line runs N/S

North Approach

	Out	In	Total
Cars	173	140	313
Trucks	11	16	27
Bicycles	0	1	1
	184	**157**	**341**

Sixth Line

Bicycles	0	0	0	0
Trucks	1	10	0	0
Cars	20	140	13	0
Totals	**21**	**150**	**13**	**0**

East Approach

	Out	In	Total
Cars	232	297	529
Trucks	33	15	48
Bicycles	0	0	0
	265	**312**	**577**

Peds: 0

Burnhamthorpe Rd W

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	1	8	**9**
0	14	254	**268**
0	4	22	**26**

Peds: 0

Peds: 0

Burnhamthorpe Rd W

Totals	Cars	Trucks	Bicycles
0	0	0	0
12	11	1	0
227	199	28	0
26	22	4	0

Peds: 0

West Approach

	Out	In	Total
Cars	284	257	541
Trucks	19	31	50
Bicycles	0	0	0
	303	**288**	**591**

Totals	**40**	**136**	**31**	**0**
Cars	38	121	30	0
Trucks	2	14	1	0
Bicycles	0	1	0	0

Sixth Line

South Approach

	Out	In	Total
Cars	189	184	373
Trucks	17	18	35
Bicycles	1	0	1
	207	**202**	**409**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Burnhamthorpe Rd W & Sixth Line
Site Code: 2201500001
Count Date: Jan 26, 2022
Period: 07:00 - 10:00

Peak Hour Data (08:45 - 09:45)

Start Time	North Approach Sixth Line						South Approach Sixth Line						East Approach Burnhamthorpe Rd W						West Approach Burnhamthorpe Rd W						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
08:45	4	37	5	0	0	46	13	27	10	0	0	50	8	55	3	0	0	66	3	69	9	0	0	81	243
09:00	5	34	7	0	0	46	11	37	8	0	0	56	6	62	3	0	0	71	3	67	5	0	0	75	248
09:15	3	36	6	0	0	45	8	33	8	0	0	49	7	51	5	0	0	63	1	64	6	0	0	71	228
09:30	1	43	3	0	0	47	8	39	5	0	0	52	5	59	1	0	0	65	2	68	6	0	0	76	240
Grand Total	**13**	**150**	**21**	**0**	**0**	**184**	**40**	**136**	**31**	**0**	**0**	**207**	**26**	**227**	**12**	**0**	**0**	**265**	**9**	**268**	**26**	**0**	**0**	**303**	**959**
Approach %	7.1	81.5	11.4	0		-	19.3	65.7	15	0		-	9.8	85.7	4.5	0		-	3	88.4	8.6	0		-	
Totals %	1.4	15.6	2.2	0		19.2	4.2	14.2	3.2	0		21.6	2.7	23.7	1.3	0		27.6	0.9	27.9	2.7	0		31.6	
PHF	**0.65**	**0.87**	**0.75**	**0**		**0.98**	**0.77**	**0.87**	**0.78**	**0**		**0.92**	**0.81**	**0.92**	**0.6**	**0**		**0.93**	**0.75**	**0.97**	**0.72**	**0**		**0.94**	**0.97**
Cars	13	140	20	0		173	38	121	30	0		189	22	199	11	0		232	8	254	22	0		284	878
% Cars	100	93.3	95.2	0		94	95	89	96.8	0		91.3	84.6	87.7	91.7	0		87.5	88.9	94.8	84.6	0		93.7	91.6
Trucks	0	10	1	0		11	2	14	1	0		17	4	28	1	0		33	1	14	4	0		19	80
% Trucks	0	6.7	4.8	0		6	5	10.3	3.2	0		8.2	15.4	12.3	8.3	0		12.5	11.1	5.2	15.4	0		6.3	8.3
Bicycles	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	1
% Bicycles	0	0	0	0		0	0	0.7	0	0		0.5	0	0	0	0		0	0	0	0	0		0	0.1
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Peak Hour Diagram

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

One Hour Peak
From: 17:00:00
To: 18:00:00

Intersection: Burnhamthorpe Rd W & Sixth Line
Site Code: 2201500001
Count Date: Jan 26, 2022

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Sixth Line runs N/S

North Approach

	Out	In	Total
Cars	177	284	461
Trucks	4	3	7
Bicycles	0	0	0
	181	**287**	**468**

Sixth Line

Bicycles	0	0	0	0
Trucks	0	4	0	0
Cars	11	162	4	0
Totals	**11**	**166**	**4**	**0**

Peds: 0

East Approach

	Out	In	Total
Cars	632	724	1356
Trucks	15	3	18
Bicycles	0	0	0
	647	**727**	**1374**

Burnhamthorpe Rd W

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	0	30	**30**
0	3	678	**681**
0	1	70	**71**

Peds: 0

Peds: 0

Burnhamthorpe Rd W

Totals	Cars	Trucks	Bicycles
0	0	0	0
12	12	0	0
579	565	14	0
56	55	1	0

Peds: 0

West Approach

	Out	In	Total
Cars	778	617	1395
Trucks	4	15	19
Bicycles	0	0	0
	782	**632**	**1414**

Totals	**42**	**245**	**42**	**0**
Cars	41	242	42	0
Trucks	1	3	0	0
Bicycles	0	0	0	0

Sixth Line

South Approach

	Out	In	Total
Cars	325	287	612
Trucks	4	6	10
Bicycles	0	0	0
	329	**293**	**622**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Burnhamthorpe Rd W & Sixth Line
Site Code: 2201500001
Count Date: Jan 26, 2022
Period: 15:00 - 18:00

Peak Hour Data (17:00 - 18:00)

Start Time	North Approach Sixth Line						South Approach Sixth Line						East Approach Burnhamthorpe Rd W						West Approach Burnhamthorpe Rd W						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
17:00	2	49	5	0	0	56	11	54	12	0	0	77	16	144	3	0	0	163	8	163	17	0	0	188	484
17:15	1	43	3	0	0	47	13	51	14	0	0	78	14	164	2	0	0	180	10	178	24	0	0	212	517
17:30	0	38	1	0	0	39	10	65	9	0	0	84	15	140	4	0	0	159	7	179	16	0	0	202	484
17:45	1	36	2	0	0	39	8	75	7	0	0	90	11	131	3	0	0	145	5	161	14	0	0	180	454
Grand Total	**4**	**166**	**11**	**0**	**0**	**181**	**42**	**245**	**42**	**0**	**0**	**329**	**56**	**579**	**12**	**0**	**0**	**647**	**30**	**681**	**71**	**0**	**0**	**782**	**1939**
Approach %	2.2	91.7	6.1	0		-	12.8	74.5	12.8	0		-	8.7	89.5	1.9	0		-	3.8	87.1	9.1	0		-	
Totals %	0.2	8.6	0.6	0		9.3	2.2	12.6	2.2	0		17	2.9	29.9	0.6	0		33.4	1.5	35.1	3.7	0		40.3	
PHF	**0.5**	**0.85**	**0.55**	**0**		**0.81**	**0.81**	**0.82**	**0.75**	**0**		**0.91**	**0.88**	**0.88**	**0.75**	**0**		**0.9**	**0.75**	**0.95**	**0.74**	**0**		**0.92**	**0.94**
Cars	4	162	11	0		177	41	242	42	0		325	55	565	12	0		632	30	678	70	0		778	1912
% Cars	100	97.6	100	0		97.8	97.6	98.8	100	0		98.8	98.2	97.6	100	0		97.7	100	99.6	98.6	0		99.5	98.6
Trucks	0	4	0	0		4	1	3	0	0		4	1	14	0	0		15	0	3	1	0		4	27
% Trucks	0	2.4	0	0		2.2	2.4	1.2	0	0		1.2	1.8	2.4	0	0		2.3	0	0.4	1.4	0		0.5	1.4
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Ontario Traffic Inc.
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Project #22-015 - CGH Transportation

Intersection Count Report

Intersection:	Sixth Line & William Halton Pkwy
Municipality:	Oakville
Count Date:	Jan 26, 2022
Site Code:	2201500002
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-10:00, 15:00-18:00
Weather:	Clear

Ontario Traffic Inc.
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Traffic Count Map

Intersection:	Sixth Line & William Halton Pkwy
Site Code:	2201500002
Municipality:	Oakville
Count Date:	Jan 26, 2022

Ontario Traffic Inc.
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Traffic Count Summary

Intersection: Sixth Line & William Halton Pkwy
Site Code: 2201500002
Municipality: Oakville
Count Date: Jan 26, 2022

Sixth Line - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	30	85	0	0	115	0	0	67	93	0	160	0	275
08:00 - 09:00	41	103	0	0	144	0	0	70	98	0	168	0	312
09:00 - 10:00	30	75	0	0	105	0	0	75	94	0	169	0	274
BREAK													
15:00 - 16:00	20	87	0	0	107	0	0	79	130	0	209	0	316
16:00 - 17:00	26	78	0	0	104	0	0	96	149	0	245	0	349
17:00 - 18:00	18	80	0	0	98	0	0	133	156	0	289	0	387
GRAND TOTAL	**165**	**508**	**0**	**0**	**673**	**0**	**0**	**520**	**720**	**0**	**1240**	**0**	**1913**

Ontario Traffic Inc.
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Traffic Count Summary

Intersection: Sixth Line & William Halton Pkwy
Site Code: 2201500002
Municipality: Oakville
Count Date: Jan 26, 2022

William Halton Pkwy - Traffic Summary

Hour	East Approach Totals (Includes Cars, Trucks, Bicycles)						West Approach Totals (Includes Cars, Trucks, Bicycles)						Total
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
07:00 - 08:00	119	0	23	0	142	0	0	0	0	0	0	0	142
08:00 - 09:00	143	0	43	0	186	0	0	0	0	0	0	0	186
09:00 - 10:00	109	0	28	0	137	0	0	0	0	0	0	0	137
BREAK													
15:00 - 16:00	108	0	24	0	132	0	0	0	0	0	0	0	132
16:00 - 17:00	117	0	30	0	147	0	0	0	0	0	0	0	147
17:00 - 18:00	103	0	19	0	122	0	0	0	0	0	0	0	122
GRAND TOTAL	**699**	**0**	**167**	**0**	**866**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**866**

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Sixth Line & William Halton Pkwy
Site Code: 2201500002
Municipality: Oakville
Count Date: Jan 26, 2022

North Approach - Sixth Line

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	7	19	0	0	26	0	1	0	0	1	0	0	0	0	0	0
07:15	5	12	0	0	17	1	2	0	0	3	0	0	0	0	0	0
07:30	8	18	0	0	26	2	4	0	0	6	0	0	0	0	0	0
07:45	6	27	0	0	33	1	2	0	0	3	0	0	0	0	0	0
08:00	12	34	0	0	46	3	1	0	0	4	0	1	0	0	1	0
08:15	8	17	0	0	25	1	3	0	0	4	0	0	0	0	0	0
08:30	5	24	0	0	29	2	3	0	0	5	0	0	0	0	0	0
08:45	9	18	0	0	27	1	2	0	0	3	0	0	0	0	0	0
09:00	11	16	0	0	27	0	2	0	0	2	0	0	0	0	0	0
09:15	7	18	0	0	25	1	1	0	0	2	0	0	0	0	0	0
09:30	6	20	0	0	26	1	1	0	0	2	0	0	0	0	0	0
09:45	4	15	0	0	19	0	2	0	0	2	0	0	0	0	0	0
SUBTOTAL	88	238	0	0	326	13	24	0	0	37	0	1	0	0	1	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Sixth Line & William Halton Pkwy
Site Code: 2201500002
Municipality: Oakville
Count Date: Jan 26, 2022

North Approach - Sixth Line

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	2	24	0	0	26	2	1	0	0	3	0	0	0	0	0	0
15:15	5	14	0	0	19	1	2	0	0	3	0	1	0	0	1	0
15:30	3	21	0	0	24	0	3	0	0	3	0	0	0	0	0	0
15:45	6	20	0	0	26	1	1	0	0	2	0	0	0	0	0	0
16:00	8	21	0	0	29	0	4	0	0	4	0	0	0	0	0	0
16:15	7	18	0	0	25	2	1	0	0	3	0	0	0	0	0	0
16:30	5	15	0	0	20	1	1	0	0	2	0	0	0	0	0	0
16:45	2	17	0	0	19	1	1	0	0	2	0	0	0	0	0	0
17:00	4	24	0	0	28	0	2	0	0	2	0	0	0	0	0	0
17:15	6	20	0	0	26	1	1	0	0	2	0	0	0	0	0	0
17:30	3	15	0	0	18	0	0	0	0	0	0	0	0	0	0	0
17:45	3	17	0	0	20	1	1	0	0	2	0	0	0	0	0	0
SUBTOTAL	54	226	0	0	280	10	18	0	0	28	0	1	0	0	1	0
GRAND TOTAL	142	464	0	0	606	23	42	0	0	65	0	2	0	0	2	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Sixth Line & William Halton Pkwy
Site Code: 2201500002
Municipality: Oakville
Count Date: Jan 26, 2022

South Approach - Sixth Line

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	0	14	23	0	37	0	3	1	0	4	0	0	0	0	0	0
07:15	0	17	26	0	43	0	2	1	0	3	0	0	0	0	0	0
07:30	0	13	22	0	35	0	2	2	0	4	0	0	0	0	0	0
07:45	0	13	17	0	30	0	3	1	0	4	0	0	0	0	0	0
08:00	0	18	24	0	42	0	4	3	0	7	0	0	0	0	0	0
08:15	0	15	25	0	40	0	2	2	0	4	0	0	0	0	0	0
08:30	0	15	23	0	38	0	2	1	0	3	0	0	0	0	0	0
08:45	0	13	17	0	30	0	1	3	0	4	0	0	0	0	0	0
09:00	0	11	24	0	35	0	3	2	0	5	0	1	0	0	1	0
09:15	0	17	20	0	37	0	2	2	0	4	0	0	0	0	0	0
09:30	0	19	17	0	36	0	1	3	0	4	0	0	0	0	0	0
09:45	0	19	25	0	44	0	2	1	0	3	0	0	0	0	0	0
SUBTOTAL	0	184	263	0	447	0	27	22	0	49	0	1	0	0	1	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Sixth Line & William Halton Pkwy
Site Code: 2201500002
Municipality: Oakville
Count Date: Jan 26, 2022

South Approach - Sixth Line

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	0	17	35	0	52	0	1	1	0	2	0	0	0	0	0	0
15:15	0	19	24	0	43	0	2	3	0	5	0	0	0	0	0	0
15:30	0	16	29	0	45	0	3	1	0	4	0	0	0	0	0	0
15:45	0	20	35	0	55	0	1	2	0	3	0	0	0	0	0	0
16:00	0	23	30	0	53	0	3	3	0	6	0	0	0	0	0	0
16:15	0	17	34	0	51	0	2	2	0	4	0	0	0	0	0	0
16:30	0	22	31	0	53	0	3	1	0	4	0	0	0	0	0	0
16:45	0	24	46	0	70	0	1	2	0	3	0	1	0	0	1	0
17:00	0	28	37	0	65	0	1	1	0	2	0	0	0	0	0	0
17:15	0	22	41	0	63	0	0	0	0	0	0	0	0	0	0	0
17:30	0	37	37	0	74	0	1	0	0	1	0	0	0	0	0	0
17:45	0	44	40	0	84	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	289	419	0	708	0	18	16	0	34	0	1	0	0	1	0
GRAND TOTAL	**0**	**473**	**682**	**0**	**1155**	**0**	**45**	**38**	**0**	**83**	**0**	**2**	**0**	**0**	**2**	**0**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Sixth Line & William Halton Pkwy
Site Code: 2201500002
Municipality: Oakville
Count Date: Jan 26, 2022

East Approach - William Halton Pkwy

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	20	0	4	0	24	1	0	1	0	2	0	0	0	0	0	0
07:15	23	0	3	0	26	3	0	0	0	3	0	0	0	0	0	0
07:30	28	0	7	0	35	2	0	1	0	3	0	0	0	0	0	0
07:45	41	0	6	0	47	1	0	1	0	2	0	0	0	0	0	0
08:00	46	0	8	0	54	4	0	2	0	6	0	0	0	0	0	0
08:15	32	0	10	0	42	3	0	1	0	4	0	0	0	0	0	0
08:30	28	0	12	0	40	2	0	0	0	2	0	0	0	0	0	0
08:45	26	0	9	0	35	2	0	1	0	3	0	0	0	0	0	0
09:00	27	0	8	0	35	1	0	2	0	3	0	0	0	0	0	0
09:15	24	0	6	0	30	2	0	0	0	2	0	0	0	0	0	0
09:30	26	0	5	0	31	1	0	1	0	2	0	0	0	0	0	0
09:45	27	0	6	0	33	1	0	0	0	1	0	0	0	0	0	0
SUBTOTAL	348	0	84	0	432	23	0	10	0	33	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Sixth Line & William Halton Pkwy
Site Code: 2201500002
Municipality: Oakville
Count Date: Jan 26, 2022

East Approach - William Halton Pkwy

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	
15:00	22	0	4	0	26	2	0	0	0	2	0	0	0	0	0	0
15:15	27	0	6	0	33	0	0	1	0	1	0	0	0	0	0	0
15:30	21	0	5	0	26	1	0	2	0	3	0	0	0	0	0	0
15:45	32	0	6	0	38	3	0	0	0	3	0	0	0	0	0	0
16:00	28	0	9	0	37	2	0	1	0	3	0	0	0	0	0	0
16:15	25	0	4	0	29	3	0	1	0	4	0	0	0	0	0	0
16:30	29	0	7	0	36	1	0	2	0	3	0	0	0	0	0	0
16:45	27	0	6	0	33	2	0	0	0	2	0	0	0	0	0	0
17:00	30	0	5	0	35	1	0	1	0	2	0	0	0	0	0	0
17:15	26	0	3	0	29	0	0	0	0	0	0	0	0	0	0	0
17:30	25	0	5	0	30	0	0	1	0	1	0	0	0	0	0	0
17:45	21	0	4	0	25	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	313	0	64	0	377	15	0	9	0	24	0	0	0	0	0	0
GRAND TOTAL	661	0	148	0	809	38	0	19	0	57	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	07:00:00	From:	07:45:00
To:	10:00:00	To:	08:45:00

Intersection: Sixth Line & William Halton Pkwy
Site Code: 2201500002
Count Date: Jan 26, 2022

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Sixth Line runs N/S

North Approach

	Out	In	Total
Cars	133	97	230
Trucks	16	15	31
Bicycles	1	0	1
	150	**112**	**262**

Sixth Line

Bicycles	1	0	0
Trucks	9	7	0
Cars	102	31	0
Totals	**112**	**38**	**0**

Peds: 0

Peds: 0

Peds: 0

Totals	**72**	**96**	**0**
Cars	61	89	0
Trucks	11	7	0
Bicycles	0	0	0

Sixth Line

East Approach

	Out	In	Total
Cars	183	120	303
Trucks	14	14	28
Bicycles	0	0	0
	197	**134**	**331**

William Halton Pkwy

	Totals	Cars	Trucks	Bicycles
	0	0	0	0
	40	36	4	0
	157	147	10	0

South Approach

	Out	In	Total
Cars	150	249	399
Trucks	18	19	37
Bicycles	0	1	1
	168	**269**	**437**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Sixth Line & William Halton Pkwy
Site Code: 2201500002
Count Date: Jan 26, 2022
Period: 07:00 - 10:00

Peak Hour Data (07:45 - 08:45)

Start Time	North Approach Sixth Line						South Approach Sixth Line						East Approach William Halton Pkwy						West Approach						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
07:45	7	29		0	0	36		16	18	0	0	34	42		7	0	0	49					0		119
08:00	15	36		0	0	51		22	27	0	0	49	50		10	0	0	60					0		160
08:15	9	20		0	0	29		17	27	0	0	44	35		11	0	0	46					0		119
08:30	7	27		0	0	34		17	24	0	0	41	30		12	0	0	42					0		117
Grand Total	**38**	**112**		**0**	**0**	**150**		**72**	**96**	**0**	**0**	**168**	**157**		**40**	**0**	**0**	**197**					**0**	**0**	**515**
Approach %	25.3	74.7		0		-		42.9	57.1	0		-	79.7		20.3	0		-						-	
Totals %	7.4	21.7		0		29.1		14	18.6	0		32.6	30.5		7.8	0		38.3						0	
PHF	**0.63**	**0.78**		**0**		**0.74**		**0.82**	**0.89**	**0**		**0.86**	**0.79**		**0.83**	**0**		**0.82**						**0**	**0.8**
Cars	31	102		0		133		61	89	0		150	147		36	0		183						0	466
% Cars	81.6	91.1		0		88.7		84.7	92.7	0		89.3	93.6		90	0		92.9						0	90.5
Trucks	7	9		0		16		11	7	0		18	10		4	0		14						0	48
% Trucks	18.4	8		0		10.7		15.3	7.3	0		10.7	6.4		10	0		7.1						0	9.3
Bicycles	0	1		0		1		0	0	0		0	0		0	0		0						0	1
% Bicycles	0	0.9		0		0.7		0	0	0		0	0		0	0		0						0	0.2
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	15:00:00	From:	17:00:00
To:	18:00:00	To:	18:00:00

Intersection: Sixth Line & William Halton Pkwy
Site Code: 2201500002
Count Date: Jan 26, 2022

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Sixth Line runs N/S

North Approach

	Out	In	Total
Cars	92	148	240
Trucks	6	4	10
Bicycles	0	0	0
	98	**152**	**250**

Sixth Line

Bicycles	0	0	0
Trucks	4	2	0
Cars	76	16	0
Totals	**80**	**18**	**0**

Peds: 0

Peds: 0

Peds: 0

Totals	**133**	**156**	**0**
Cars	131	155	0
Trucks	2	1	0
Bicycles	0	0	0

Sixth Line

East Approach

	Out	In	Total
Cars	119	171	290
Trucks	3	3	6
Bicycles	0	0	0
	122	**174**	**296**

William Halton Pkwy

	Totals	Cars	Trucks	Bicycles
	0	0	0	0
	19	17	2	0
	103	102	1	0

South Approach

	Out	In	Total
Cars	286	178	464
Trucks	3	5	8
Bicycles	0	0	0
	289	**183**	**472**

- Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

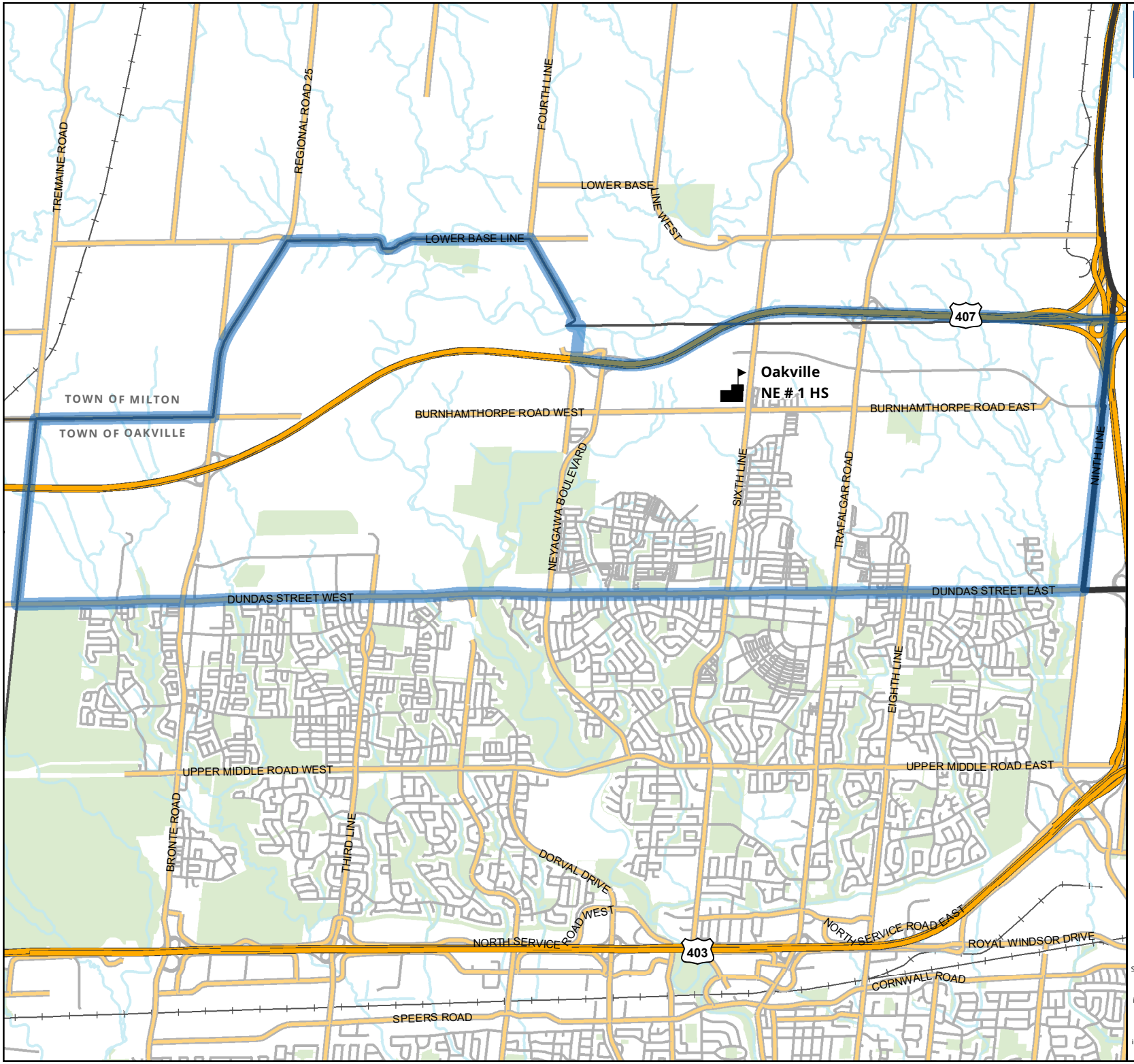
Intersection: Sixth Line & William Halton Pkwy
Site Code: 2201500002
Count Date: Jan 26, 2022
Period: 15:00 - 18:00

Peak Hour Data (17:00 - 18:00)

Start Time	North Approach Sixth Line						South Approach Sixth Line						East Approach William Halton Pkwy						West Approach						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
17:00	4	26		0	0	30		29	38	0	0	67	31		6	0	0	37					0		134
17:15	7	21		0	0	28		22	41	0	0	63	26		3	0	0	29					0		120
17:30	3	15		0	0	18		38	37	0	0	75	25		6	0	0	31					0		124
17:45	4	18		0	0	22		44	40	0	0	84	21		4	0	0	25					0		131
Grand Total	**18**	**80**		**0**	**0**	**98**		**133**	**156**	**0**	**0**	**289**	**103**		**19**	**0**	**0**	**122**					**0**	**0**	**509**
Approach %	18.4	81.6		0		-		46	54	0		-	84.4		15.6	0		-						-	
Totals %	3.5	15.7		0		19.3		26.1	30.6	0		56.8	20.2		3.7	0		24						0	
PHF	**0.64**	**0.77**		**0**		**0.82**		**0.76**	**0.95**	**0**		**0.86**	**0.83**		**0.79**	**0**		**0.82**						**0**	**0.95**
Cars	16	76		0		92		131	155	0		286	102		17	0		119						0	497
% Cars	88.9	95		0		93.9		98.5	99.4	0		99	99		89.5	0		97.5						0	97.6
Trucks	2	4		0		6		2	1	0		3	1		2	0		3						0	12
% Trucks	11.1	5		0		6.1		1.5	0.6	0		1	1		10.5	0		2.5						0	2.4
Bicycles	0	0		0		0		0	0	0		0	0		0	0		0						0	0
% Bicycles	0	0		0		0		0	0	0		0	0		0	0		0						0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Appendix C

Proposed Secondary School Catchment Area



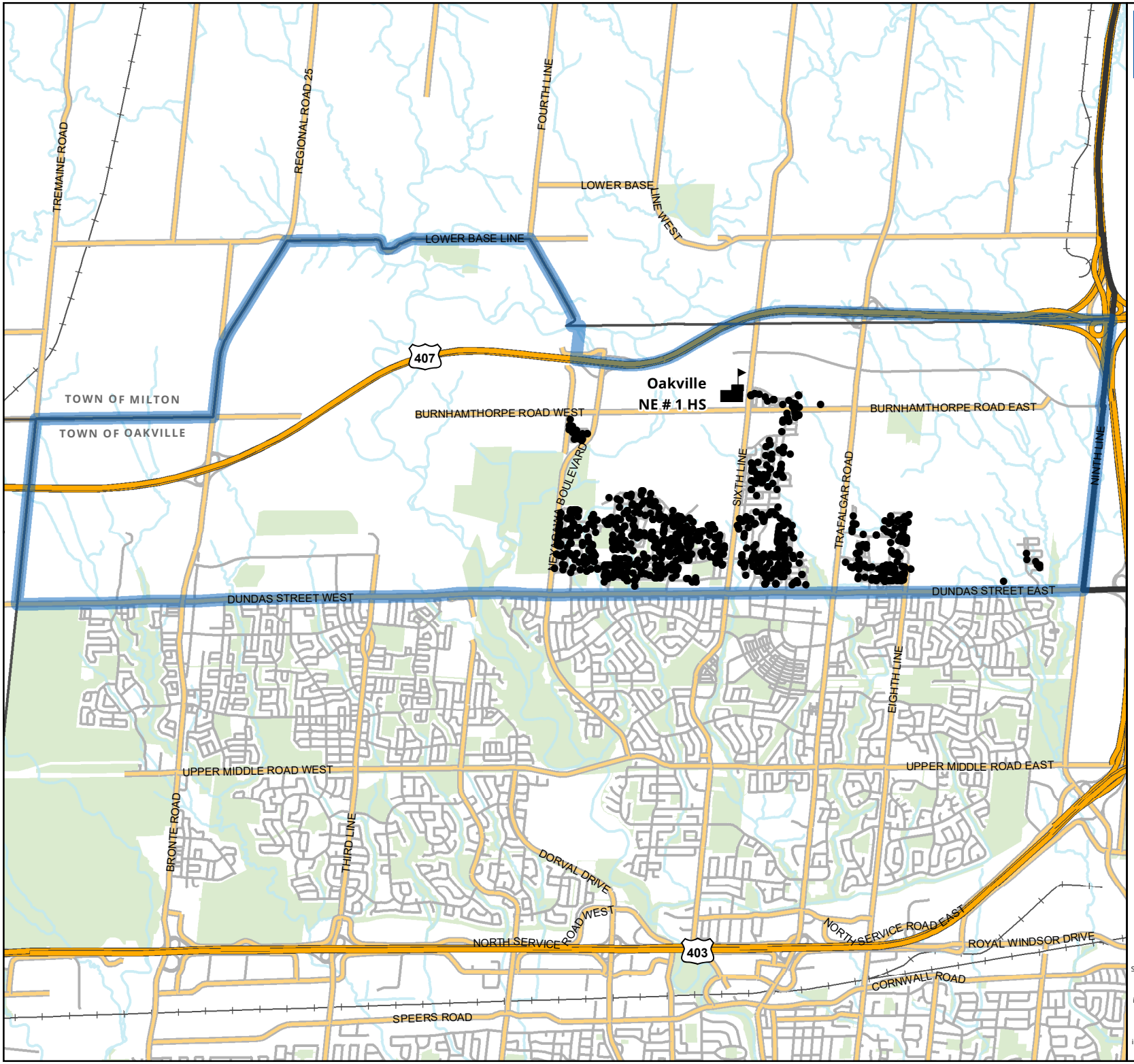
Halton District School Board

North Oakville # 1 High School

Legend

School Catchment (subject to change)

0 500 1,000
Metres



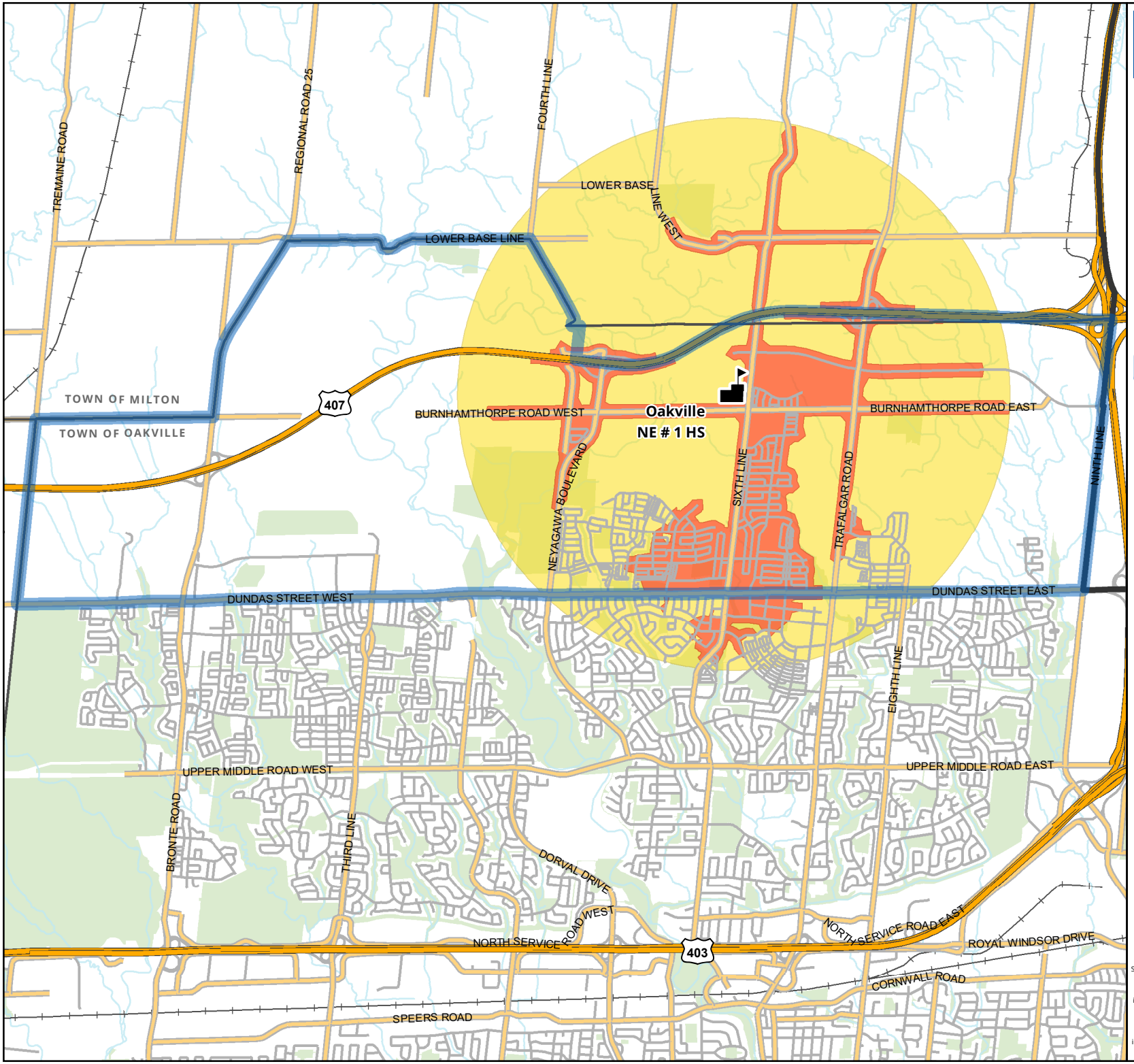
Halton District School Board

North Oakville # 1 High School Students in Catchment

Legend

- Secondary Students in Catchment (total: 895)
- School Catchment (subject to change)

0 500 1,000
Metres



Halton District School Board

North Oakville # 1 High School Walking Radius

Legend

- School Catchment (subject to change)
- Walking Area (3.2 km based on road network)
- Walking Radius (3.2 km)

0 500 1,000
Metres

From:	Nasteha Abdullahi
To:	May Lai
Subject:	FW: Sixth Oak Inc. TIS
Date:	January 11, 2022 2:03:43 PM
Attachments:	08_TIS_V1_2020-09-15.pdf image001.png

FYI

From: Mark Crockford <mark.crockford@cghtransportation.com>
Sent: November 18, 2021 2:31 PM
To: Nasteha Abdullahi <nasteha.abdullahi@cghtransportation.com>
Subject: FW: Sixth Oak Inc. TIS

Mark Crockford, P.Eng.
CGH Transportation Inc.
P:905-251-4070
E:Mark.Crockford@CGHTransportation.com

From: thibeaultf@hdsb.ca <thibeaultf@hdsb.ca>
Sent: October 22, 2021 4:44 PM
To: 'David Faye' <davidfaye.associates@gmail.com>; Mark Crockford <mark.crockford@cghtransportation.com>
Cc: 'Michael Wildfong' <wildfongm@hdsb.ca>; 'Laureen Choi' <choil@hdsb.ca>; 'Adam Cairns' <acairns@melroseinvestments.com>; 'Leo Wu' <lwu@melroseinvestments.com>; 'Colley, David' <ColleyD@Haltonbus.ca>
Subject: RE: Sixth Oak Inc. TIS

Mark, if you need anything else like walk distances, catchment areas, bus counts, walker counts, etc…, you let me know.

See attached for some additional information for the last TIS we did.

Frederick Thibeault, MPI, BES
General Manager of Planning | HDSB
Email: thibeaultf@hdsb.ca
Office: (905) 335-3665 ext. 3375
Cell: (905) 691-7076

From: David Faye <davidfaye.associates@gmail.com>
Sent: October 22, 2021 4:36 PM
To: Mark Crockford <mark.crockford@cghtransportation.com>
Cc: Fred Thibeault <thibeaultf@hdsb.ca>; Michael Wildfong <wildfongm@hdsb.ca>; Laureen Choi

<choil@hdsb.ca>; Adam Cairns <acairns@melroseinvestments.com>; Leo Wu <lwu@melroseinvestments.com>
Subject: Sixth Oak Inc. TIS

Mark,

See information from Fred Thibeault at the HDSB regarding the 15-acre high school site proposed on the Sixth Oak Inc. property which will answer your questions regarding the high school, child day care, and office components for the TIS. I will send information on the employment lands early next week. Call me if you have any questions.

1. **Conceptual Site Plan**
    a. Looking to submit conceptual drawings for now that identify the general massing of the buildings the Board is proposing
        i. 1,200 pupil place secondary school facility
        ii. 100,000 square foot facility
        iii. Sport Facility
        iv. Child Care
    b. Drawings to provide location of access points, subject to detailed Site Plan design
2. **Official Plan Amendment**
    1. Town is recommending to re-designate Employment to Transitional Area, as it permits a school.
    2. Town is looking to have the symbol moved from the location at Neyagawa and Dundas to this location as part of the OPA.
2. **Archaeological**
    1. Town confirm that report can be submitted in the new year once completed. Will not be required for a complete submission.
2. **Traffic Impact Study**
    1. Town to review general location of the access points of the school use (sixth line and Burnhamthorpe), will not focus on internal circulation
    2. Proponent to provide uses and traffic generation numbers
    3. Martin from Town provided TOR, being reviewed.
2. **Zoning By-law Requirement:**
    1. Board will be seeking the following uses on the school block – essentially a duel zone:
        i. Secondary School
        ii. Child Care Centre
        iii. Sport Facility (dome, turf, and running track)
        iv. Administrative Office (+/- 100 square feet) – Light Employment (LE)
    b. Zoning permissions

i. Will seek some allowances on the Burnhamthorpe frontage to increase setbacks, and allow for flexibility for the Board office

ii. Parking requirements: +/- 380 on site required to have +/- 350 spaces on site

1. Office: 1 per 37 square metres = 9,290m2 / 37m2 = 251 parking spaces
2. Day care centre: 1 per 40 square metres = 750m2 / 40m2 = 19 parking spaces
3. School: 1 per classroom minimum = 56 core and 24 portables = 80 parking spaces
4. Sport Facility (dome): 0 per square metre = 0 parking spaces

Regards,

David Faye

--

David Faye, MCIP, RPP
David Faye & Associates Inc.
338 Lakeshore Road East
P.O. Box 52147
Oakville, Ontario
L6J 7N5
Tel/Cell: 905-467-4250
Email: davidfaye.associates@gmail.com

Appendix D

Traffic Control Signal Warrant

Intersection: Access on William Halton Parkway

Major Street:	East-West	Lanes:	2+
Minor Street:	North-South	Lanes:	1
Urban/Rural:	Urban		
Legs:	3		

New/Existing Intersection: New

Scenario: 2025 FT

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AHV	15	0	22	0	0	0	0	1076	17	26	947	0
AM	8	0	12	0	0	0	0	2176	60	89	1881	0
PM	51	0	77	0	0	0	0	2126	8	13	1907	0

Access on William Halton Parkway
2025 FT

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	2102	234%	33%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	56	33%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	2065	229%	37%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	28	37%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

Intersection: Access on William Halton Parkway

Major Street:	East-West	Lanes:	2+
Minor Street:	North-South	Lanes:	1
Urban/Rural:	Urban		
Legs:	3		

New/Existing Intersection: New

Scenario: 2030 FT

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AHV	14	0	21	0	0	0	0	1078	16	24	906	0
AM	8	0	11	0	0	0	0	2183	56	85	1840	0
PM	48	0	73	0	0	0	0	2128	8	12	1782	0

Access on William Halton Parkway
2030 FT

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	2059	229%	31%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	53	31%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	2024	225%	35%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	26	35%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

Intersection: Access on Sixth Line / Loyalist Trail at Sixth Line

Major Street:	North-South	Lanes:	1
Minor Street:	East-West	Lanes:	1
Urban/Rural:	Urban		
Legs:	4		

New/Existing Intersection: New

Scenario: 2025 FT

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AHV	61	230	5	7	217	30	5	8	115	5	9	11
AM	183	434	7	17	328	90	12	19	267	11	25	19
PM	59	486	13	12	539	30	8	13	194	10	9	25

Access on Sixth Line / Loyalist Trail at Sixth Line
2025 FT

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	703	98%	90%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	153	90%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	550	76%	25%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	19	25%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

Intersection: Access on Sixth Line / Loyalist Trail at Sixth Line

Major Street:	North-South	Lanes:	2+
Minor Street:	East-West	Lanes:	1
Urban/Rural:	Urban		
Legs:	4		

New/Existing Intersection: New

Scenario: 2030 FT

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AHV	57	266	6	8	255	33	5	8	107	6	8	12
AM	171	531	8	19	368	98	12	19	250	12	24	21
PM	57	532	14	13	652	32	8	13	176	11	9	28

Access on Sixth Line / Loyalist Trail at Sixth Line
2030 FT

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	770	86%	86%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	146	86%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	624	69%	25%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	19	25%		

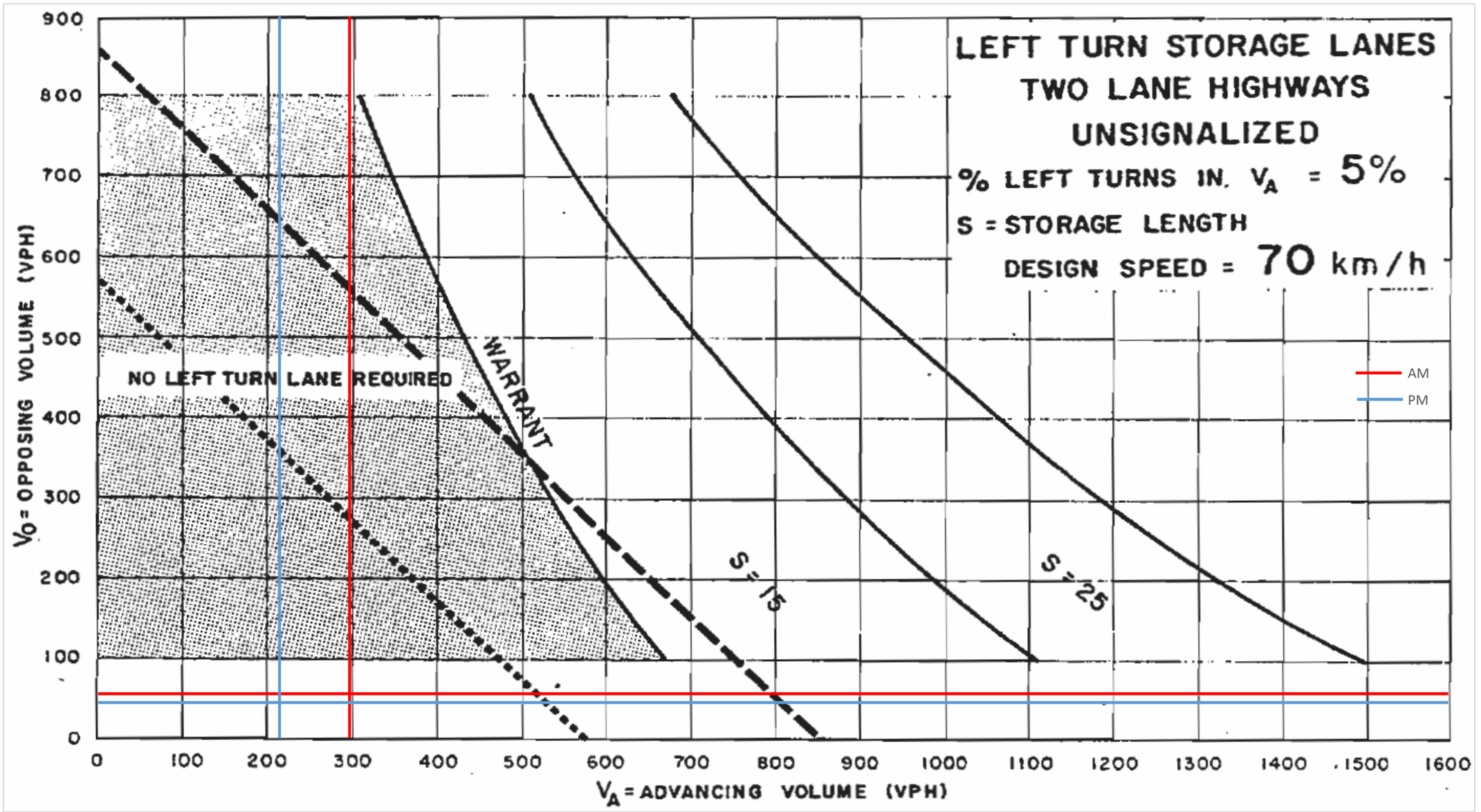
Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

Appendix E

Left Turn Lane Warrant

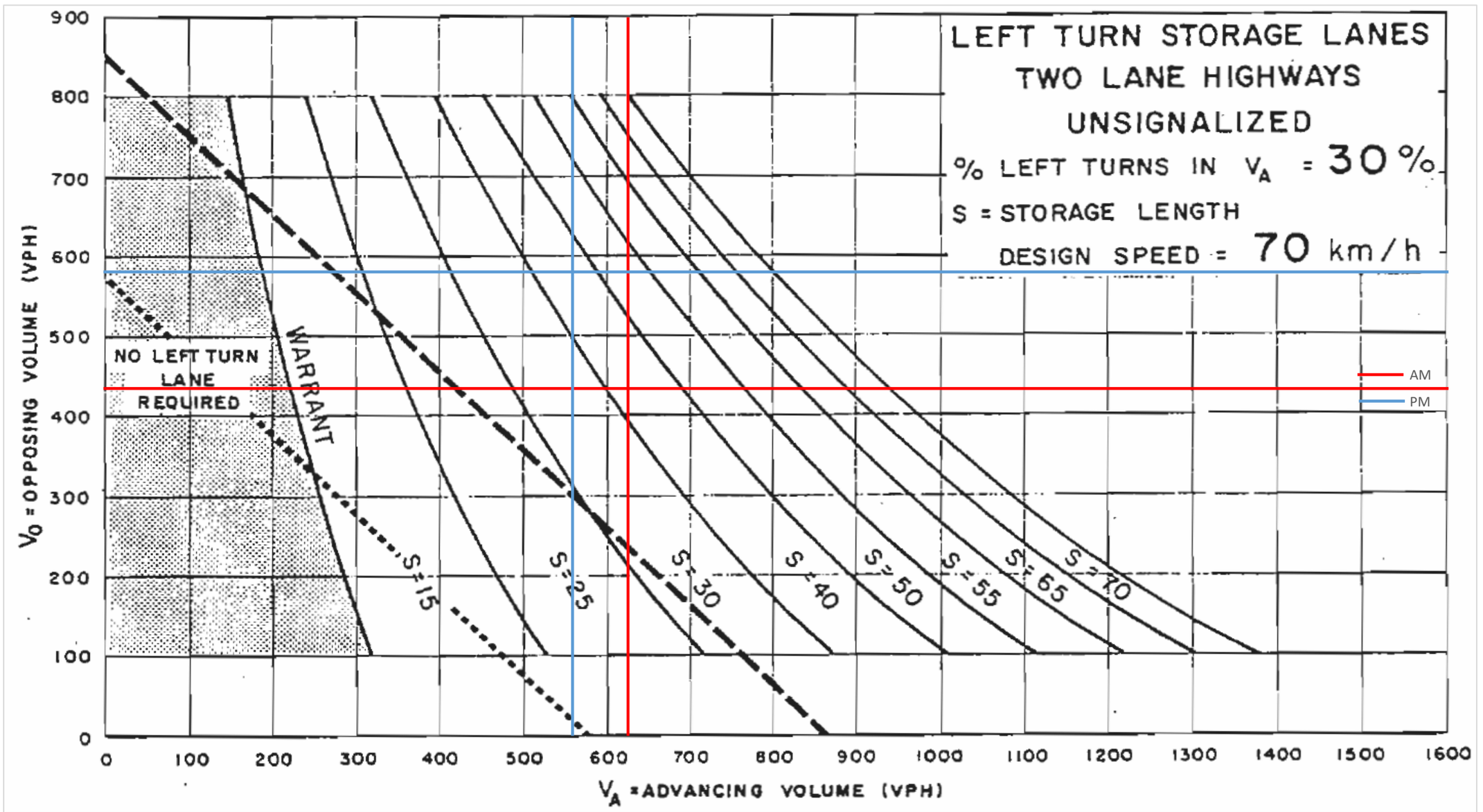
2025 FT Access / Loyalist Trail at Sixth Line

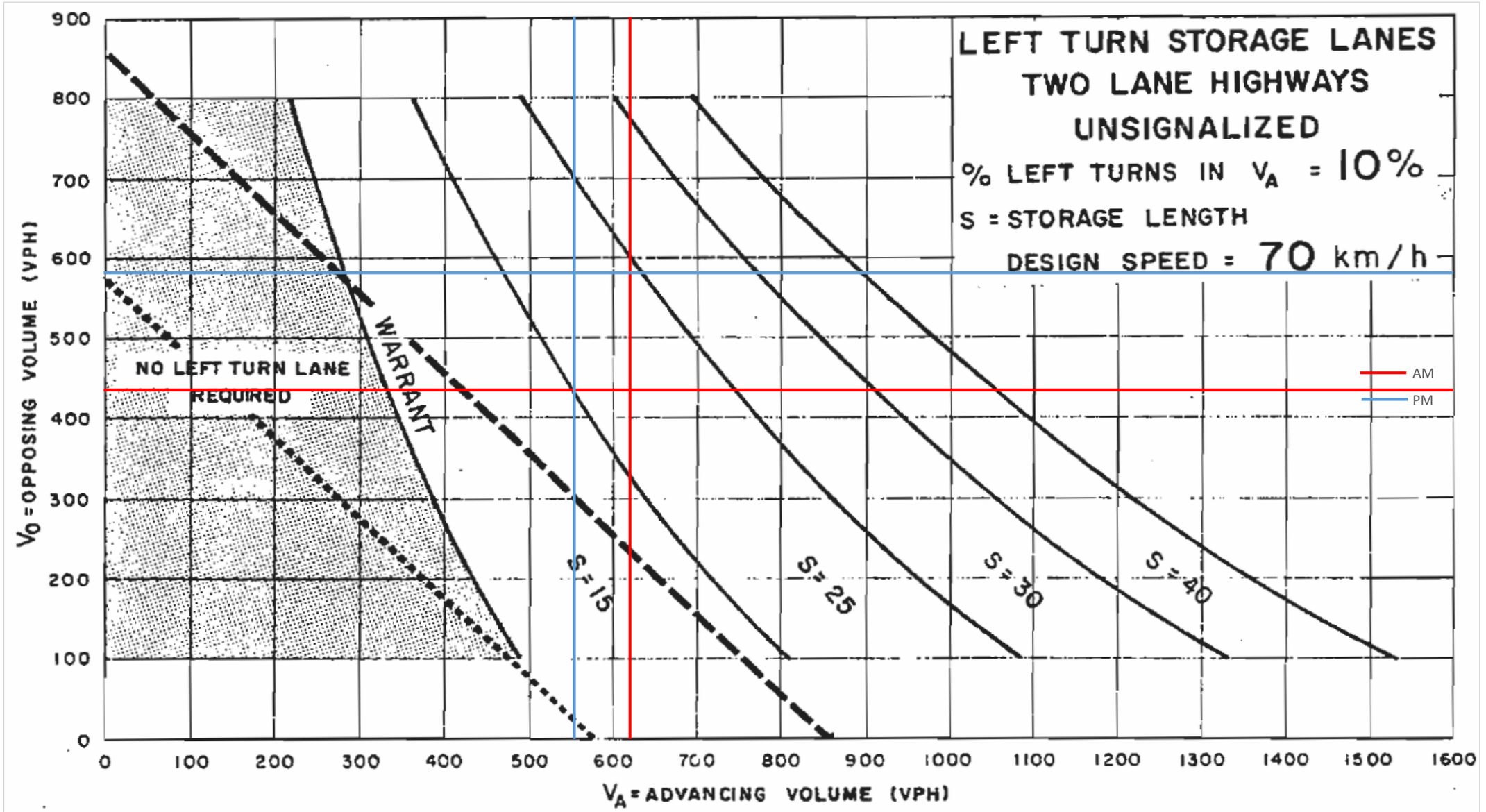
Design Speed	Eastbound Left	Yes														
70 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
	AM	12	19	267	11	25	19	183	434	7	17	328	90	4.0%	298	55
	PM	8	13	194	10	9	25	59	486	13	12	539	30	3.7%	215	44


LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN. V_A = 5%
S = STORAGE LENGTH
DESIGN SPEED = 70 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S = 15
S = 25
AM
PM
V_O = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600

2025 FT Access / Loyalist Trail at Sixth Line

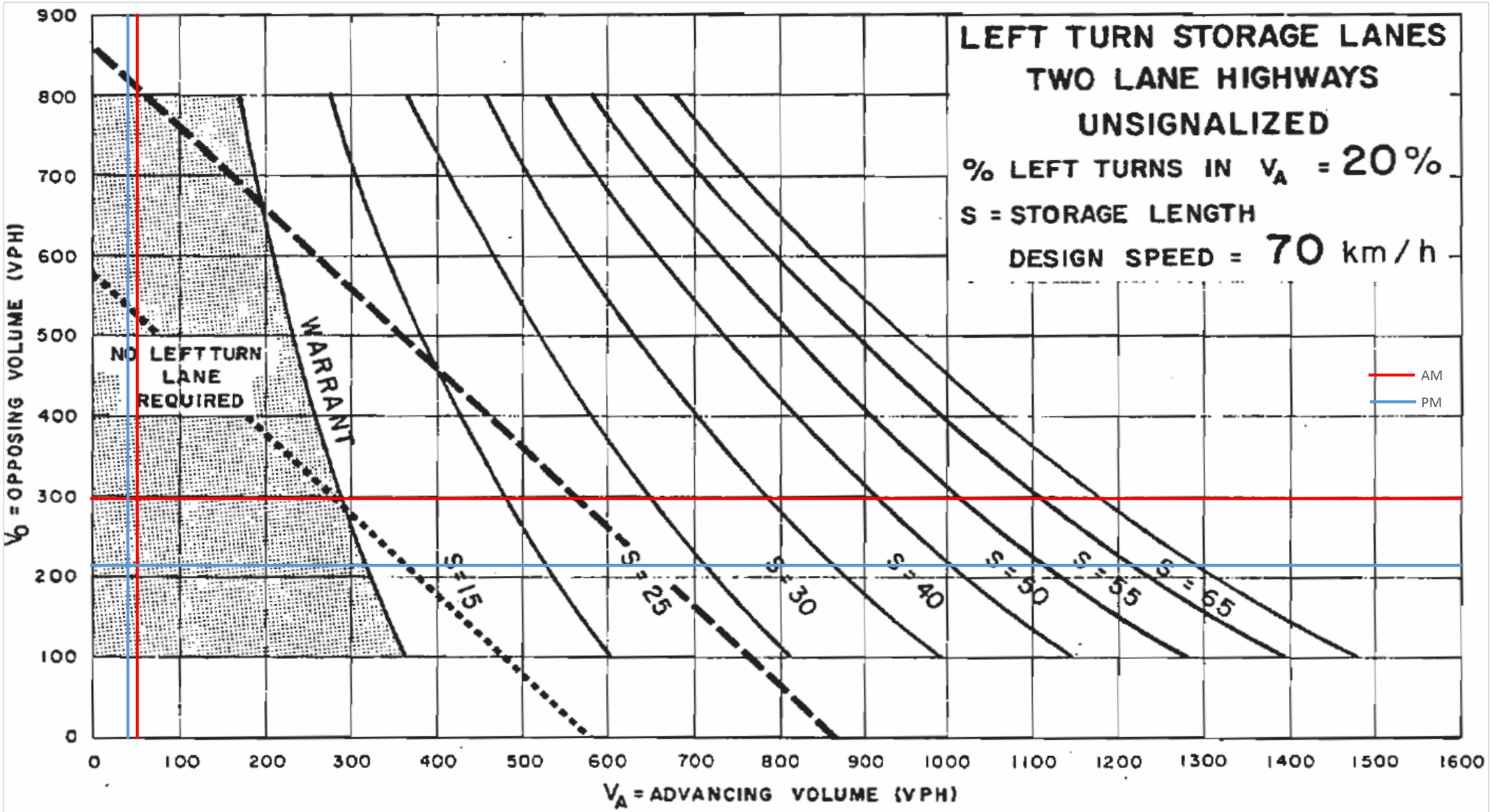
Design Speed	Northbound Left						Yes								
70 km/h	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM	12	19	267	11	25	19	183	434	7	17	328	90	29.3%	624	435
PM	8	13	194	10	9	25	59	486	13	12	539	30	10.6%	558	581

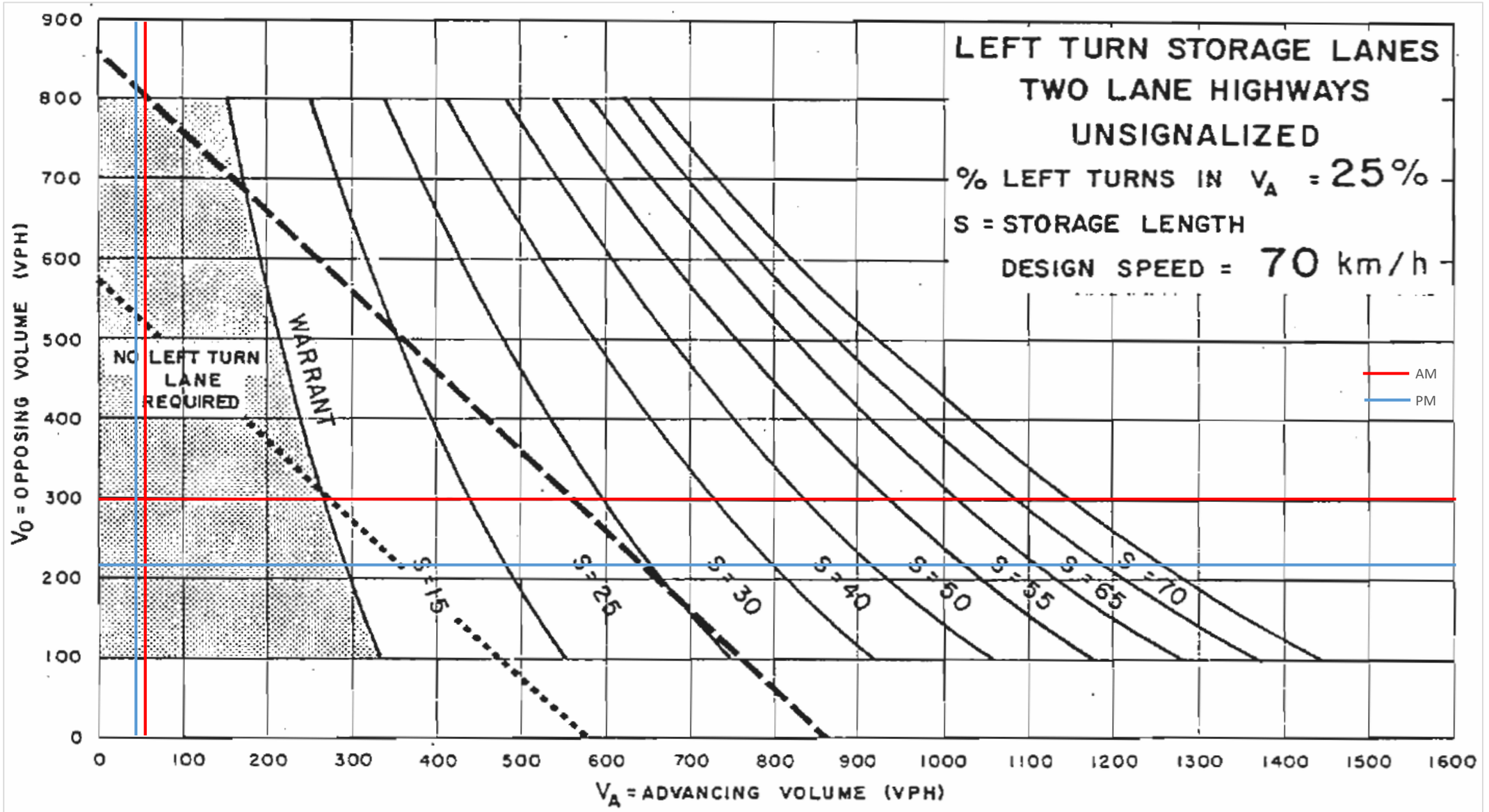

LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 30 %
S = STORAGE LENGTH
DESIGN SPEED = 70 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S=15
S=25
S=30
S=40
S=50
S=55
S=65
S=70
AM
PM
V_O = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
900
800
700
600
500
400
300
200
100
0
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600


LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 10%
S = STORAGE LENGTH
DESIGN SPEED = 70 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S=15
S=25
S=30
S=40
AM
PM
V_O = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600

2025 FT Access / Loyalist Trail at Sixth Line

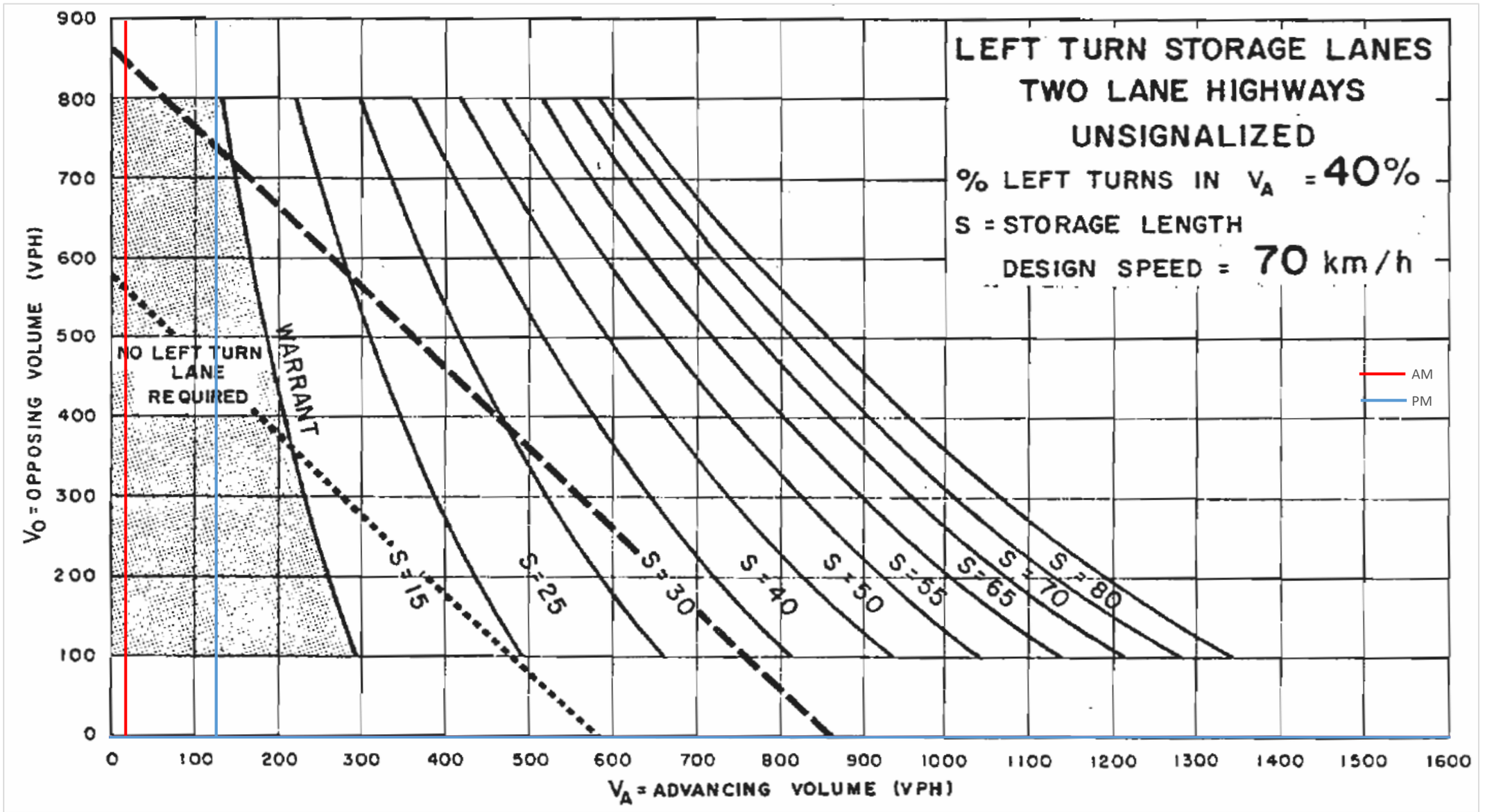
Design Speed	Westbound Left					Yes									
70 km/h	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM	12	19	267	11	25	19	183	434	7	17	328	90	20.0%	55	298
PM	8	13	194	10	9	25	59	486	13	12	539	30	22.7%	44	215


LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 20%
S = STORAGE LENGTH
DESIGN SPEED = 70 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S=15
S=25
S=30
S=40
S=50
S=55
S=65
AM
PM
V_O = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600


LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 25%
S = STORAGE LENGTH
DESIGN SPEED = 70 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S=15
S=25
S=30
S=40
S=50
S=55
S=65
S=70
AM
PM
V_O = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600

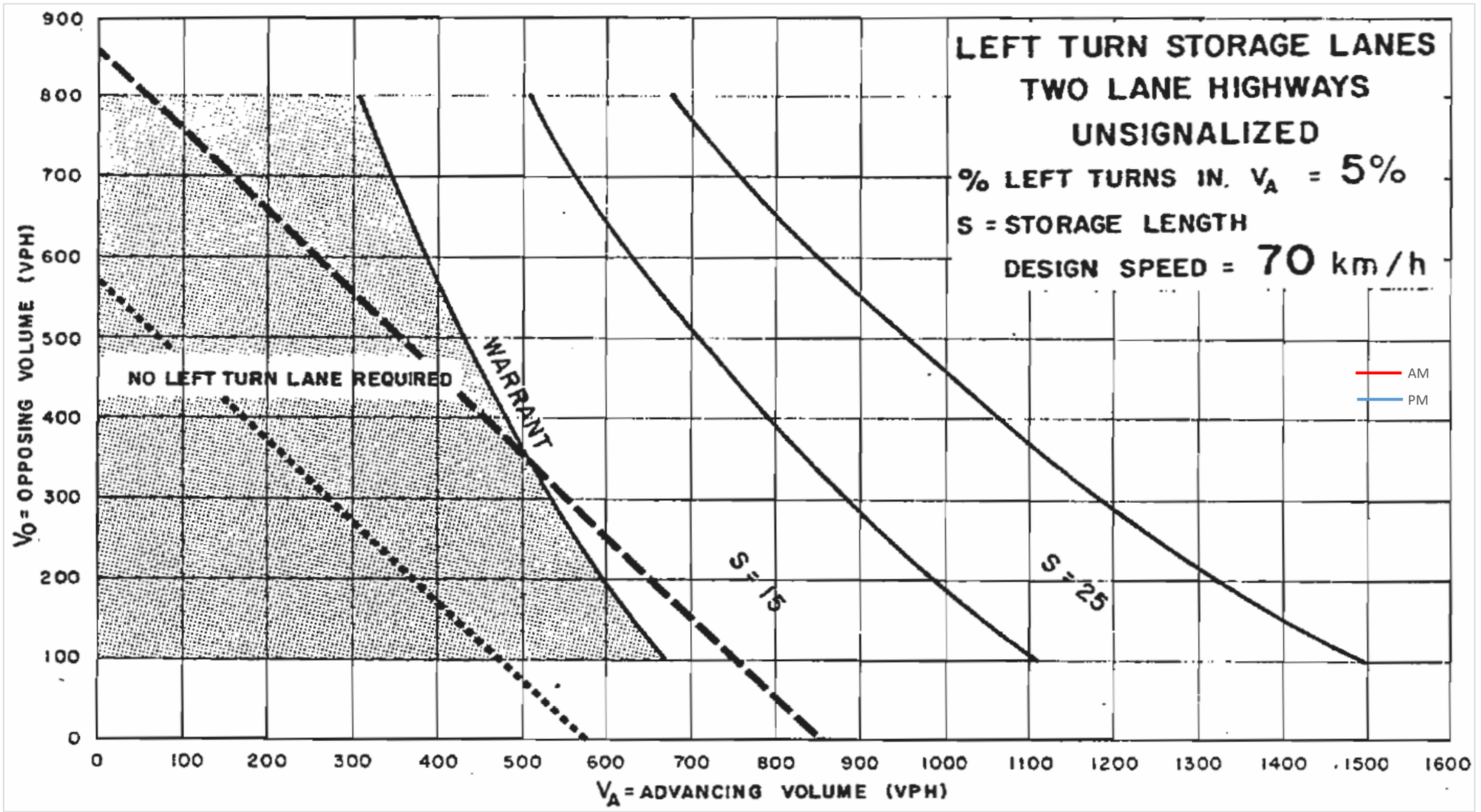
2025 FT Access at William Halton Parkway

Design Speed	Northbound Left						Yes								
70 km/h	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM	0	2176	60	89	1881	0	8	0	12	0	0	0	40.0%	20	0
PM	0	2126	8	13	1907	0	51	0	77	0	0	0	39.8%	128	0


LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 40%
S = STORAGE LENGTH
DESIGN SPEED = 70 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S=15
S=25
S=30
S=40
S=50
S=55
S=65
S=70
S=80
AM
PM
V_O = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
900
800
700
600
500
400
300
200
100
0
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600

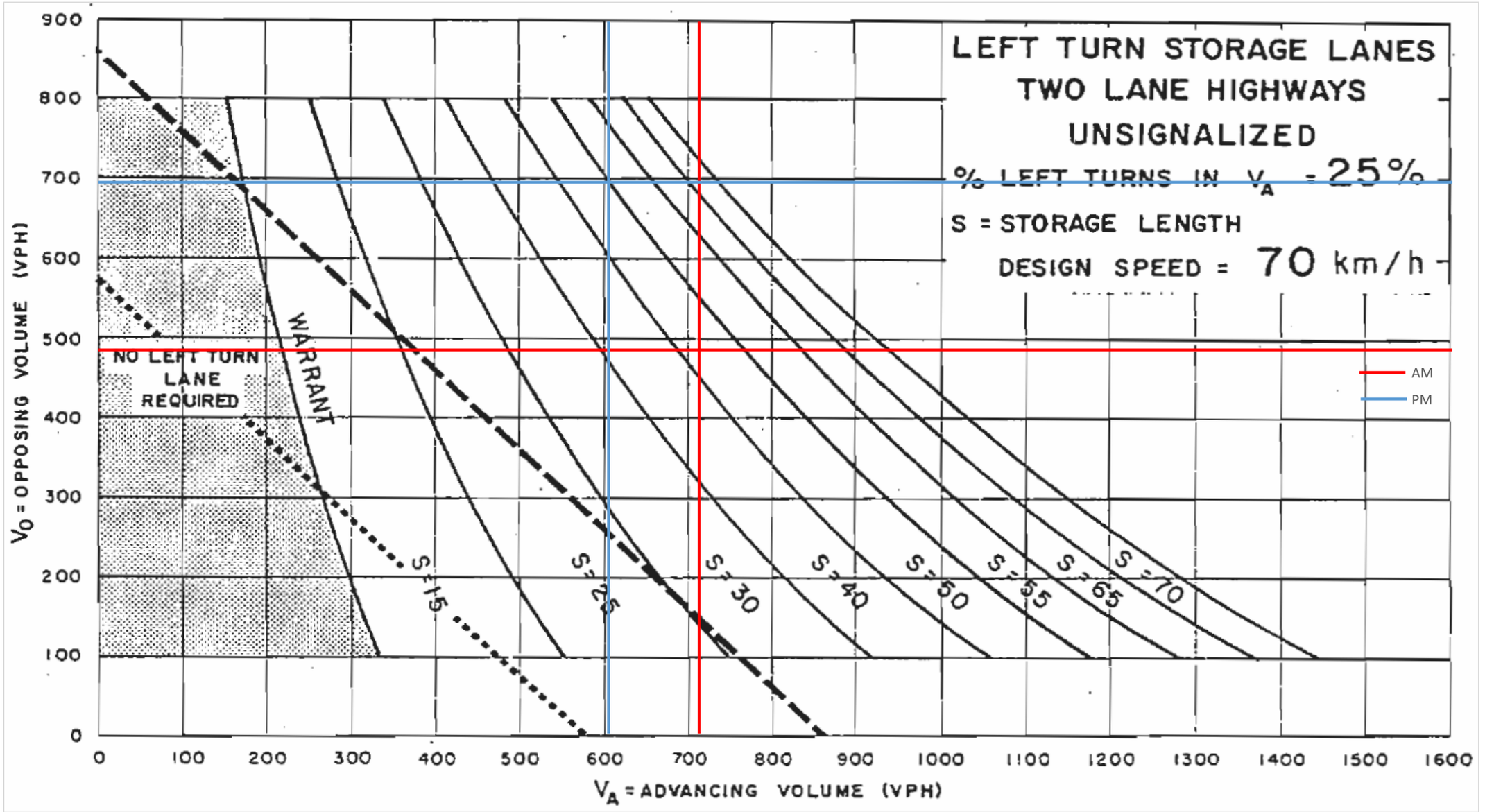
2025 FT Access at William Halton Parkway

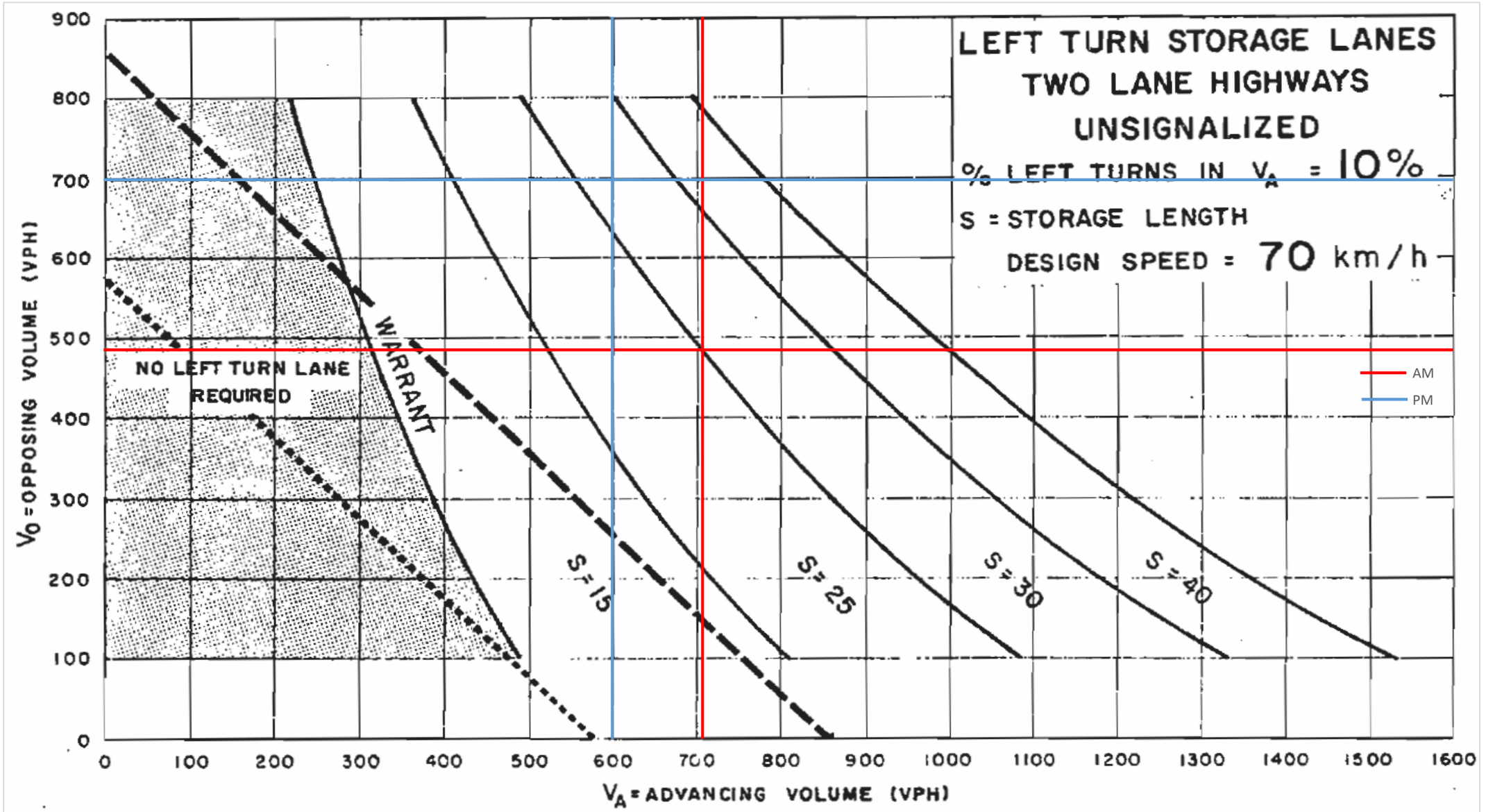
Design Speed	Westbound Left					Yes									
70 km/h	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM	0	2176	60	89	1881	0	8	0	12	0	0	0	4.5%	1970	2236
PM	0	2126	8	13	1907	0	51	0	77	0	0	0	0.7%	1920	2134


LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN. V_A = 5%
S = STORAGE LENGTH
DESIGN SPEED = 70 km/h
AM
PM
NO LEFT TURN LANE REQUIRED
WARRANT
S = 15
S = 25
V_O = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600

2030 FT Access / Loyalist Trail at Sixth Line

Design Speed	Northbound Left						Yes								
70 km/h	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM	12	19	250	12	24	21	171	531	8	19	368	98	24.1%	710	485
PM	8	13	176	11	9	28	57	532	14	13	652	32	9.5%	603	697

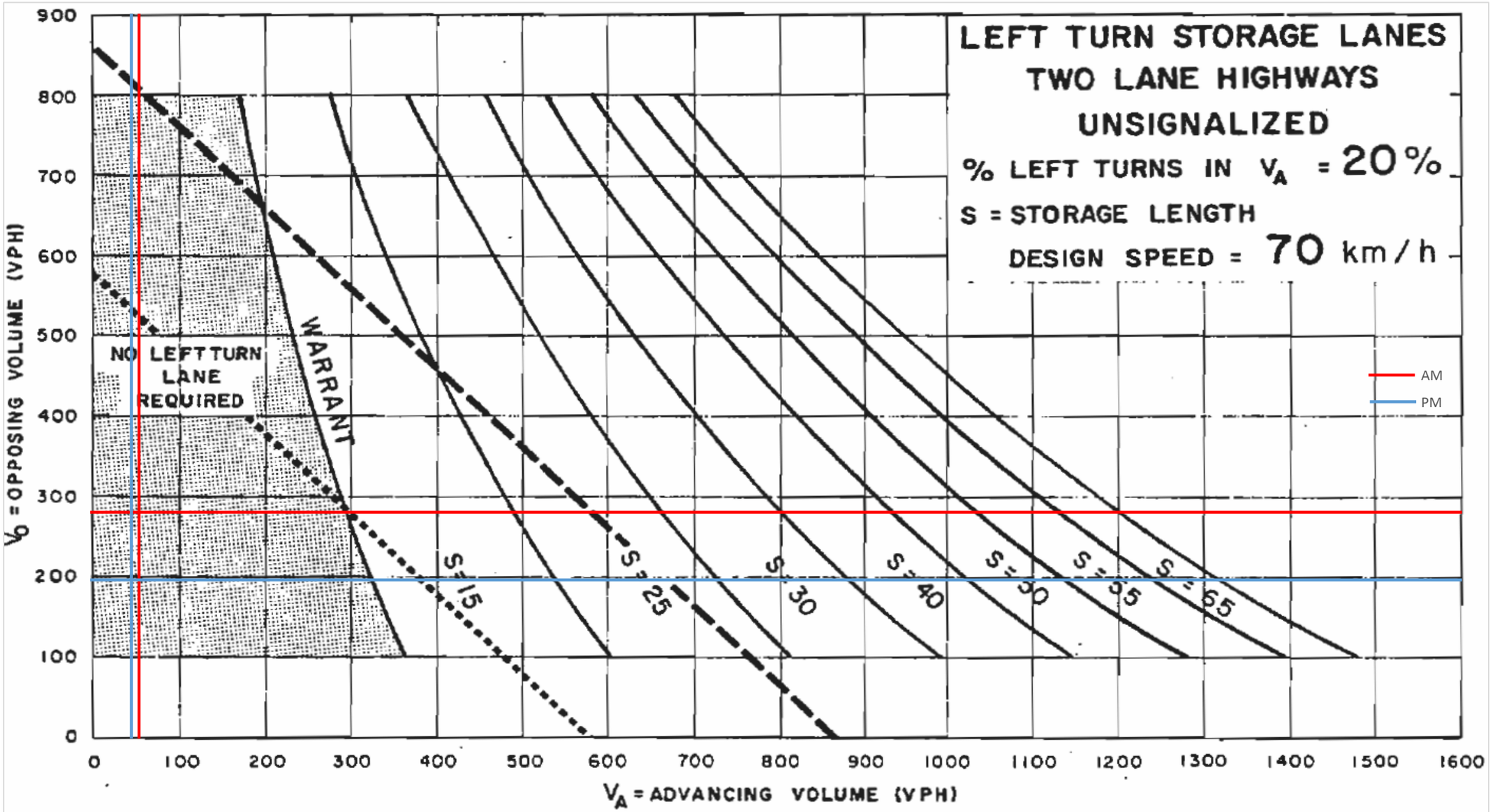

LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 25%
S = STORAGE LENGTH
DESIGN SPEED = 70 km/h
AM
PM
NO LEFT TURN LANE REQUIRED
WARRANT
S=15
S=25
S=30
S=40
S=50
S=55
S=65
S=70
V_O = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600

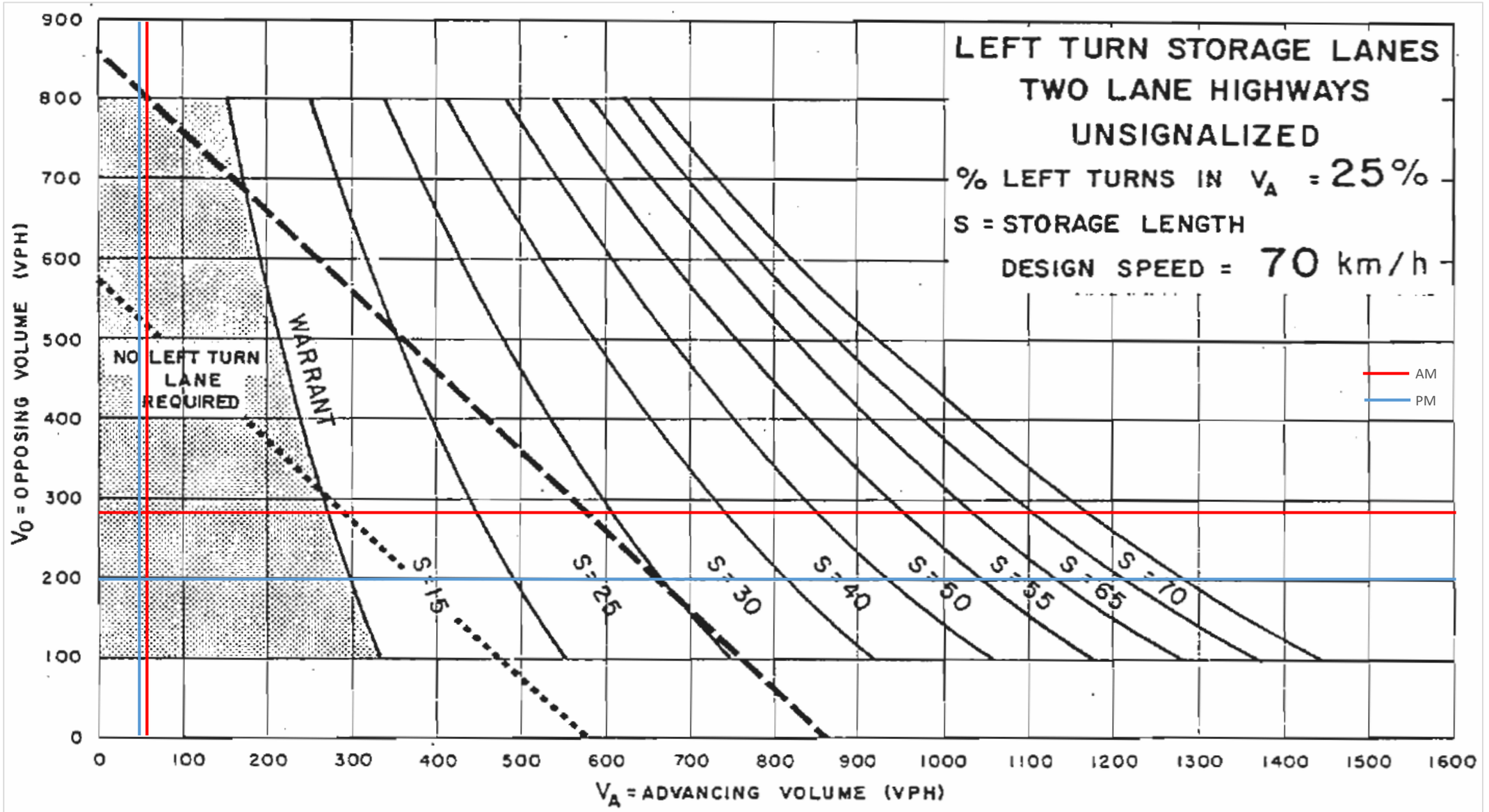

LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 10%
S = STORAGE LENGTH
DESIGN SPEED = 70 km/h
AM
PM
NO LEFT TURN LANE REQUIRED
WARRANT
S=15
S=25
S=30
S=40
V_O = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600

2030 FT Access / Loyalist Trail at Sixth Line

Design Speed	Westbound Left														
70 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
	AM	12	19	250	12	24	21	171	531	8	19	368	98	21.1%	57	281
	PM	8	13	176	11	9	28	57	532	14	13	652	32	22.9%	48	197

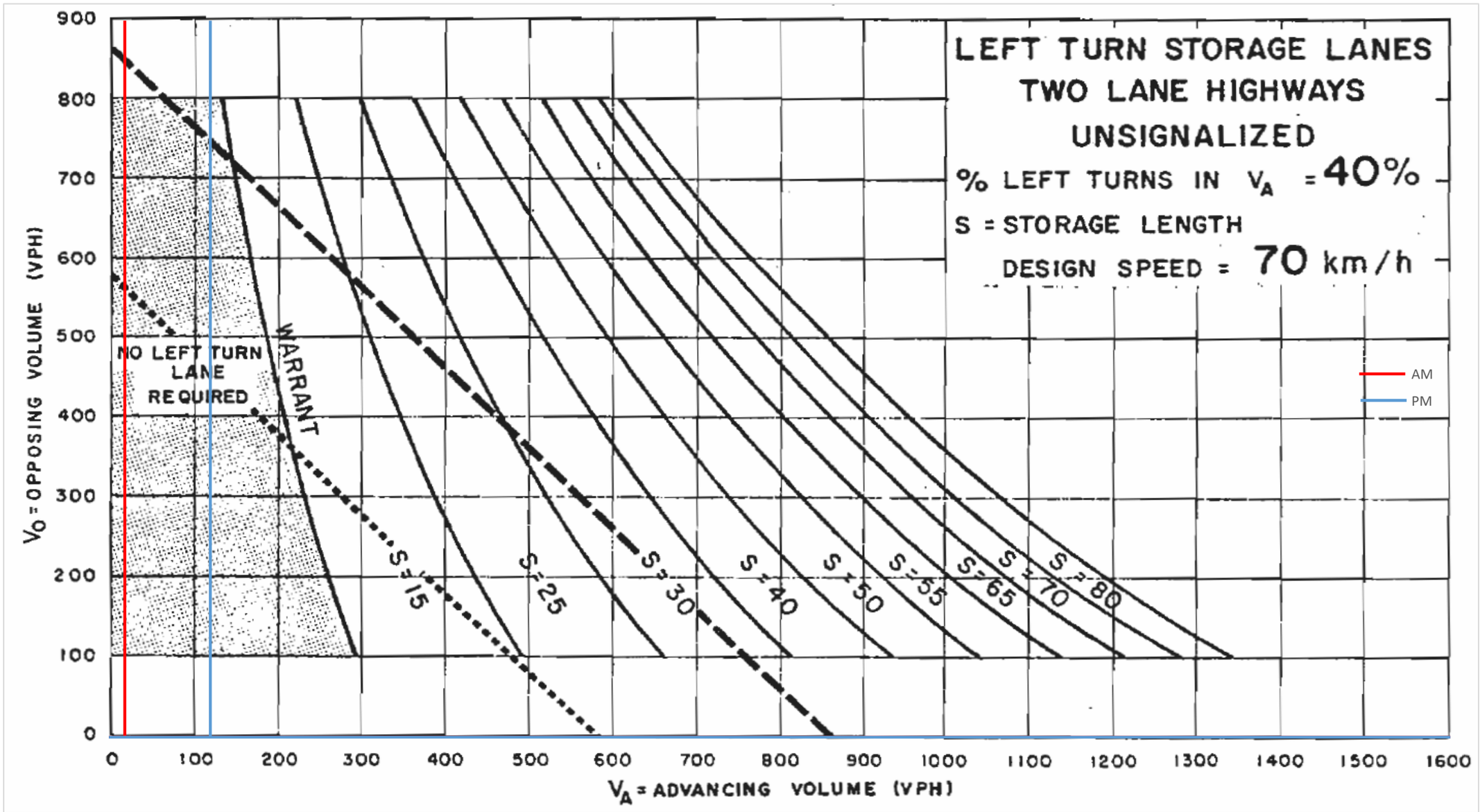
Yes


LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 20%
S = STORAGE LENGTH
DESIGN SPEED = 70 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S=15
S=25
S=30
S=40
S=50
S=55
S=65
AM
PM
V_O = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600


LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 25%
S = STORAGE LENGTH
DESIGN SPEED = 70 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S=15
S=25
S=30
S=40
S=50
S=55
S=65
S=70
AM
PM
V_O = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600

2030 FT Access at William Halton Parkway

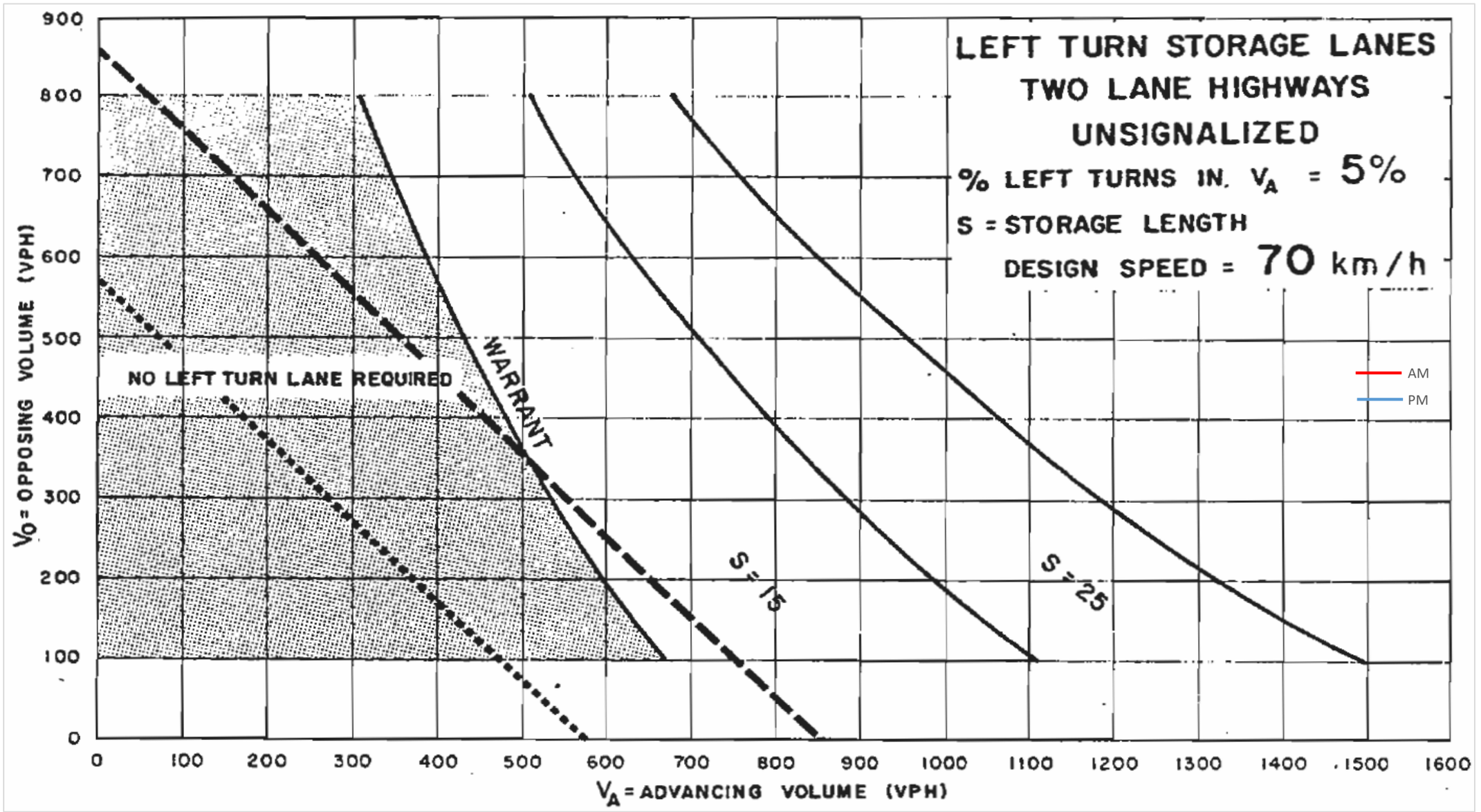
Design Speed	Northbound Left						Yes								
70 km/h	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM	0	2183	56	85	1840	0	8	0	11	0	0	0	42.1%	19	0
PM	0	2128	8	12	1782	0	48	0	73	0	0	0	39.7%	121	0


LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 40%
S = STORAGE LENGTH
DESIGN SPEED = 70 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S=15
S=25
S=30
S=40
S=50
S=55
S=65
S=70
S=80
AM
PM
V_O = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600

2030 FT Access at William Halton Parkway

Design Speed	Westbound Left														
70 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
	AM	0	2183	56	85	1840	0	8	0	11	0	0	0	4.4%	1925	2239
	PM	0	2128	8	12	1782	0	48	0	73	0	0	0	0.7%	1794	2136

Yes

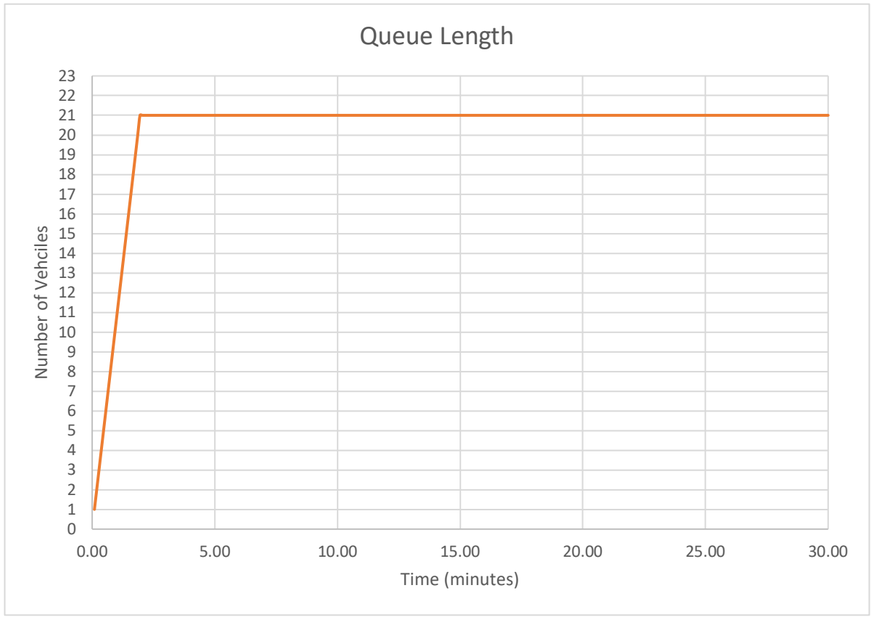

LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN. V_A = 5%
S = STORAGE LENGTH
DESIGN SPEED = 70 km/h
AM
PM
NO LEFT TURN LANE REQUIRED
WARRANT
S = 15
S = 25
V_O = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600

Appendix F

Queue Length Calculations

Time Period of Analysis (mins)	Arrival Rate (veh/time period)	Service Rate (veh/time period)	Wait Time in System	Storage
30	323	10.77	2	19

Time Start (mins)	Arrivals (veh)	Departures (veh)	No. Vehicles on Site
0.09	1		1
0.19	1		2
0.28	1		3
0.37	1		4
0.46	1		5
0.56	1		6
0.65	1		7
0.74	1		8
0.84	1		9
0.93	1		10
1.02	1		11
1.11	1		12
1.21	1		13
1.30	1		14
1.39	1		15
1.49	1		16
1.58	1		17
1.67	1		18
1.76	1		19
1.86	1		20
1.95	1		21
2.04	1	1	21
2.14	1	1	21
2.23	1	1	21
2.32	1	1	21
2.41	1	1	21
2.51	1	1	21
2.60	1	1	21
2.69	1	1	21
2.79	1	1	21
2.88	1	1	21
2.97	1	1	21
3.07	1	1	21
3.16	1	1	21
3.25	1	1	21
3.34	1	1	21
3.44	1	1	21
3.53	1	1	21
3.62	1	1	21
3.72	1	1	21
3.81	1	1	21
3.90	1	1	21
3.99	1	1	21
4.09	1	1	21
4.18	1	1	21
4.27	1	1	21
4.37	1	1	21
4.46	1	1	21
4.55	1	1	21
4.64	1	1	21
4.74	1	1	21
4.83	1	1	21
4.92	1	1	21
5.02	1	1	21
5.11	1	1	21
5.20	1	1	21
5.29	1	1	21
5.39	1	1	21
5.48	1	1	21
5.57	1	1	21
5.67	1	1	21
5.76	1	1	21
5.85	1	1	21
5.94	1	1	21
6.04	1	1	21
6.13	1	1	21
6.22	1	1	21
6.32	1	1	21
6.41	1	1	21
6.50	1	1	21
6.59	1	1	21
6.69	1	1	21
6.78	1	1	21
6.87	1	1	21
6.97	1	1	21
7.06	1	1	21
7.15	1	1	21
7.24	1	1	21
7.34	1	1	21
7.43	1	1	21
7.52	1	1	21
7.62	1	1	21
7.71	1	1	21
7.80	1	1	21
7.89	1	1	21
7.99	1	1	21
8.08	1	1	21
8.17	1	1	21
8.27	1	1	21
8.36	1	1	21
8.45	1	1	21
8.54	1	1	21
8.64	1	1	21
8.73	1	1	21
8.82	1	1	21
8.92	1	1	21
9.01	1	1	21
9.10	1	1	21
9.20	1	1	21



9.29	1	1	21
9.38	1	1	21
9.47	1	1	21
9.57	1	1	21
9.66	1	1	21
9.75	1	1	21
9.85	1	1	21
9.94	1	1	21
10.03	1	1	21
10.12	1	1	21
10.22	1	1	21
10.31	1	1	21
10.40	1	1	21
10.50	1	1	21
10.59	1	1	21
10.68	1	1	21
10.77	1	1	21
10.87	1	1	21
10.96	1	1	21
11.05	1	1	21
11.15	1	1	21
11.24	1	1	21
11.33	1	1	21
11.42	1	1	21
11.52	1	1	21
11.61	1	1	21
11.70	1	1	21
11.80	1	1	21
11.89	1	1	21
11.98	1	1	21
12.07	1	1	21
12.17	1	1	21
12.26	1	1	21
12.35	1	1	21
12.45	1	1	21
12.54	1	1	21
12.63	1	1	21
12.72	1	1	21
12.82	1	1	21
12.91	1	1	21
13.00	1	1	21
13.10	1	1	21
13.19	1	1	21
13.28	1	1	21
13.37	1	1	21
13.47	1	1	21
13.56	1	1	21
13.65	1	1	21
13.75	1	1	21
13.84	1	1	21
13.93	1	1	21
14.02	1	1	21
14.12	1	1	21
14.21	1	1	21
14.30	1	1	21
14.40	1	1	21
14.49	1	1	21
14.58	1	1	21
14.67	1	1	21
14.77	1	1	21
14.86	1	1	21
14.95	1	1	21
15.05	1	1	21
15.14	1	1	21
15.23	1	1	21
15.33	1	1	21
15.42	1	1	21
15.51	1	1	21
15.60	1	1	21
15.70	1	1	21
15.79	1	1	21
15.88	1	1	21
15.98	1	1	21
16.07	1	1	21
16.16	1	1	21
16.25	1	1	21
16.35	1	1	21
16.44	1	1	21
16.53	1	1	21
16.63	1	1	21
16.72	1	1	21
16.81	1	1	21
16.90	1	1	21
17.00	1	1	21
17.09	1	1	21
17.18	1	1	21
17.28	1	1	21
17.37	1	1	21
17.46	1	1	21
17.55	1	1	21
17.65	1	1	21
17.74	1	1	21
17.83	1	1	21
17.93	1	1	21
18.02	1	1	21
18.11	1	1	21
18.20	1	1	21
18.30	1	1	21
18.39	1	1	21
18.48	1	1	21
18.58	1	1	21
18.67	1	1	21
18.76	1	1	21
18.85	1	1	21
18.95	1	1	21

19.04	1	1	21
19.13	1	1	21
19.23	1	1	21
19.32	1	1	21
19.41	1	1	21
19.50	1	1	21
19.60	1	1	21
19.69	1	1	21
19.78	1	1	21
19.88	1	1	21
19.97	1	1	21
20.06	1	1	21
20.15	1	1	21
20.25	1	1	21
20.34	1	1	21
20.43	1	1	21
20.53	1	1	21
20.62	1	1	21
20.71	1	1	21
20.80	1	1	21
20.90	1	1	21
20.99	1	1	21
21.08	1	1	21
21.18	1	1	21
21.27	1	1	21
21.36	1	1	21
21.46	1	1	21
21.55	1	1	21
21.64	1	1	21
21.73	1	1	21
21.83	1	1	21
21.92	1	1	21
22.01	1	1	21
22.11	1	1	21
22.20	1	1	21
22.29	1	1	21
22.38	1	1	21
22.48	1	1	21
22.57	1	1	21
22.66	1	1	21
22.76	1	1	21
22.85	1	1	21
22.94	1	1	21
23.03	1	1	21
23.13	1	1	21
23.22	1	1	21
23.31	1	1	21
23.41	1	1	21
23.50	1	1	21
23.59	1	1	21
23.68	1	1	21
23.78	1	1	21
23.87	1	1	21
23.96	1	1	21
24.06	1	1	21
24.15	1	1	21
24.24	1	1	21
24.33	1	1	21
24.43	1	1	21
24.52	1	1	21
24.61	1	1	21
24.71	1	1	21
24.80	1	1	21
24.89	1	1	21
24.98	1	1	21
25.08	1	1	21
25.17	1	1	21
25.26	1	1	21
25.36	1	1	21
25.45	1	1	21
25.54	1	1	21
25.63	1	1	21
25.73	1	1	21
25.82	1	1	21
25.91	1	1	21
26.01	1	1	21
26.10	1	1	21
26.19	1	1	21
26.28	1	1	21
26.38	1	1	21
26.47	1	1	21
26.56	1	1	21
26.66	1	1	21
26.75	1	1	21
26.84	1	1	21
26.93	1	1	21
27.03	1	1	21
27.12	1	1	21
27.21	1	1	21
27.31	1	1	21
27.40	1	1	21
27.49	1	1	21
27.59	1	1	21
27.68	1	1	21
27.77	1	1	21
27.86	1	1	21
27.96	1	1	21
28.05	1	1	21
28.14	1	1	21
28.24	1	1	21
28.33	1	1	21
28.42	1	1	21
28.51	1	1	21
28.61	1	1	21
28.70	1	1	21

28.79	1	1	21
28.89	1	1	21
28.98	1	1	21
29.07	1	1	21
29.16	1	1	21
29.26	1	1	21
29.35	1	1	21
29.44	1	1	21
29.54	1	1	21
29.63	1	1	21
29.72	1	1	21
29.81	1	1	21
29.91	1	1	21
30.00	1	1	21

Appendix G

Heavy Vehicle Percent Calculations

AM/PM Intersection

1 Burnhamthorpe Road / Sixth Line

	NBL	NBT	NBR	WBL	WBT	WBR	SBL	SBT	SBR	EBL	EBT	EBR
AM	40	136	31	26	227	12	13	150	21	9	268	26
PM	42	245	42	56	579	12	4	166	11	30	681	71
SAT												
	40(42)	136(245)	31(42)	26(56)	227(579)	12(12)	13(4)	150(166)	21(11)	9(30)	268(681)	26(71)

2 William Halton Parkway / Sixth Line

	NBL	NBT	NBR	WBL	WBT	WBR	SBL	SBT	SBR	EBL	EBT	EBR
AM		72	96	157		40	38	112				
PM		133	156	103		19	18	80				
SAT												
	0(0)	72(133)	96(156)	157(103)	0(0)	40(19)	38(18)	112(80)	0(0)	0(0)	0(0)	0(0)

AM/PM Intersection

1 Burnhamthorpe Road / Sixth Line

ts after output

ts after output

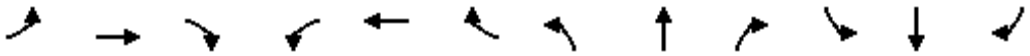
	NBL	NBT	NBR	WBL	WBT	WBR	SBL	SBT	SBR	EBL	EBT	EBR
AM	2	14	1	4	28	1	0	10	1	1	14	4
PM	1	3	0	1	14	0	0	4	0	0	3	1
SAT												
	5%(2%)	10%(2%)	3%(2%)	15%(2%)	12%(2%)	8%(2%)	2%(2%)	7%(2%)	5%(2%)	11%(2%)	5%(2%)	15%(2%)

2 William Halton Parkway / Sixth Line

	NBL	NBT	NBR	WBL	WBT	WBR	SBL	SBT	SBR	EBL	EBT	EBR
AM		11	7	10		4	7	9				
PM		2	1	1		2	2	4				
SAT												
	2%(2%)	15%(2%)	7%(2%)	6%(2%)	2%(2%)	10%(11%)	18%(11%)	8%(5%)	2%(2%)	2%(2%)	2%(2%)	2%(2%)

Appendix H

2022 Existing Conditions Synchro and Sidra Worksheets



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	9	268	26	26	227	12	40	136	31	13	150	21
Future Volume (vph)	9	268	26	26	227	12	40	136	31	13	150	21
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
Hourly flow rate (vph)	9	276	27	27	234	12	41	140	32	13	155	22

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	312	273	213	190
Volume Left (vph)	9	27	41	13
Volume Right (vph)	27	12	32	22
Hadj (s)	0.06	0.20	0.08	0.05
Departure Headway (s)	5.7	6.0	6.1	6.1
Degree Utilization, x	0.50	0.45	0.36	0.32
Capacity (veh/h)	584	559	524	519
Control Delay (s)	14.3	13.8	12.6	12.1
Approach Delay (s)	14.3	13.8	12.6	12.1
Approach LOS	B	B	B	B

Intersection Summary				
Delay	13.4			
Level of Service	B			
Intersection Capacity Utilization	53.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	13.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	268	26	26	227	12	40	136	31	13	150	21
Future Vol, veh/h	9	268	26	26	227	12	40	136	31	13	150	21
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	11	5	15	15	12	8	5	10	3	2	7	5
Mvmt Flow	9	276	27	27	234	12	41	140	32	13	155	22
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

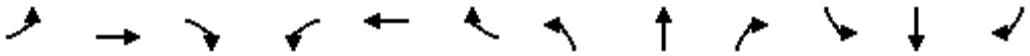
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	14.5	13.8	12.5	11.9
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	19%	3%	10%	7%
Vol Thru, %	66%	88%	86%	82%
Vol Right, %	15%	9%	5%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	207	303	265	184
LT Vol	40	9	26	13
Through Vol	136	268	227	150
RT Vol	31	26	12	21
Lane Flow Rate	213	312	273	190
Geometry Grp	1	1	1	1
Degree of Util (X)	0.357	0.5	0.45	0.317
Departure Headway (Hd)	6.019	5.766	5.933	6.02
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	593	622	604	592
Service Time	4.105	3.843	4.012	4.108
HCM Lane V/C Ratio	0.359	0.502	0.452	0.321
HCM Control Delay	12.5	14.5	13.8	11.9
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	1.6	2.8	2.3	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	18	150	7	16	210
Future Volume (Veh/h)	10	18	150	7	16	210
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	20	163	8	17	228
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	429	167			171	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	429	167			171	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	98			99	
cM capacity (veh/h)	576	877			1406	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	31	171	245
Volume Left	11	0	17
Volume Right	20	8	0
cSH	740	1700	1406
Volume to Capacity	0.04	0.10	0.01
Queue Length 95th (m)	1.0	0.0	0.3
Control Delay (s)	10.1	0.0	0.6
Lane LOS	B		A
Approach Delay (s)	10.1	0.0	0.6
Approach LOS	B		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	33.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	30	681	71	56	579	12	42	245	42	4	166	11
Future Volume (vph)	30	681	71	56	579	12	42	245	42	4	166	11
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	32	724	76	60	616	13	45	261	45	4	177	12

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	832	689	351	193
Volume Left (vph)	32	60	45	4
Volume Right (vph)	76	13	45	12
Hadj (s)	-0.01	0.04	-0.02	0.00
Departure Headway (s)	7.8	7.8	8.2	9.1
Degree Utilization, x	1.79	1.50	0.80	0.49
Capacity (veh/h)	473	475	430	374
Control Delay (s)	385.0	255.6	37.0	20.3
Approach Delay (s)	385.0	255.6	37.0	20.3
Approach LOS	F	F	E	C

Intersection Summary				
Delay	248.6			
Level of Service	F			
Intersection Capacity Utilization	91.3%	ICU Level of Service	F	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	252.5
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	30	681	71	56	579	12	42	245	42	4	166	11
Future Vol, veh/h	30	681	71	56	579	12	42	245	42	4	166	11
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	32	724	76	60	616	13	45	261	45	4	177	12
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	386.5	259.1	45.2	26.3
HCM LOS	F	F	E	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	13%	4%	9%	2%
Vol Thru, %	74%	87%	89%	92%
Vol Right, %	13%	9%	2%	6%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	329	782	647	181
LT Vol	42	30	56	4
Through Vol	245	681	579	166
RT Vol	42	71	12	11
Lane Flow Rate	350	832	688	193
Geometry Grp	1	1	1	1
Degree of Util (X)	0.796	1.791	1.492	0.482
Departure Headway (Hd)	10.795	8.749	9.33	12.328
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	340	424	399	295
Service Time	8.795	6.749	7.33	10.328
HCM Lane V/C Ratio	1.029	1.962	1.724	0.654
HCM Control Delay	45.2	386.5	259.1	26.3
HCM Lane LOS	E	F	F	D
HCM 95th-tile Q	6.6	46.6	30.8	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	9	24	265	12	11	172
Future Volume (Veh/h)	9	24	265	12	11	172
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	10	27	294	13	12	191
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	516	300			307	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	516	300			307	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	96			99	
cM capacity (veh/h)	515	739			1254	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	37	307	203
Volume Left	10	0	12
Volume Right	27	13	0
cSH	661	1700	1254
Volume to Capacity	0.06	0.18	0.01
Queue Length 95th (m)	1.3	0.0	0.2
Control Delay (s)	10.8	0.0	0.5
Lane LOS	B		A
Approach Delay (s)	10.8	0.0	0.5
Approach LOS	B		

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	28.1%	ICU Level of Service	A
Analysis Period (min)	15		

MOVEMENT SUMMARY

Site: 101 [WH & 6th - 2022 Existing AM]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	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												
2	T1	90	11.0	0.087	4.3	LOS A	0.2	1.7	0.11	0.04	0.11	54.8
3	R2	120	7.0	0.114	4.4	LOS A	0.3	2.2	0.11	0.04	0.11	52.7
Approach		210	8.7	0.114	4.4	LOS A	0.3	2.2	0.11	0.04	0.11	53.6
East: William Halton												
4	L2	196	6.0	0.191	5.3	LOS A	0.5	3.9	0.17	0.09	0.17	50.4
6	R2	50	10.0	0.050	4.0	LOS A	0.1	1.0	0.15	0.07	0.15	52.9
Approach		246	6.8	0.191	5.0	LOS A	0.5	3.9	0.16	0.09	0.16	50.9
North: Sixth												
7	L2	48	18.0	0.101	5.0	LOS A	0.3	2.1	0.25	0.16	0.25	52.2
8	T1	140	8.0	0.101	4.8	LOS A	0.3	2.1	0.24	0.16	0.24	53.7
Approach		188	10.5	0.101	4.8	LOS A	0.3	2.1	0.24	0.16	0.24	53.3
All Vehicles		644	8.5	0.191	4.8	LOS A	0.5	3.9	0.17	0.09	0.17	52.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [WH & 6th - 2022 Existing PM]

New Site
Site Category: (None)
Roundabout

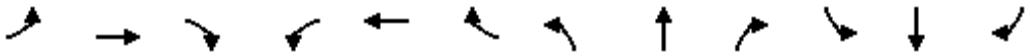
Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Sixth												
2	T1	140	2.0	0.127	4.4	LOS A	0.4	2.6	0.07	0.02	0.07	54.8
3	R2	164	2.0	0.149	4.6	LOS A	0.4	2.9	0.06	0.02	0.06	52.7
Approach		304	2.0	0.149	4.5	LOS A	0.4	2.9	0.07	0.02	0.07	53.7
East: William Halton												
4	L2	108	2.0	0.107	4.5	LOS A	0.3	2.0	0.19	0.11	0.19	51.0
6	R2	20	11.0	0.021	3.9	LOS A	0.1	0.4	0.19	0.09	0.19	53.0
Approach		128	3.4	0.107	4.4	LOS A	0.3	2.0	0.19	0.11	0.19	51.3
North: Sixth												
7	L2	19	11.0	0.051	4.1	LOS A	0.1	1.0	0.17	0.08	0.17	53.6
8	T1	84	5.0	0.051	4.0	LOS A	0.1	1.0	0.16	0.08	0.16	54.5
Approach		103	6.1	0.051	4.0	LOS A	0.1	1.0	0.16	0.08	0.16	54.3
All Vehicles		536	3.1	0.149	4.4	LOS A	0.4	2.9	0.11	0.05	0.11	53.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Appendix I

2025 Future Background Conditions Synchro and Sidra Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	107	37	87	163	24	73	352	75	18	249	20
Future Volume (vph)	22	107	37	87	163	24	73	352	75	18	249	20
Ideal Flow (vphpl)	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	0		0	0		0	0		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor								1.00				
Frt		0.970			0.988			0.980			0.990	
Flt Protected		0.993			0.984			0.993			0.997	
Satd. Flow (prot)	0	1774	0	0	1791	0	0	1787	0	0	1818	0
Flt Permitted		0.926			0.791			0.908			0.960	
Satd. Flow (perm)	0	1655	0	0	1440	0	0	1634	0	0	1751	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			5			12			6	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		169.9			629.3			302.6			268.3	
Travel Time (s)		12.2			45.3			21.8			19.3	
Confl. Bikes (#/hr)									1			
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)	23	110	38	90	168	25	75	363	77	19	257	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	171	0	0	283	0	0	515	0	0	297	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
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		Perm	NA		pm+pt	NA	

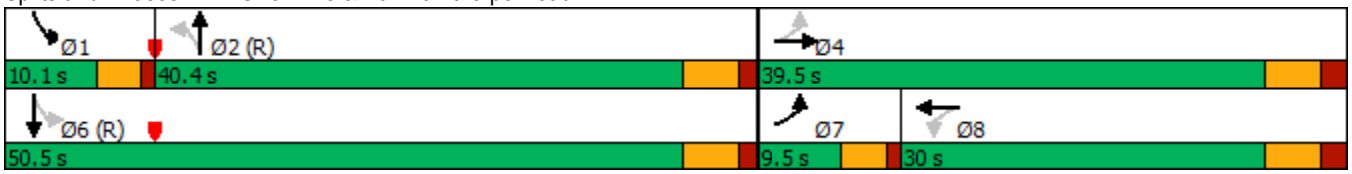


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	7	4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		1.0	1.0		5.0	5.0	
Minimum Split (s)	9.5	29.6		29.6	29.6		38.1	38.1		10.1	38.1	
Total Split (s)	9.5	39.5		30.0	30.0		40.4	40.4		10.1	50.5	
Total Split (%)	10.6%	43.9%		33.3%	33.3%		44.9%	44.9%		11.2%	56.1%	
Maximum Green (s)	5.5	33.9		24.4	24.4		35.3	35.3		6.1	45.4	
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	
Total Lost Time (s)		5.6			5.6			5.1			5.1	
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
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)		21.5			21.5			57.8			57.8	
Actuated g/C Ratio		0.24			0.24			0.64			0.64	
v/c Ratio		0.42			0.82			0.49			0.26	
Control Delay		27.6			49.6			11.3			8.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		27.6			49.6			11.3			8.5	
LOS		C			D			B			A	
Approach Delay		27.6			49.6			11.3			8.5	
Approach LOS		C			D			B			A	
Queue Length 50th (m)		22.2			45.4			40.8			19.5	
Queue Length 95th (m)		35.9			66.5			79.7			39.3	
Internal Link Dist (m)		145.9			605.3			278.6			244.3	
Turn Bay Length (m)												
Base Capacity (vph)		634			409			1053			1126	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.27			0.69			0.49			0.26	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
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: 21.4		Intersection LOS: C	
Intersection Capacity Utilization 84.2%		ICU Level of Service E	

Analysis Period (min) 15

Splits and Phases: 1: Sixth Line & Burnhamthorpe Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	107	37	87	163	24	73	352	75	18	249	20
Future Volume (vph)	22	107	37	87	163	24	73	352	75	18	249	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.6			5.6			5.1			5.1	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.97			0.99			0.98			0.99	
Flt Protected		0.99			0.98			0.99			1.00	
Satd. Flow (prot)		1775			1792			1786			1819	
Flt Permitted		0.93			0.79			0.91			0.96	
Satd. Flow (perm)		1655			1439			1635			1752	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	23	110	38	90	168	25	75	363	77	19	257	21
RTOR Reduction (vph)	0	14	0	0	4	0	0	4	0	0	2	0
Lane Group Flow (vph)	0	157	0	0	279	0	0	511	0	0	295	0
Confl. Bikes (#/hr)									1			
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		
Actuated Green, G (s)		21.5			21.5			57.8			57.8	
Effective Green, g (s)		21.5			21.5			57.8			57.8	
Actuated g/C Ratio		0.24			0.24			0.64			0.64	
Clearance Time (s)		5.6			5.6			5.1			5.1	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		395			343			1050			1125	
v/s Ratio Prot												
v/s Ratio Perm		0.10			c0.19			c0.31			0.17	
v/c Ratio		0.40			0.81			0.49			0.26	
Uniform Delay, d1		28.8			32.4			8.4			6.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.7			13.7			1.6			0.1	
Delay (s)		29.5			46.1			10.0			7.1	
Level of Service		C			D			A			A	
Approach Delay (s)		29.5			46.1			10.0			7.1	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	20.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.7
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1935	165	2	2098	403	6
Future Volume (vph)	1935	165	2	2098	403	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		75.0	75.0		150.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			15.0		15.0	
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)	3500	1566	1750	3500	1750	1566
Flt Permitted			0.052		0.950	
Satd. Flow (perm)	3500	1566	96	3500	1750	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		142				7
Link Speed (k/h)	50			50	50	
Link Distance (m)	165.7			125.9	150.9	
Travel Time (s)	11.9			9.1	10.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2103	179	2	2280	438	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2103	179	2	2280	438	7
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	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

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)	32.9	32.9	32.9	32.9	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)	75.6	75.6	75.6	75.6	34.0	34.0
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)	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)	77.1	77.1	77.1	77.1	32.5	32.5
Actuated g/C Ratio	0.64	0.64	0.64	0.64	0.27	0.27
v/c Ratio	0.93	0.17	0.03	1.01	0.93	0.02
Control Delay	29.1	2.7	10.0	44.7	69.4	17.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.1	2.7	10.0	44.7	69.4	17.5
LOS	C	A	A	D	E	B
Approach Delay	27.0			44.7	68.6	
Approach LOS	C			D	E	
Queue Length 50th (m)	224.8	3.1	0.2	~303.6	98.7	0.0
Queue Length 95th (m)	#299.5	11.3	1.3	#344.6	#154.9	3.6
Internal Link Dist (m)	141.7			101.9	126.9	
Turn Bay Length (m)		75.0	75.0		150.0	
Base Capacity (vph)	2250	1057	61	2250	495	448
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	0.93	0.17	0.03	1.01	0.88	0.02

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: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay: 38.7	Intersection LOS: D
Intersection Capacity Utilization 89.0%	ICU Level of Service E
Analysis Period (min) 15	

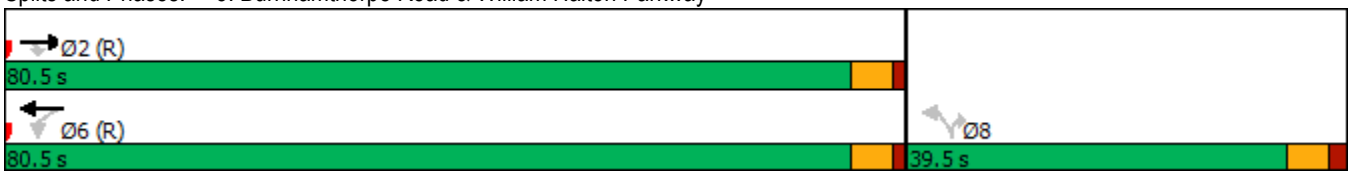
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



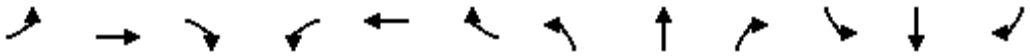
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1935	165	2	2098	403	6
Future Volume (vph)	1935	165	2	2098	403	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3500	1566	1750	3500	1750	1566
Flt Permitted	1.00	1.00	0.05	1.00	0.95	1.00
Satd. Flow (perm)	3500	1566	96	3500	1750	1566
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2103	179	2	2280	438	7
RTOR Reduction (vph)	0	51	0	0	0	5
Lane Group Flow (vph)	2103	128	2	2280	438	2
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8
Actuated Green, G (s)	77.1	77.1	77.1	77.1	32.5	32.5
Effective Green, g (s)	77.1	77.1	77.1	77.1	32.5	32.5
Actuated g/C Ratio	0.64	0.64	0.64	0.64	0.27	0.27
Clearance Time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2248	1006	61	2248	473	424
v/s Ratio Prot	0.60			c0.65		
v/s Ratio Perm		0.08	0.02		c0.25	0.00
v/c Ratio	0.94	0.13	0.03	1.01	0.93	0.00
Uniform Delay, d1	19.2	8.4	7.8	21.5	42.6	31.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.9	0.3	1.0	22.6	24.1	0.0
Delay (s)	28.1	8.6	8.8	44.0	66.7	31.9
Level of Service	C	A	A	D	E	C
Approach Delay (s)	26.6			44.0	66.1	
Approach LOS	C			D	E	

Intersection Summary			
HCM 2000 Control Delay	38.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	89.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	11	0	19	0	397	7	17	323	0
Future Volume (vph)	0	0	0	11	0	19	0	397	7	17	323	0
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					0.914			0.998				
Flt Protected					0.982						0.998	
Satd. Flow (prot)	0	1842	0	0	1653	0	0	1838	0	0	1838	0
Flt Permitted					0.982						0.998	
Satd. Flow (perm)	0	1842	0	0	1653	0	0	1838	0	0	1838	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		93.7			81.5			268.3			172.3	
Travel Time (s)		6.7			5.9			19.3			12.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	12	0	21	0	432	8	18	351	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	33	0	0	440	0	0	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)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

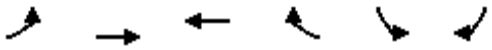
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	40.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	11	0	19	0	397	7	17	323	0
Future Volume (Veh/h)	0	0	0	11	0	19	0	397	7	17	323	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	12	0	21	0	432	8	18	351	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								268				
pX, platoon unblocked	0.95	0.95		0.95	0.95	0.95				0.95		
vC, conflicting volume	844	827	351	823	823	436	351			440		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	809	791	351	787	787	379	351			383		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	96	100	97	100			98		
cM capacity (veh/h)	271	301	692	290	302	634	1208			1116		

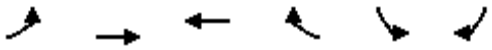
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	33	440	369
Volume Left	0	12	0	18
Volume Right	0	21	8	0
cSH	1700	443	1208	1116
Volume to Capacity	0.00	0.07	0.00	0.02
Queue Length 95th (m)	0.0	1.8	0.0	0.4
Control Delay (s)	0.0	13.8	0.0	0.6
Lane LOS	A	B		A
Approach Delay (s)	0.0	13.8	0.0	0.6
Approach LOS	A	B		

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	40.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	166	257	0	0	0
Future Volume (vph)	0	166	257	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	1842	1842	0	0	1842
Flt Permitted						
Satd. Flow (perm)	0	1842	1842	0	0	1842
Link Speed (k/h)		50	50		50	
Link Distance (m)		758.7	169.9		123.2	
Travel Time (s)		54.6	12.2		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	180	279	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	180	279	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 16.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	166	257	0	0	0
Future Volume (Veh/h)	0	166	257	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	180	279	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			170			
pX, platoon unblocked	0.98				0.98	0.98
vC, conflicting volume	279				459	279
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	255				438	255
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1285				565	769

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	180	279	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1700
Volume to Capacity	0.11	0.16	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		16.9%	ICU Level of Service A
Analysis Period (min)		15	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2100	0	0	1881	0	0
Future Volume (vph)	2100	0	0	1881	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	3500	0	0	3500	1842	0
Flt Permitted						
Satd. Flow (perm)	3500	0	0	3500	1842	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	910.1			111.6	71.0	
Travel Time (s)	65.5			8.0	5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2283	0	0	2045	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2283	0	0	2045	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 61.4%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2100	0	0	1881	0	0
Future Volume (Veh/h)	2100	0	0	1881	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2283	0	0	2045	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			2283		3306	1142
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2283		3306	1142
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			219		6	194

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	1522	761	682	1363	0
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	219	1700	1700
Volume to Capacity	0.90	0.45	0.00	0.80	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					A
Approach Delay (s)	0.0		0.0		0.0
Approach LOS					A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
Analysis Period (min)	15		

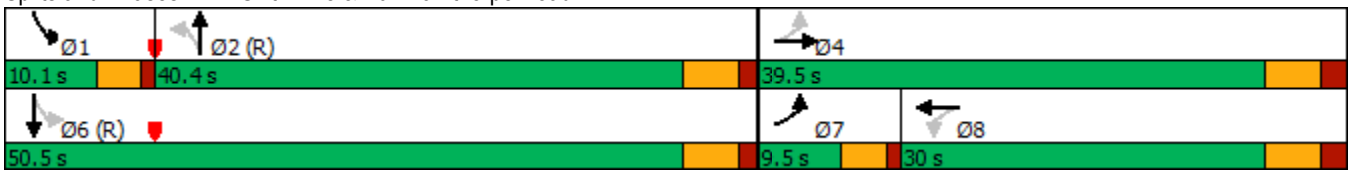
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	107	37	87	163	24	73	352	75	18	249	20
Future Volume (vph)	22	107	37	87	163	24	73	352	75	18	249	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (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)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor								1.00				
Frt		0.961			0.981			0.974			0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1790	0	1770	1827	0	1770	3435	0	1770	3500	0
Flt Permitted	0.378			0.663			0.581			0.457		
Satd. Flow (perm)	704	1790	0	1235	1827	0	1082	3435	0	851	3500	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			8			33			14	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		169.9			629.3			302.6			268.3	
Travel Time (s)		12.2			45.3			21.8			19.3	
Confl. Bikes (#/hr)									1			
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)	23	110	38	90	168	25	75	363	77	19	257	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	23	148	0	90	193	0	75	440	0	19	278	0
Enter Blocked Intersection	No	No	No	No	No	No	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)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	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		Perm	NA		pm+pt	NA	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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		1.0	1.0		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)	9.5	39.5		30.0	30.0		40.4	40.4		10.1	50.5	
Total Split (%)	10.6%	43.9%		33.3%	33.3%		44.9%	44.9%		11.2%	56.1%	
Maximum Green (s)	5.5	33.9		24.4	24.4		35.3	35.3		6.1	45.4	
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	Lag		Lead		
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
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)	19.8	18.2		14.4	14.4		56.9	56.9		62.2	61.1	
Actuated g/C Ratio	0.22	0.20		0.16	0.16		0.63	0.63		0.69	0.68	
v/c Ratio	0.10	0.39		0.45	0.65		0.11	0.20		0.03	0.12	
Control Delay	24.1	27.0		40.5	43.4		11.6	9.3		7.1	6.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	24.1	27.0		40.5	43.4		11.6	9.3		7.1	6.3	
LOS	C	C		D	D		B	A		A	A	
Approach Delay		26.6			42.5			9.6			6.3	
Approach LOS		C			D			A			A	
Queue Length 50th (m)	3.4	20.0		14.3	30.3		3.3	9.8		0.7	6.0	
Queue Length 95th (m)	7.7	30.0		26.7	47.9		16.4	33.3		4.2	16.6	
Internal Link Dist (m)		145.9			605.3			278.6			244.3	
Turn Bay Length (m)	60.0			50.0			50.0			60.0		
Base Capacity (vph)	220	687		334	501		684	2184		651	2379	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.10	0.22		0.27	0.39		0.11	0.20		0.03	0.12	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
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: 0.65			
Intersection Signal Delay: 18.5		Intersection LOS: B	
Intersection Capacity Utilization 46.1%		ICU Level of Service A	

Analysis Period (min) 15

Splits and Phases: 1: Sixth Line & Burnhamthorpe Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	107	37	87	163	24	73	352	75	18	249	20
Future Volume (vph)	22	107	37	87	163	24	73	352	75	18	249	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.6		5.6	5.6		5.1	5.1		4.0	5.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.98		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1791		1770	1827		1770	3434		1770	3499	
Flt Permitted	0.38	1.00		0.66	1.00		0.58	1.00		0.46	1.00	
Satd. Flow (perm)	703	1791		1235	1827		1082	3434		851	3499	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	23	110	38	90	168	25	75	363	77	19	257	21
RTOR Reduction (vph)	0	17	0	0	7	0	0	14	0	0	5	0
Lane Group Flow (vph)	23	131	0	90	186	0	75	426	0	19	273	0
Confl. Bikes (#/hr)									1			
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		
Actuated Green, G (s)	20.6	20.6		14.4	14.4		52.1	52.1		58.7	58.7	
Effective Green, g (s)	20.6	20.6		14.4	14.4		52.1	52.1		58.7	58.7	
Actuated g/C Ratio	0.23	0.23		0.16	0.16		0.58	0.58		0.65	0.65	
Clearance Time (s)	4.0	5.6		5.6	5.6		5.1	5.1		4.0	5.1	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	186	409		197	292		626	1987		581	2282	
v/s Ratio Prot	0.00	c0.07			c0.10			c0.12		0.00	c0.08	
v/s Ratio Perm	0.03			0.07			0.07			0.02		
v/c Ratio	0.12	0.32		0.46	0.64		0.12	0.21		0.03	0.12	
Uniform Delay, d1	27.4	28.9		34.3	35.4		8.6	9.1		5.6	5.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.5		1.7	4.5		0.4	0.2		0.0	0.1	
Delay (s)	27.7	29.3		35.9	39.9		9.0	9.4		5.6	6.0	
Level of Service	C	C		D	D		A	A		A	A	
Approach Delay (s)		29.1			38.6			9.3			6.0	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.7
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1935	165	2	2098	403	6
Future Volume (vph)	1935	165	2	2098	403	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		75.0	75.0		150.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			15.0		15.0	
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			0.051		0.950	
Satd. Flow (perm)	3539	1583	95	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		154				7
Link Speed (k/h)	50			50	50	
Link Distance (m)	165.7			125.2	87.0	
Travel Time (s)	11.9			9.0	6.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2103	179	2	2280	438	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2103	179	2	2280	438	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)	3.0			3.0	3.0	
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

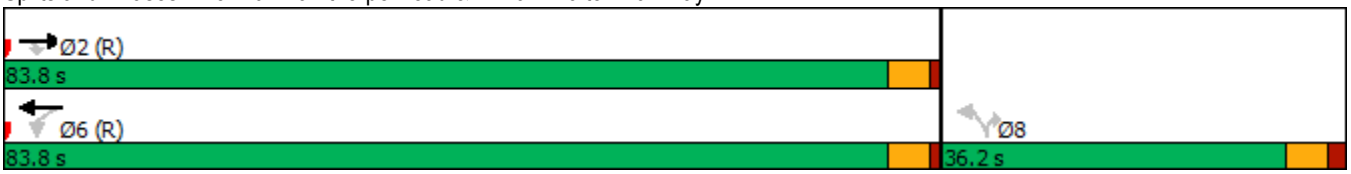
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.9	22.9	22.9	22.9	23.5	23.5
Total Split (s)	83.8	83.8	83.8	83.8	36.2	36.2
Total Split (%)	69.8%	69.8%	69.8%	69.8%	30.2%	30.2%
Maximum Green (s)	78.9	78.9	78.9	78.9	30.7	30.7
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 Effct Green (s)	78.9	78.9	78.9	78.9	30.7	30.7
Actuated g/C Ratio	0.66	0.66	0.66	0.66	0.26	0.26
v/c Ratio	0.90	0.16	0.03	0.98	0.97	0.02
Control Delay	24.4	2.1	9.0	34.9	80.0	19.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.4	2.1	9.0	34.9	80.0	19.0
LOS	C	A	A	C	E	B
Approach Delay	22.6			34.9	79.0	
Approach LOS	C			C	E	
Queue Length 50th (m)	202.4	1.9	0.2	250.4	102.4	0.0
Queue Length 95th (m)	245.1	9.3	1.2	#328.9	#165.4	3.8
Internal Link Dist (m)	141.7			101.2	63.0	
Turn Bay Length (m)		75.0	75.0		150.0	
Base Capacity (vph)	2326	1093	62	2326	452	410
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	0.90	0.16	0.03	0.98	0.97	0.02

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: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 33.2	Intersection LOS: C
Intersection Capacity Utilization 89.0%	ICU Level of Service E
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

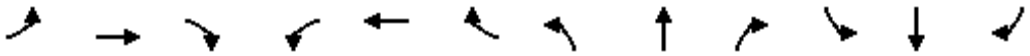
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1935	165	2	2098	403	6
Future Volume (vph)	1935	165	2	2098	403	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted	1.00	1.00	0.05	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	94	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2103	179	2	2280	438	7
RTOR Reduction (vph)	0	53	0	0	0	5
Lane Group Flow (vph)	2103	126	2	2280	438	2
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8
Actuated Green, G (s)	78.9	78.9	78.9	78.9	30.7	30.7
Effective Green, g (s)	78.9	78.9	78.9	78.9	30.7	30.7
Actuated g/C Ratio	0.66	0.66	0.66	0.66	0.26	0.26
Clearance Time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2326	1040	61	2326	452	404
v/s Ratio Prot	0.59			c0.64		
v/s Ratio Perm		0.08	0.02		c0.25	0.00
v/c Ratio	0.90	0.12	0.03	0.98	0.97	0.00
Uniform Delay, d1	17.4	7.6	7.2	19.8	44.2	33.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.4	0.2	1.0	14.6	33.9	0.0
Delay (s)	23.7	7.9	8.2	34.4	78.1	33.3
Level of Service	C	A	A	C	E	C
Approach Delay (s)	22.5			34.3	77.4	
Approach LOS	C			C	E	

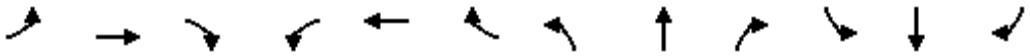
Intersection Summary			
HCM 2000 Control Delay	32.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	89.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	11	0	19	0	397	7	17	323	0
Future Volume (vph)	0	0	0	11	0	19	0	397	7	17	323	0
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	0.95	0.95	0.95	0.95	0.95	0.95
Frt					0.914			0.997				
Flt Protected					0.982						0.998	
Satd. Flow (prot)	0	1863	0	0	1672	0	0	3529	0	0	3532	0
Flt Permitted					0.982						0.998	
Satd. Flow (perm)	0	1863	0	0	1672	0	0	3529	0	0	3532	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		93.7			81.5			268.3			172.3	
Travel Time (s)		6.7			5.9			19.3			12.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	12	0	21	0	432	8	18	351	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	33	0	0	440	0	0	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)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	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	

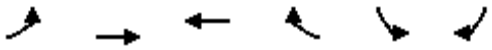
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	11	0	19	0	397	7	17	323	0
Future Volume (Veh/h)	0	0	0	11	0	19	0	397	7	17	323	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	12	0	21	0	432	8	18	351	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								268				
pX, platoon unblocked												
vC, conflicting volume	624	827	176	648	823	220	351			440		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	624	827	176	648	823	220	351			440		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	97	100	97	100			98		
cM capacity (veh/h)	355	300	837	351	302	784	1204			1116		

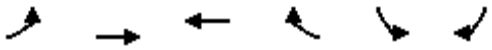
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	33	216	224	194	176
Volume Left	0	12	0	0	18	0
Volume Right	0	21	0	8	0	0
cSH	1700	541	1204	1700	1116	1700
Volume to Capacity	0.00	0.06	0.00	0.13	0.02	0.10
Queue Length 95th (m)	0.0	1.5	0.0	0.0	0.4	0.0
Control Delay (s)	0.0	12.1	0.0	0.0	0.9	0.0
Lane LOS	A	B			A	
Approach Delay (s)	0.0	12.1	0.0		0.5	
Approach LOS	A	B				

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	31.6%	ICU Level of Service		A
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	166	257	0	0	0
Future Volume (vph)	0	166	257	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	1863	1863	0	0	1863
Flt Permitted						
Satd. Flow (perm)	0	1863	1863	0	0	1863
Link Speed (k/h)		50	50		50	
Link Distance (m)		826.9	169.9		123.2	
Travel Time (s)		59.5	12.2		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	180	279	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	180	279	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 16.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	166	257	0	0	0
Future Volume (Veh/h)	0	166	257	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	180	279	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			170			
pX, platoon unblocked	0.93				0.93	0.93
vC, conflicting volume	279				459	279
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	182				376	182
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1291				579	797

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	180	279	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1700
Volume to Capacity	0.11	0.16	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		16.9%	ICU Level of Service A
Analysis Period (min)		15	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2100	0	0	1881	0	0
Future Volume (vph)	2100	0	0	1881	0	0
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						
Flt Protected						
Satd. Flow (prot)	3539	0	1863	3539	1863	1863
Flt Permitted						
Satd. Flow (perm)	3539	0	1863	3539	1863	1863
Link Speed (k/h)	50			50	50	
Link Distance (m)	910.1			111.6	71.0	
Travel Time (s)	65.5			8.0	5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2283	0	0	2045	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2283	0	0	2045	0	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)	3.0			3.0	3.0	
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	

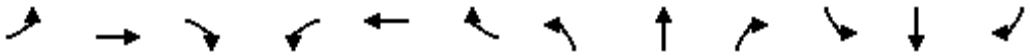
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 61.4%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2100	0	0	1881	0	0
Future Volume (Veh/h)	2100	0	0	1881	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2283	0	0	2045	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			2283		3306	1142
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2283		3306	1142
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			219		6	194

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	1522	761	0	1022	1022	0	0
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.90	0.45	0.00	0.60	0.60	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						A	A
Approach Delay (s)	0.0		0.0			0.0	
Approach LOS						A	

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	52	43	131	245	20	62	441	70	16	467	25
Future Volume (vph)	14	52	43	131	245	20	62	441	70	16	467	25
Ideal Flow (vphpl)	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	0		0	0		0	0		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor								1.00				
Frt		0.947			0.993			0.984			0.993	
Flt Protected		0.994			0.984			0.995			0.998	
Satd. Flow (prot)	0	1734	0	0	1800	0	0	1799	0	0	1825	0
Flt Permitted		0.935			0.858			0.900			0.978	
Satd. Flow (perm)	0	1631	0	0	1569	0	0	1627	0	0	1789	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42			3			9			4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		169.9			629.3			302.6			268.3	
Travel Time (s)		12.2			45.3			21.8			19.3	
Confl. Bikes (#/hr)									1			
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)	14	54	44	135	253	21	64	455	72	16	481	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	112	0	0	409	0	0	591	0	0	523	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
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		Perm	NA		pm+pt	NA	

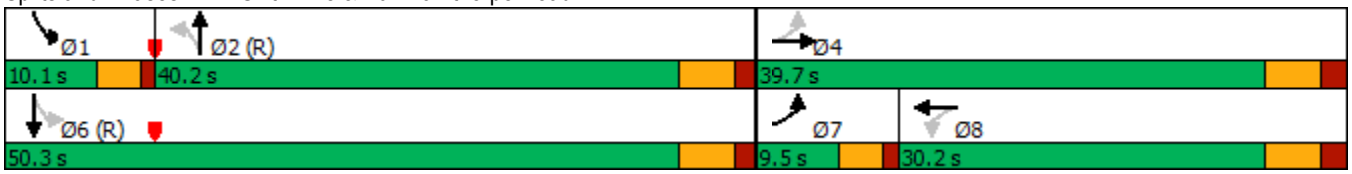


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	7	4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		1.0	1.0		5.0	5.0	
Minimum Split (s)	9.5	29.6		29.6	29.6		38.1	38.1		10.1	38.1	
Total Split (s)	9.5	39.7		30.2	30.2		40.2	40.2		10.1	50.3	
Total Split (%)	10.6%	44.1%		33.6%	33.6%		44.7%	44.7%		11.2%	55.9%	
Maximum Green (s)	5.5	34.1		24.6	24.6		35.1	35.1		6.1	45.2	
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	
Total Lost Time (s)		5.6			5.6			5.1			5.1	
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
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)		30.8			30.8			48.5			48.5	
Actuated g/C Ratio		0.34			0.34			0.54			0.54	
v/c Ratio		0.19			0.76			0.67			0.54	
Control Delay		13.3			35.7			20.4			16.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		13.3			35.7			20.4			16.8	
LOS		B			D			C			B	
Approach Delay		13.3			35.7			20.4			16.8	
Approach LOS		B			D			C			B	
Queue Length 50th (m)		8.1			60.8			69.8			56.0	
Queue Length 95th (m)		18.4			90.5			115.4			90.4	
Internal Link Dist (m)		145.9			605.3			278.6			244.3	
Turn Bay Length (m)												
Base Capacity (vph)		644			539			880			965	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.17			0.76			0.67			0.54	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
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: 0.76			
Intersection Signal Delay: 22.6		Intersection LOS: C	
Intersection Capacity Utilization 93.0%		ICU Level of Service F	

Analysis Period (min) 15

Splits and Phases: 1: Sixth Line & Burnhamthorpe Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	52	43	131	245	20	62	441	70	16	467	25
Future Volume (vph)	14	52	43	131	245	20	62	441	70	16	467	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.6			5.6			5.1			5.1	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.95			0.99			0.98			0.99	
Flt Protected		0.99			0.98			0.99			1.00	
Satd. Flow (prot)		1734			1800			1797			1827	
Flt Permitted		0.93			0.86			0.90			0.98	
Satd. Flow (perm)		1630			1570			1626			1790	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	14	54	44	135	253	21	64	455	72	16	481	26
RTOR Reduction (vph)	0	28	0	0	2	0	0	4	0	0	2	0
Lane Group Flow (vph)	0	84	0	0	407	0	0	587	0	0	521	0
Confl. Bikes (#/hr)									1			
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		
Actuated Green, G (s)		30.8			30.8			48.5			48.5	
Effective Green, g (s)		30.8			30.8			48.5			48.5	
Actuated g/C Ratio		0.34			0.34			0.54			0.54	
Clearance Time (s)		5.6			5.6			5.1			5.1	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		557			537			876			964	
v/s Ratio Prot												
v/s Ratio Perm		0.05			c0.26			c0.36			0.29	
v/c Ratio		0.15			0.76			0.67			0.54	
Uniform Delay, d1		20.5			26.3			15.0			13.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.1			6.1			4.1			0.6	
Delay (s)		20.7			32.4			19.0			14.1	
Level of Service		C			C			B			B	
Approach Delay (s)		20.7			32.4			19.0			14.1	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.7
Intersection Capacity Utilization	93.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1855	245	7	2093	384	4
Future Volume (vph)	1855	245	7	2093	384	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		75.0	75.0		150.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			15.0		15.0	
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)	3500	1566	1750	3500	1750	1566
Flt Permitted			0.051		0.950	
Satd. Flow (perm)	3500	1566	94	3500	1750	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		221				4
Link Speed (k/h)	50			50	50	
Link Distance (m)	165.7			115.5	119.1	
Travel Time (s)	11.9			8.3	8.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2016	266	8	2275	417	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2016	266	8	2275	417	4
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	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

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)	32.9	32.9	32.9	32.9	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)	75.6	75.6	75.6	75.6	34.0	34.0
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)	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)	78.0	78.0	78.0	78.0	31.6	31.6
Actuated g/C Ratio	0.65	0.65	0.65	0.65	0.26	0.26
v/c Ratio	0.89	0.24	0.13	1.00	0.91	0.01
Control Delay	24.1	2.5	15.1	40.8	67.0	19.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.1	2.5	15.1	40.8	67.0	19.5
LOS	C	A	B	D	E	B
Approach Delay	21.6			40.7	66.6	
Approach LOS	C			D	E	
Queue Length 50th (m)	203.0	3.8	0.7	~302.3	92.5	0.0
Queue Length 95th (m)	246.5	13.6	3.6	#343.6	#143.6	2.7
Internal Link Dist (m)	141.7			91.5	95.1	
Turn Bay Length (m)		75.0	75.0		150.0	
Base Capacity (vph)	2275	1095	61	2275	495	446
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	0.89	0.24	0.13	1.00	0.84	0.01

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: 1.00			
Intersection Signal Delay: 34.1		Intersection LOS: C	
Intersection Capacity Utilization 87.8%		ICU Level of Service E	
Analysis Period (min) 15			

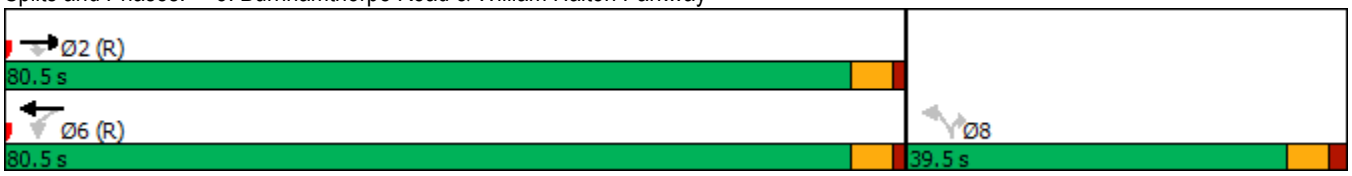
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

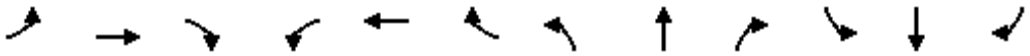
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1855	245	7	2093	384	4
Future Volume (vph)	1855	245	7	2093	384	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3500	1566	1750	3500	1750	1566
Flt Permitted	1.00	1.00	0.05	1.00	0.95	1.00
Satd. Flow (perm)	3500	1566	94	3500	1750	1566
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2016	266	8	2275	417	4
RTOR Reduction (vph)	0	77	0	0	0	3
Lane Group Flow (vph)	2016	189	8	2275	417	1
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8
Actuated Green, G (s)	78.0	78.0	78.0	78.0	31.6	31.6
Effective Green, g (s)	78.0	78.0	78.0	78.0	31.6	31.6
Actuated g/C Ratio	0.65	0.65	0.65	0.65	0.26	0.26
Clearance Time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2275	1017	61	2275	460	412
v/s Ratio Prot	0.58			c0.65		
v/s Ratio Perm		0.12	0.08		c0.24	0.00
v/c Ratio	0.89	0.19	0.13	1.00	0.91	0.00
Uniform Delay, d1	17.3	8.4	8.0	21.0	42.8	32.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.6	0.4	4.4	18.9	21.2	0.0
Delay (s)	22.9	8.8	12.4	39.9	64.0	32.6
Level of Service	C	A	B	D	E	C
Approach Delay (s)	21.2			39.8	63.7	
Approach LOS	C			D	E	

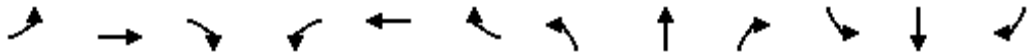
Intersection Summary			
HCM 2000 Control Delay	33.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	10	0	25	0	481	13	12	507	0
Future Volume (vph)	0	0	0	10	0	25	0	481	13	12	507	0
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					0.904			0.996				
Flt Protected					0.986						0.999	
Satd. Flow (prot)	0	1842	0	0	1642	0	0	1835	0	0	1840	0
Flt Permitted					0.986						0.999	
Satd. Flow (perm)	0	1842	0	0	1642	0	0	1835	0	0	1840	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		93.7			81.5			268.3			172.3	
Travel Time (s)		6.7			5.9			19.3			12.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	11	0	27	0	523	14	13	551	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	38	0	0	537	0	0	564	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

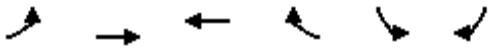
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	10	0	25	0	481	13	12	507	0
Future Volume (Veh/h)	0	0	0	10	0	25	0	481	13	12	507	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	11	0	27	0	523	14	13	551	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								268				
pX, platoon unblocked	0.83	0.83		0.83	0.83	0.83				0.83		
vC, conflicting volume	1134	1114	551	1107	1107	530	551			537		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1058	1034	551	1025	1025	328	551			336		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	94	100	95	100			99		
cM capacity (veh/h)	158	190	534	175	192	590	1019			1012		

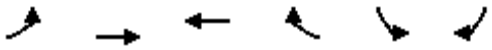
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	38	537	564
Volume Left	0	11	0	13
Volume Right	0	27	14	0
cSH	1700	350	1019	1012
Volume to Capacity	0.00	0.11	0.00	0.01
Queue Length 95th (m)	0.0	2.8	0.0	0.3
Control Delay (s)	0.0	16.5	0.0	0.4
Lane LOS	A	C		A
Approach Delay (s)	0.0	16.5	0.0	0.4
Approach LOS	A	C		

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	46.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	109	332	0	0	0
Future Volume (vph)	0	109	332	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	1842	1842	0	0	1842
Flt Permitted						
Satd. Flow (perm)	0	1842	1842	0	0	1842
Link Speed (k/h)		50	50		50	
Link Distance (m)		778.9	169.9		123.2	
Travel Time (s)		56.1	12.2		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	118	361	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	118	361	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	109	332	0	0	0
Future Volume (Veh/h)	0	109	332	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	118	361	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			170			
pX, platoon unblocked	0.90				0.90	0.90
vC, conflicting volume	361				479	361
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	237				368	237
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1199				570	723

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	118	361	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1700
Volume to Capacity	0.07	0.21	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		20.8%	ICU Level of Service
Analysis Period (min)		15	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2100	0	0	1907	0	0
Future Volume (vph)	2100	0	0	1907	0	0
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						
Flt Protected						
Satd. Flow (prot)	3500	0	1842	3500	1842	1842
Flt Permitted						
Satd. Flow (perm)	3500	0	1842	3500	1842	1842
Link Speed (k/h)	50			50	50	
Link Distance (m)	910.1			111.6	71.0	
Travel Time (s)	65.5			8.0	5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2283	0	0	2073	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2283	0	0	2073	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

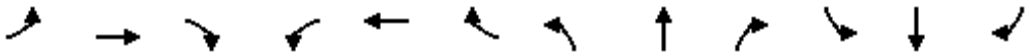
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 61.4%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2100	0	0	1907	0	0
Future Volume (Veh/h)	2100	0	0	1907	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2283	0	0	2073	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			2283		3320	1142
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2283		3320	1142
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			219		6	194

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	1522	761	0	1036	1036	0	0
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.90	0.45	0.00	0.61	0.61	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						A	A
Approach Delay (s)	0.0		0.0			0.0	
Approach LOS						A	

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	52	43	131	245	20	62	441	70	16	467	25
Future Volume (vph)	14	52	43	131	245	20	62	441	70	16	467	25
Ideal Flow (vphpl)	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)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor								1.00				
Frt		0.932			0.989			0.980			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	1717	0	1750	1822	0	1750	3420	0	1750	3472	0
Flt Permitted	0.257			0.692			0.458			0.397		
Satd. Flow (perm)	473	1717	0	1275	1822	0	844	3420	0	731	3472	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		45			4			20			9	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		169.9			629.3			302.6			268.3	
Travel Time (s)		12.2			45.3			21.8			19.3	
Confl. Bikes (#/hr)									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
Adj. Flow (vph)	15	55	46	139	261	21	66	469	74	17	497	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	101	0	139	282	0	66	543	0	17	524	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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		1.0	1.0		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	
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	Lag		Lead		
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
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)	25.2	23.6		19.7	19.7		61.5	61.5		66.8	65.7	
Actuated g/C Ratio	0.25	0.24		0.20	0.20		0.62	0.62		0.67	0.66	
v/c Ratio	0.08	0.23		0.55	0.78		0.13	0.26		0.03	0.23	
Control Delay	29.5	20.7		44.0	52.2		13.5	11.3		8.4	8.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	29.5	20.7		44.0	52.2		13.5	11.3		8.4	8.3	
LOS	C	C		D	D		B	B		A	A	
Approach Delay		21.8			49.5			11.6			8.3	
Approach LOS		C			D			B			A	
Queue Length 50th (m)	2.5	9.1		24.3	51.0		3.8	17.2		0.9	16.8	
Queue Length 95th (m)	7.3	23.2		41.5	75.6		16.1	46.0		4.2	35.1	
Internal Link Dist (m)		145.9			605.3			278.6			244.3	
Turn Bay Length (m)	60.0			50.0			50.0			60.0		
Base Capacity (vph)	190	606		306	440		519	2112		641	2284	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.08	0.17		0.45	0.64		0.13	0.26		0.03	0.23	

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: 0.78			
Intersection Signal Delay: 20.7		Intersection LOS: C	
Intersection Capacity Utilization 44.9%		ICU Level of Service A	

Analysis Period (min) 15

Splits and Phases: 1: Sixth Line & Burnhamthorpe Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	52	43	131	245	20	62	441	70	16	467	25
Future Volume (vph)	14	52	43	131	245	20	62	441	70	16	467	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.6		5.6	5.6		5.1	5.1		4.0	5.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	0.99		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	1716		1750	1821		1750	3419		1750	3473	
Flt Permitted	0.26	1.00		0.69	1.00		0.46	1.00		0.40	1.00	
Satd. Flow (perm)	473	1716		1274	1821		843	3419		732	3473	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	15	55	46	139	261	21	66	469	74	17	497	27
RTOR Reduction (vph)	0	33	0	0	3	0	0	9	0	0	3	0
Lane Group Flow (vph)	15	68	0	139	279	0	66	534	0	17	521	0
Confl. Bikes (#/hr)									1			
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		
Actuated Green, G (s)	25.9	25.9		19.7	19.7		56.8	56.8		63.4	63.4	
Effective Green, g (s)	25.9	25.9		19.7	19.7		56.8	56.8		63.4	63.4	
Actuated g/C Ratio	0.26	0.26		0.20	0.20		0.57	0.57		0.63	0.63	
Clearance Time (s)	4.0	5.6		5.6	5.6		5.1	5.1		4.0	5.1	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	150	444		250	358		478	1941		490	2201	
v/s Ratio Prot	0.00	c0.04			c0.15			c0.16		0.00	c0.15	
v/s Ratio Perm	0.02			0.11			0.08			0.02		
v/c Ratio	0.10	0.15		0.56	0.78		0.14	0.28		0.03	0.24	
Uniform Delay, d1	28.6	28.6		36.2	38.1		10.1	11.1		7.0	7.9	
Progression Factor	1.22	1.24		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.2		2.7	10.2		0.6	0.4		0.0	0.3	
Delay (s)	35.2	35.5		38.9	48.3		10.7	11.4		7.0	8.1	
Level of Service	D	D		D	D		B	B		A	A	
Approach Delay (s)		35.5			45.2			11.3			8.1	
Approach LOS		D			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.7
Intersection Capacity Utilization	44.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1855	245	7	2093	384	4
Future Volume (vph)	1855	245	7	2093	384	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		75.0	75.0		150.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			15.0		15.0	
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)	3500	1566	1750	3500	1750	1566
Flt Permitted			0.061		0.950	
Satd. Flow (perm)	3500	1566	112	3500	1750	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		266				4
Link Speed (k/h)	50			50	50	
Link Distance (m)	165.7			125.2	87.0	
Travel Time (s)	11.9			9.0	6.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2016	266	8	2275	417	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2016	266	8	2275	417	4
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	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

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)	22.9	22.9	22.9	22.9	23.5	23.5
Total Split (s)	70.0	70.0	70.0	70.0	30.0	30.0
Total Split (%)	70.0%	70.0%	70.0%	70.0%	30.0%	30.0%
Maximum Green (s)	65.1	65.1	65.1	65.1	24.5	24.5
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 Effct Green (s)	65.1	65.1	65.1	65.1	24.5	24.5
Actuated g/C Ratio	0.65	0.65	0.65	0.65	0.24	0.24
v/c Ratio	0.88	0.24	0.11	1.00	0.97	0.01
Control Delay	20.6	1.4	10.9	36.8	79.5	19.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.6	1.4	10.9	36.8	79.5	19.8
LOS	C	A	B	D	E	B
Approach Delay	18.3			36.8	78.9	
Approach LOS	B			D	E	
Queue Length 50th (m)	152.8	0.0	0.5	209.1	85.8	0.2
Queue Length 95th (m)	193.6	7.8	2.7	#284.2	#143.4	m1.2
Internal Link Dist (m)	141.7			101.2	63.0	
Turn Bay Length (m)		75.0	75.0		150.0	
Base Capacity (vph)	2278	1112	72	2278	428	386
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	0.88	0.24	0.11	1.00	0.97	0.01

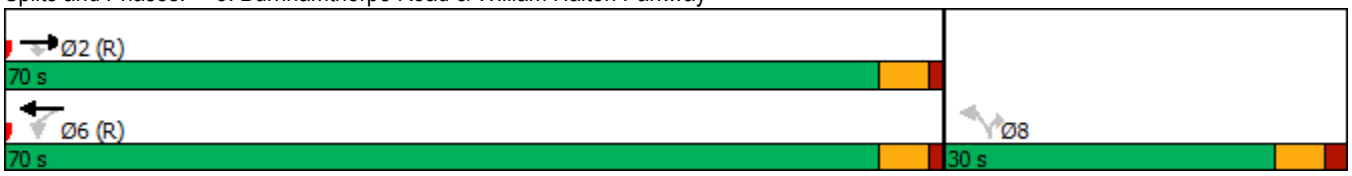
Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 31.9	Intersection LOS: C
Intersection Capacity Utilization 87.8%	ICU Level of Service E
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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

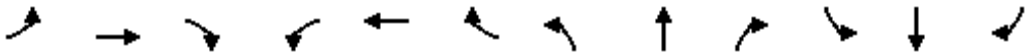
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1855	245	7	2093	384	4
Future Volume (vph)	1855	245	7	2093	384	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3500	1566	1750	3500	1750	1566
Flt Permitted	1.00	1.00	0.06	1.00	0.95	1.00
Satd. Flow (perm)	3500	1566	113	3500	1750	1566
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2016	266	8	2275	417	4
RTOR Reduction (vph)	0	93	0	0	0	3
Lane Group Flow (vph)	2016	173	8	2275	417	1
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8
Actuated Green, G (s)	65.1	65.1	65.1	65.1	24.5	24.5
Effective Green, g (s)	65.1	65.1	65.1	65.1	24.5	24.5
Actuated g/C Ratio	0.65	0.65	0.65	0.65	0.24	0.24
Clearance Time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2278	1019	73	2278	428	383
v/s Ratio Prot	0.58			c0.65		
v/s Ratio Perm		0.11	0.07		c0.24	0.00
v/c Ratio	0.88	0.17	0.11	1.00	0.97	0.00
Uniform Delay, d1	14.4	6.8	6.6	17.4	37.4	28.5
Progression Factor	1.00	1.00	1.00	1.00	1.15	1.08
Incremental Delay, d2	5.5	0.4	3.0	18.6	34.8	0.0
Delay (s)	19.9	7.2	9.6	36.0	77.7	30.9
Level of Service	B	A	A	D	E	C
Approach Delay (s)	18.4			35.9	77.2	
Approach LOS	B			D	E	

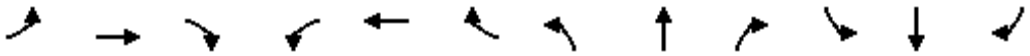
Intersection Summary			
HCM 2000 Control Delay	31.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	10	0	25	0	481	13	12	507	0
Future Volume (vph)	0	0	0	10	0	25	0	481	13	12	507	0
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	0.95	0.95	0.95	0.95	0.95	0.95
Frt					0.904			0.996				
Flt Protected					0.986						0.999	
Satd. Flow (prot)	0	1842	0	0	1642	0	0	3486	0	0	3496	0
Flt Permitted					0.986						0.999	
Satd. Flow (perm)	0	1842	0	0	1642	0	0	3486	0	0	3496	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		93.7			81.5			268.3			172.3	
Travel Time (s)		6.7			5.9			19.3			12.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	11	0	27	0	523	14	13	551	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	38	0	0	537	0	0	564	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

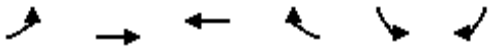
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	10	0	25	0	481	13	12	507	0
Future Volume (Veh/h)	0	0	0	10	0	25	0	481	13	12	507	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	11	0	27	0	523	14	13	551	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								268				
pX, platoon unblocked	0.97	0.97		0.97	0.97	0.97				0.97		
vC, conflicting volume	866	1114	276	832	1107	268	551			537		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	802	1058	276	767	1051	187	551			464		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	96	100	97	100			99		
cM capacity (veh/h)	256	214	722	281	216	799	1015			1062		

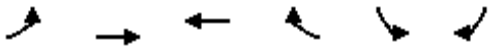
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	38	262	276	288	276
Volume Left	0	11	0	0	13	0
Volume Right	0	27	0	14	0	0
cSH	1700	521	1015	1700	1062	1700
Volume to Capacity	0.00	0.07	0.00	0.16	0.01	0.16
Queue Length 95th (m)	0.0	1.8	0.0	0.0	0.3	0.0
Control Delay (s)	0.0	12.5	0.0	0.0	0.5	0.0
Lane LOS	A	B			A	
Approach Delay (s)	0.0	12.5	0.0		0.3	
Approach LOS	A	B				

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	32.6%	ICU Level of Service		A
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	109	332	0	0	0
Future Volume (vph)	0	109	332	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	1842	1842	0	0	1842
Flt Permitted						
Satd. Flow (perm)	0	1842	1842	0	0	1842
Link Speed (k/h)		50	50		50	
Link Distance (m)		826.9	169.9		123.2	
Travel Time (s)		59.5	12.2		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	118	361	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	118	361	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	109	332	0	0	0
Future Volume (Veh/h)	0	109	332	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	118	361	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			170			
pX, platoon unblocked	0.86				0.86	0.86
vC, conflicting volume	361				479	361
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	181				318	181
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1204				583	744

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	118	361	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1700
Volume to Capacity	0.07	0.21	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		20.8%	ICU Level of Service A
Analysis Period (min)		15	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2100	0	0	1907	0	0
Future Volume (vph)	2100	0	0	1907	0	0
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)			15.0		15.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	3500	0	1842	3500	1842	1842
Flt Permitted						
Satd. Flow (perm)	3500	0	1842	3500	1842	1842
Link Speed (k/h)	50			50	50	
Link Distance (m)	910.1			111.6	71.0	
Travel Time (s)	65.5			8.0	5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2283	0	0	2073	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2283	0	0	2073	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2100	0	0	1907	0	0
Future Volume (Veh/h)	2100	0	0	1907	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2283	0	0	2073	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			2283		3320	1142
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2283		3320	1142
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			219		6	194

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	1522	761	0	1036	1036	0	0
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.90	0.45	0.00	0.61	0.61	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						A	A
Approach Delay (s)	0.0		0.0			0.0	
Approach LOS						A	

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
Analysis Period (min)	15		

MOVEMENT SUMMARY

Site: 101 [WH & 6th - 2025 AM FB]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	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	19	2.0	0.784	46.4	LOS E	4.2	29.9	0.92	1.23	2.18	34.0
2	T1	249	2.0	0.784	46.2	LOS E	4.2	30.2	0.92	1.23	2.18	34.0
3	R2	253	2.0	0.784	43.5	LOS E	4.2	30.2	0.91	1.22	2.18	33.8
Approach		520	2.0	0.784	44.9	LOS E	4.2	30.2	0.91	1.22	2.18	33.9
East: William Halton												
4	L2	250	2.0	1.433	216.1	LOS F	159.5	1135.8	1.00	4.63	9.28	13.5
5	T1	2323	2.0	1.433	216.0	LOS F	161.3	1148.6	1.00	4.66	9.34	13.4
6	R2	53	2.0	1.433	215.9	LOS F	161.3	1148.6	1.00	4.68	9.39	13.3
Approach		2625	2.0	1.433	216.0	LOS F	161.3	1148.6	1.00	4.66	9.33	13.4
North: Sixth												
7	L2	50	2.0	0.456	25.3	LOS D	1.5	10.6	0.84	0.95	1.28	41.3
8	T1	209	2.0	0.456	24.1	LOS C	1.5	10.6	0.83	0.94	1.26	42.2
9	R2	10	2.0	0.456	23.3	LOS C	1.5	10.5	0.83	0.93	1.26	41.9
Approach		269	2.0	0.456	24.3	LOS C	1.5	10.6	0.83	0.94	1.27	42.1
West: William Halton												
10	L2	9	2.0	1.613	296.8	LOS F	177.8	1265.9	1.00	5.90	14.13	10.4
11	T1	2593	2.0	1.613	296.7	LOS F	181.3	1290.8	1.00	5.95	14.27	10.4
12	R2	24	2.0	1.613	296.5	LOS F	181.3	1290.8	1.00	6.00	14.41	10.4
Approach		2625	2.0	1.613	296.7	LOS F	181.3	1290.8	1.00	5.95	14.27	10.4
All Vehicles		6039	2.0	1.613	227.8	LOS F	181.3	1290.8	0.99	4.76	10.51	12.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [WH & 6th - 2025 PM FB]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles

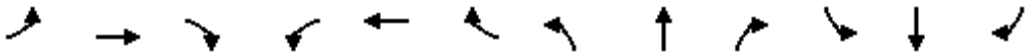
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Sixth												
1	L2	29	2.0	0.757	41.1	LOS E	4.0	28.3	0.90	1.18	2.04	35.7
2	T1	260	2.0	0.757	40.7	LOS E	4.0	28.5	0.90	1.18	2.04	35.7
3	R2	244	2.0	0.757	38.5	LOS E	4.0	28.5	0.89	1.18	2.04	35.5
Approach		534	2.0	0.757	39.8	LOS E	4.0	28.5	0.90	1.18	2.04	35.6
East: William Halton												
4	L2	220	2.0	1.242	136.1	LOS F	100.1	712.8	1.00	3.72	7.46	18.8
5	T1	1969	2.0	1.242	136.0	LOS F	101.3	721.4	1.00	3.74	7.51	18.8
6	R2	21	2.0	1.242	135.8	LOS F	101.3	721.4	1.00	3.75	7.55	18.6
Approach		2211	2.0	1.242	136.0	LOS F	101.3	721.4	1.00	3.73	7.50	18.8
North: Sixth												
7	L2	20	2.0	0.465	25.3	LOS D	1.5	11.0	0.84	0.95	1.29	41.9
8	T1	251	2.0	0.465	24.3	LOS C	1.5	11.0	0.83	0.94	1.28	42.4
9	R2	8	2.0	0.465	23.4	LOS C	1.5	10.9	0.82	0.93	1.27	41.9
Approach		279	2.0	0.465	24.3	LOS C	1.5	11.0	0.83	0.94	1.28	42.3
West: William Halton												
10	L2	32	2.0	1.373	192.6	LOS F	115.5	822.6	1.00	4.68	10.98	14.7
11	T1	2104	2.0	1.373	192.4	LOS F	117.8	838.4	1.00	4.72	11.09	14.7
12	R2	75	2.0	1.373	192.2	LOS F	117.8	838.4	1.00	4.76	11.19	14.5
Approach		2211	2.0	1.373	192.4	LOS F	117.8	838.4	1.00	4.72	11.09	14.7
All Vehicles		5234	2.0	1.373	144.0	LOS F	117.8	838.4	0.98	3.74	8.13	18.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Appendix J

2025 Future Total Conditions Synchro and Sidra Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	107	37	87	237	32	199	539	75	73	465	20
Future Volume (vph)	49	107	37	87	237	32	199	539	75	73	465	20
Ideal Flow (vphpl)	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	0		0	0		0	0		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.97			0.98			0.97			0.99	
Frt		0.974			0.988			0.988			0.995	
Flt Protected		0.987			0.988			0.988			0.994	
Satd. Flow (prot)	0	1730	0	0	1778	0	0	1770	0	0	1805	0
Flt Permitted		0.726			0.808			0.720			0.823	
Satd. Flow (perm)	0	1264	0	0	1440	0	0	1267	0	0	1489	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			5			10			4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		169.9			629.3			302.6			268.3	
Travel Time (s)		12.2			45.3			21.8			19.3	
Confl. Peds. (#/hr)	30		30	30		30	121		76	76		121
Confl. Bikes (#/hr)			29			29			73			117
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)	51	110	38	90	244	33	205	556	77	75	479	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	199	0	0	367	0	0	838	0	0	575	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		1.0	1.0		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)	30.4	30.4		30.4	30.4		69.6	69.6		69.6	69.6	
Total Split (%)	30.4%	30.4%		30.4%	30.4%		69.6%	69.6%		69.6%	69.6%	
Maximum Green (s)	24.8	24.8		24.8	24.8		64.5	64.5		64.5	64.5	
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)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.6			5.6			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)	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 Effct Green (s)		24.8			24.8			64.5			64.5	
Actuated g/C Ratio		0.25			0.25			0.64			0.64	
v/c Ratio		0.62			1.02			1.02			0.60	
Control Delay		41.1			90.8			56.6			13.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		41.1			90.8			56.6			13.4	
LOS		D			F			E			B	
Approach Delay		41.1			90.8			56.6			13.4	
Approach LOS		D			F			E			B	
Queue Length 50th (m)		32.4			~72.7			~172.8			57.8	
Queue Length 95th (m)		56.2			#130.0			#244.8			89.0	
Internal Link Dist (m)		145.9			605.3			278.6			244.3	
Turn Bay Length (m)												
Base Capacity (vph)		321			360			820			961	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.62			1.02			1.02			0.60	

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: 1.02	
Intersection Signal Delay: 48.9	Intersection LOS: D

Intersection Capacity Utilization 110.4% ICU Level of Service H

Analysis Period (min) 15

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

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

Splits and Phases: 1: Sixth Line & Burnhamthorpe Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	107	37	87	237	32	199	539	75	73	465	20
Future Volume (vph)	49	107	37	87	237	32	199	539	75	73	465	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.6			5.6			5.1			5.1	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.98			0.99			0.98			0.99	
Flpb, ped/bikes		0.99			0.99			0.98			1.00	
Frt		0.97			0.99			0.99			1.00	
Flt Protected		0.99			0.99			0.99			0.99	
Satd. Flow (prot)		1719			1761			1738			1797	
Flt Permitted		0.73			0.81			0.72			0.82	
Satd. Flow (perm)		1264			1440			1268			1489	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	51	110	38	90	244	33	205	556	77	75	479	21
RTOR Reduction (vph)	0	8	0	0	4	0	0	4	0	0	1	0
Lane Group Flow (vph)	0	191	0	0	363	0	0	834	0	0	574	0
Confl. Peds. (#/hr)	30		30	30		30	121		76	76		121
Confl. Bikes (#/hr)			29			29			73			117
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.8			24.8			64.5			64.5	
Effective Green, g (s)		24.8			24.8			64.5			64.5	
Actuated g/C Ratio		0.25			0.25			0.64			0.64	
Clearance Time (s)		5.6			5.6			5.1			5.1	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		313			357			817			960	
v/s Ratio Prot												
v/s Ratio Perm		0.15			c0.25			c0.66			0.39	
v/c Ratio		0.61			1.02			1.02			0.60	
Uniform Delay, d1		33.3			37.6			17.8			10.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		3.3			52.1			37.0			2.7	
Delay (s)		36.7			89.7			54.7			13.0	
Level of Service		D			F			D			B	
Approach Delay (s)		36.7			89.7			54.7			13.0	
Approach LOS		D			F			D			B	

Intersection Summary			
HCM 2000 Control Delay	47.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.7
Intersection Capacity Utilization	110.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2071	192	2	2106	481	6
Future Volume (vph)	2071	192	2	2106	481	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		75.0	75.0		150.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			15.0		15.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.87			0.99	0.96
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3500	1566	1750	3500	1750	1566
Flt Permitted			0.043		0.950	
Satd. Flow (perm)	3500	1356	79	3500	1736	1501
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		117				5
Link Speed (k/h)	50			50	50	
Link Distance (m)	165.7			125.9	150.9	
Travel Time (s)	11.9			9.1	10.9	
Confl. Peds. (#/hr)		36	36		6	15
Confl. Bikes (#/hr)		35				15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2251	209	2	2289	523	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2251	209	2	2289	523	7
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	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		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	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)	32.9	32.9	32.9	32.9	39.5	39.5
Total Split (s)	96.0	96.0	96.0	96.0	54.0	54.0
Total Split (%)	64.0%	64.0%	64.0%	64.0%	36.0%	36.0%
Maximum Green (s)	91.1	91.1	91.1	91.1	48.5	48.5
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)	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)	92.4	92.4	92.4	92.4	47.2	47.2
Actuated g/C Ratio	0.62	0.62	0.62	0.62	0.31	0.31
v/c Ratio	1.04	0.24	0.04	1.06	0.96	0.01
Control Delay	61.0	6.3	14.5	67.1	79.4	23.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.0	6.3	14.5	67.1	79.4	23.2
LOS	E	A	B	E	E	C
Approach Delay	56.3			67.0	78.7	
Approach LOS	E			E	E	
Queue Length 50th (m)	~385.6	11.0	0.2	~397.9	150.9	0.4
Queue Length 95th (m)	#424.2	23.2	1.6	#436.5	#219.1	4.1
Internal Link Dist (m)	141.7			101.9	126.9	
Turn Bay Length (m)		75.0	75.0		150.0	
Base Capacity (vph)	2155	880	48	2155	561	488
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	1.04	0.24	0.04	1.06	0.93	0.01

Intersection Summary	
Area Type:	Other
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.06	
Intersection Signal Delay: 63.2	Intersection LOS: E

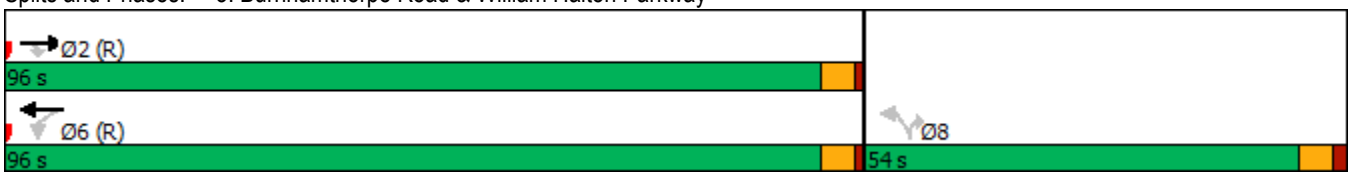
Intersection Capacity Utilization 94.2% ICU Level of Service F

Analysis Period (min) 15

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

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

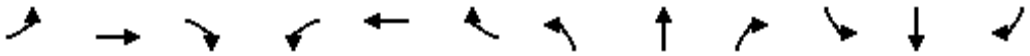
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2071	192	2	2106	481	6
Future Volume (vph)	2071	192	2	2106	481	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.87	1.00	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00	1.00	1.00	0.99	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3500	1357	1750	3500	1736	1500
Flt Permitted	1.00	1.00	0.04	1.00	0.95	1.00
Satd. Flow (perm)	3500	1357	80	3500	1736	1500
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2251	209	2	2289	523	7
RTOR Reduction (vph)	0	45	0	0	0	3
Lane Group Flow (vph)	2251	164	2	2289	523	4
Confl. Peds. (#/hr)		36	36		6	15
Confl. Bikes (#/hr)		35				15
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8
Actuated Green, G (s)	92.4	92.4	92.4	92.4	47.2	47.2
Effective Green, g (s)	92.4	92.4	92.4	92.4	47.2	47.2
Actuated g/C Ratio	0.62	0.62	0.62	0.62	0.31	0.31
Clearance Time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2156	835	49	2156	546	472
v/s Ratio Prot	0.64			c0.65		
v/s Ratio Perm		0.12	0.03		c0.30	0.00
v/c Ratio	1.04	0.20	0.04	1.06	0.96	0.01
Uniform Delay, d1	28.8	12.6	11.3	28.8	50.4	35.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	32.1	0.5	1.6	38.2	27.9	0.0
Delay (s)	60.9	13.1	12.9	67.0	78.3	35.3
Level of Service	E	B	B	E	E	D
Approach Delay (s)	56.8			67.0	77.8	
Approach LOS	E			E	E	

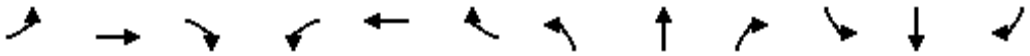
Intersection Summary			
HCM 2000 Control Delay	63.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	94.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	19	267	11	25	19	183	435	7	17	328	90
Future Volume (vph)	12	19	267	11	25	19	183	435	7	17	328	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.879			0.953			0.998			0.972	
Flt Protected		0.998			0.990			0.986			0.998	
Satd. Flow (prot)	0	1616	0	0	1738	0	0	1813	0	0	1787	0
Flt Permitted		0.998			0.990			0.986			0.998	
Satd. Flow (perm)	0	1616	0	0	1738	0	0	1813	0	0	1787	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		93.7			81.5			268.3			172.3	
Travel Time (s)		6.7			5.9			19.3			12.4	
Confl. Peds. (#/hr)	45		30	30		45	136		30	30		136
Confl. Bikes (#/hr)			29			44			29			131
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	21	290	12	27	21	199	473	8	18	357	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	324	0	0	60	0	0	680	0	0	473	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

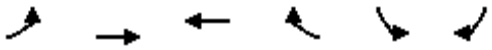
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 90.1%		ICU Level of Service E	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	19	267	11	25	19	183	435	7	17	328	90
Future Volume (Veh/h)	12	19	267	11	25	19	183	435	7	17	328	90
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	21	290	12	27	21	199	473	8	18	357	98
Pedestrians		136			30			30			45	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		13			3			3			4	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								268				
pX, platoon unblocked	0.78	0.78		0.78	0.78	0.78				0.78		
vC, conflicting volume	1532	1487	572	1678	1532	552	591			511		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1542	1483	572	1729	1541	278	591			225		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	52	66	34	0	52	96	77			98		
cM capacity (veh/h)	27	62	438	9	57	548	854			1012		

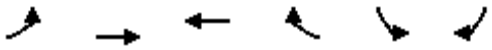
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	324	60	680	473
Volume Left	13	12	199	18
Volume Right	290	21	8	98
cSH	218	33	854	1012
Volume to Capacity	1.49	1.82	0.23	0.02
Queue Length 95th (m)	148.2	51.1	6.8	0.4
Control Delay (s)	283.2	648.8	5.5	0.5
Lane LOS	F	F	A	A
Approach Delay (s)	283.2	648.8	5.5	0.5
Approach LOS	F	F		

Intersection Summary				
Average Delay	87.6			
Intersection Capacity Utilization	90.1%	ICU Level of Service	E	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	193	257	199	0	78
Future Volume (vph)	0	193	257	199	0	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.941			0.865
Flt Protected						
Satd. Flow (prot)	0	1842	1733	0	0	1593
Flt Permitted						
Satd. Flow (perm)	0	1842	1733	0	0	1593
Link Speed (k/h)		50	50		50	
Link Distance (m)		758.7	169.9		123.2	
Travel Time (s)		54.6	12.2		8.9	
Confl. Peds. (#/hr)				106		
Confl. Bikes (#/hr)				102		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	210	279	216	0	85
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	210	495	0	0	85
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	193	257	199	0	78
Future Volume (Veh/h)	0	193	257	199	0	78
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	210	279	216	0	85
Pedestrians					106	
Lane Width (m)					3.5	
Walking Speed (m/s)					1.0	
Percent Blockage					10	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			170			
pX, platoon unblocked	0.87				0.87	0.87
vC, conflicting volume	601				703	493
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	467				584	343
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	84
cM capacity (veh/h)	854				370	546

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	210	495	85
Volume Left	0	0	0
Volume Right	0	216	85
cSH	1700	1700	546
Volume to Capacity	0.12	0.29	0.16
Queue Length 95th (m)	0.0	0.0	4.2
Control Delay (s)	0.0	0.0	12.8
Lane LOS			B
Approach Delay (s)	0.0	0.0	12.8
Approach LOS			B

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		

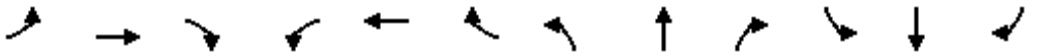
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2176	60	90	1881	8	13
Future Volume (vph)	2176	60	90	1881	8	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	75.0		0.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			15.0		15.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.996					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3486	0	1750	3500	1750	1566
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3486	0	1750	3500	1750	1566
Link Speed (k/h)	50			50	50	
Link Distance (m)	910.1			111.6	71.0	
Travel Time (s)	65.5			8.0	5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2365	65	98	2045	9	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2430	0	98	2045	9	14
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		

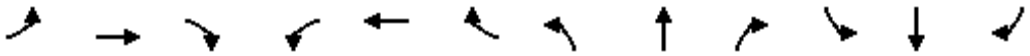
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2176	60	90	1881	8	13
Future Volume (Veh/h)	2176	60	90	1881	8	13
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2365	65	98	2045	9	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			2430		3616	1215
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2430		3616	1215
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			49		0	92
cM capacity (veh/h)			191		2	173

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	1577	853	98	1022	1022	9	14
Volume Left	0	0	98	0	0	9	0
Volume Right	0	65	0	0	0	0	14
cSH	1700	1700	191	1700	1700	2	173
Volume to Capacity	0.93	0.50	0.51	0.60	0.60	4.77	0.08
Queue Length 95th (m)	0.0	0.0	19.6	0.0	0.0	Err	2.0
Control Delay (s)	0.0	0.0	42.1	0.0	0.0	Err	27.6
Lane LOS			E			F	D
Approach Delay (s)	0.0		1.9			3929.4	
Approach LOS						F	

Intersection Summary				
Average Delay	20.6			
Intersection Capacity Utilization	80.4%	ICU Level of Service		D
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	107	37	87	237	32	199	539	75	73	465	20
Future Volume (vph)	49	107	37	87	237	32	199	539	75	73	465	20
Ideal Flow (vphpl)	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	0		0	0		0	0		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.97			0.98			0.97			0.99	
Frt		0.974			0.988			0.988			0.995	
Flt Protected		0.987			0.988			0.988			0.994	
Satd. Flow (prot)	0	1730	0	0	1778	0	0	1770	0	0	1805	0
Flt Permitted		0.726			0.808			0.720			0.823	
Satd. Flow (perm)	0	1264	0	0	1440	0	0	1267	0	0	1489	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			5			10			4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		169.9			629.3			302.6			268.3	
Travel Time (s)		12.2			45.3			21.8			19.3	
Confl. Peds. (#/hr)	30		30	30		30	121		76	76		121
Confl. Bikes (#/hr)			29			29			73			117
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)	51	110	38	90	244	33	205	556	77	75	479	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	199	0	0	367	0	0	838	0	0	575	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		1.0	1.0		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)	30.4	30.4		30.4	30.4		69.6	69.6		69.6	69.6	
Total Split (%)	30.4%	30.4%		30.4%	30.4%		69.6%	69.6%		69.6%	69.6%	
Maximum Green (s)	24.8	24.8		24.8	24.8		64.5	64.5		64.5	64.5	
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)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.6			5.6			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)	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 Effct Green (s)		24.8			24.8			64.5			64.5	
Actuated g/C Ratio		0.25			0.25			0.64			0.64	
v/c Ratio		0.62			1.02			1.02			0.60	
Control Delay		41.1			90.8			56.6			13.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		41.1			90.8			56.6			13.4	
LOS		D			F			E			B	
Approach Delay		41.1			90.8			56.6			13.4	
Approach LOS		D			F			E			B	
Queue Length 50th (m)		32.4			~72.7			~172.8			57.8	
Queue Length 95th (m)		56.2			#130.0			#244.8			89.0	
Internal Link Dist (m)		145.9			605.3			278.6			244.3	
Turn Bay Length (m)												
Base Capacity (vph)		321			360			820			961	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.62			1.02			1.02			0.60	

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: 1.02	
Intersection Signal Delay: 48.9	Intersection LOS: D

Intersection Capacity Utilization 110.4% ICU Level of Service H
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Sixth Line & Burnhamthorpe Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	107	37	87	237	32	199	539	75	73	465	20
Future Volume (vph)	49	107	37	87	237	32	199	539	75	73	465	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.6			5.6			5.1			5.1	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.98			0.99			0.98			0.99	
Flpb, ped/bikes		0.99			0.99			0.98			1.00	
Frt		0.97			0.99			0.99			1.00	
Flt Protected		0.99			0.99			0.99			0.99	
Satd. Flow (prot)		1719			1761			1738			1797	
Flt Permitted		0.73			0.81			0.72			0.82	
Satd. Flow (perm)		1264			1440			1268			1489	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	51	110	38	90	244	33	205	556	77	75	479	21
RTOR Reduction (vph)	0	8	0	0	4	0	0	4	0	0	1	0
Lane Group Flow (vph)	0	191	0	0	363	0	0	834	0	0	574	0
Confl. Peds. (#/hr)	30		30	30		30	121		76	76		121
Confl. Bikes (#/hr)			29			29			73			117
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.8			24.8			64.5			64.5	
Effective Green, g (s)		24.8			24.8			64.5			64.5	
Actuated g/C Ratio		0.25			0.25			0.64			0.64	
Clearance Time (s)		5.6			5.6			5.1			5.1	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		313			357			817			960	
v/s Ratio Prot												
v/s Ratio Perm		0.15			c0.25			c0.66			0.39	
v/c Ratio		0.61			1.02			1.02			0.60	
Uniform Delay, d1		33.3			37.6			17.8			10.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		3.3			52.1			37.0			2.7	
Delay (s)		36.7			89.7			54.7			13.0	
Level of Service		D			F			D			B	
Approach Delay (s)		36.7			89.7			54.7			13.0	
Approach LOS		D			F			D			B	

Intersection Summary			
HCM 2000 Control Delay	47.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.7
Intersection Capacity Utilization	110.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2071	192	2	2106	481	6
Future Volume (vph)	2071	192	2	2106	481	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		75.0	75.0		150.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			15.0		15.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.87			0.99	0.96
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3500	1566	1750	3500	1750	1566
Flt Permitted			0.043		0.950	
Satd. Flow (perm)	3500	1356	79	3500	1736	1501
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		117				5
Link Speed (k/h)	50			50	50	
Link Distance (m)	165.7			125.9	150.9	
Travel Time (s)	11.9			9.1	10.9	
Confl. Peds. (#/hr)		36	36		6	15
Confl. Bikes (#/hr)		35				15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2251	209	2	2289	523	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2251	209	2	2289	523	7
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	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		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	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)	32.9	32.9	32.9	32.9	39.5	39.5
Total Split (s)	96.0	96.0	96.0	96.0	54.0	54.0
Total Split (%)	64.0%	64.0%	64.0%	64.0%	36.0%	36.0%
Maximum Green (s)	91.1	91.1	91.1	91.1	48.5	48.5
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)	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)	92.4	92.4	92.4	92.4	47.2	47.2
Actuated g/C Ratio	0.62	0.62	0.62	0.62	0.31	0.31
v/c Ratio	1.04	0.24	0.04	1.06	0.96	0.01
Control Delay	61.0	6.3	14.5	67.1	79.4	23.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.0	6.3	14.5	67.1	79.4	23.2
LOS	E	A	B	E	E	C
Approach Delay	56.3			67.0	78.7	
Approach LOS	E			E	E	
Queue Length 50th (m)	~385.6	11.0	0.2	~397.9	150.9	0.4
Queue Length 95th (m)	#424.2	23.2	1.6	#436.5	#219.1	4.1
Internal Link Dist (m)	141.7			101.9	126.9	
Turn Bay Length (m)		75.0	75.0		150.0	
Base Capacity (vph)	2155	880	48	2155	561	488
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	1.04	0.24	0.04	1.06	0.93	0.01

Intersection Summary	
Area Type:	Other
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.06	
Intersection Signal Delay: 63.2	Intersection LOS: E

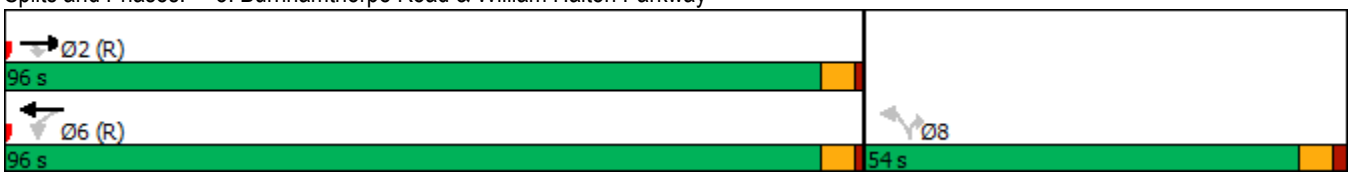
Intersection Capacity Utilization 94.2% ICU Level of Service F

Analysis Period (min) 15

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

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

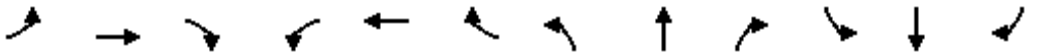
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



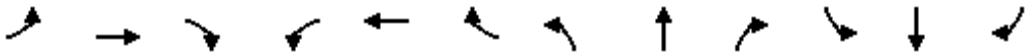
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2071	192	2	2106	481	6
Future Volume (vph)	2071	192	2	2106	481	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.87	1.00	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00	1.00	1.00	0.99	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3500	1357	1750	3500	1736	1500
Flt Permitted	1.00	1.00	0.04	1.00	0.95	1.00
Satd. Flow (perm)	3500	1357	80	3500	1736	1500
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2251	209	2	2289	523	7
RTOR Reduction (vph)	0	45	0	0	0	3
Lane Group Flow (vph)	2251	164	2	2289	523	4
Confl. Peds. (#/hr)		36	36		6	15
Confl. Bikes (#/hr)		35				15
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8
Actuated Green, G (s)	92.4	92.4	92.4	92.4	47.2	47.2
Effective Green, g (s)	92.4	92.4	92.4	92.4	47.2	47.2
Actuated g/C Ratio	0.62	0.62	0.62	0.62	0.31	0.31
Clearance Time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2156	835	49	2156	546	472
v/s Ratio Prot	0.64			c0.65		
v/s Ratio Perm		0.12	0.03		c0.30	0.00
v/c Ratio	1.04	0.20	0.04	1.06	0.96	0.01
Uniform Delay, d1	28.8	12.6	11.3	28.8	50.4	35.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	32.1	0.5	1.6	38.2	27.9	0.0
Delay (s)	60.9	13.1	12.9	67.0	78.3	35.3
Level of Service	E	B	B	E	E	D
Approach Delay (s)	56.8			67.0	77.8	
Approach LOS	E			E	E	

Intersection Summary			
HCM 2000 Control Delay	63.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	94.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	19	267	11	25	19	183	435	7	17	328	90
Future Volume (vph)	12	19	267	11	25	19	183	435	7	17	328	90
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	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.87			0.93			0.95			0.92	
Frt		0.879			0.953			0.998			0.972	
Flt Protected		0.998			0.990			0.986			0.998	
Satd. Flow (prot)	0	1414	0	0	1618	0	0	1810	0	0	1639	0
Flt Permitted		0.986			0.738			0.744			0.971	
Satd. Flow (perm)	0	1392	0	0	1199	0	0	1305	0	0	1593	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		290			21			2			33	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		93.7			81.5			268.3			172.3	
Travel Time (s)		6.7			5.9			19.3			12.4	
Confl. Peds. (#/hr)	45		30	30		45	136		30	30		136
Confl. Bikes (#/hr)			29			44			29			131
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	21	290	12	27	21	199	473	8	18	357	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	324	0	0	60	0	0	680	0	0	473	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

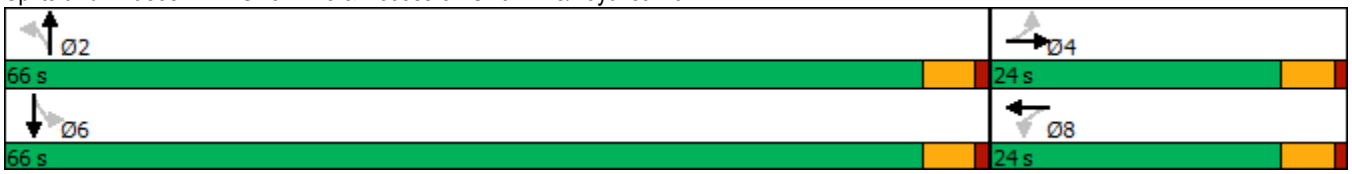


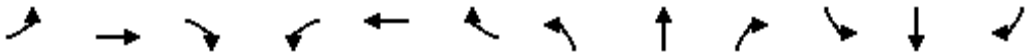
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	24.0	24.0		24.0	24.0		66.0	66.0		66.0	66.0	
Total Split (%)	26.7%	26.7%		26.7%	26.7%		73.3%	73.3%		73.3%	73.3%	
Maximum Green (s)	19.5	19.5		19.5	19.5		61.5	61.5		61.5	61.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
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)	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)		10.0			10.0			62.1			62.1	
Actuated g/C Ratio		0.12			0.12			0.77			0.77	
v/c Ratio		0.76			0.36			0.68			0.39	
Control Delay		18.6			28.7			10.5			4.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		18.6			28.7			10.5			4.7	
LOS		B			C			B			A	
Approach Delay		18.6			28.7			10.5			4.7	
Approach LOS		B			C			B			A	
Queue Length 50th (m)		4.8			5.5			32.5			14.0	
Queue Length 95th (m)		29.1			15.9			118.2			46.2	
Internal Link Dist (m)		69.7			57.5			244.3			148.3	
Turn Bay Length (m)												
Base Capacity (vph)		555			305			999			1227	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.58			0.20			0.68			0.39	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 81.1			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 11.1		Intersection LOS: B	
Intersection Capacity Utilization 91.3%		ICU Level of Service F	

Analysis Period (min) 15

Splits and Phases: 4: Sixth Line & Access on Sixth Line/Loyalist Trail

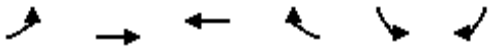




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	19	267	11	25	19	183	435	7	17	328	90
Future Volume (vph)	12	19	267	11	25	19	183	435	7	17	328	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.85			0.92			1.00			0.92	
Flpb, ped/bikes		1.00			0.99			0.96			1.00	
Frt		0.88			0.95			1.00			0.97	
Flt Protected		1.00			0.99			0.99			1.00	
Satd. Flow (prot)		1369			1583			1731			1651	
Flt Permitted		0.99			0.74			0.74			0.97	
Satd. Flow (perm)		1352			1179			1306			1607	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	21	290	12	27	21	199	473	8	18	357	98
RTOR Reduction (vph)	0	254	0	0	18	0	0	0	0	0	8	0
Lane Group Flow (vph)	0	70	0	0	42	0	0	680	0	0	465	0
Confl. Peds. (#/hr)	45		30	30		45	136		30	30		136
Confl. Bikes (#/hr)			29			44			29			131
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		10.0			10.0			62.1			62.1	
Effective Green, g (s)		10.0			10.0			62.1			62.1	
Actuated g/C Ratio		0.12			0.12			0.77			0.77	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		166			145			1000			1230	
v/s Ratio Prot												
v/s Ratio Perm		c0.05			0.04			c0.52			0.29	
v/c Ratio		0.42			0.29			0.68			0.38	
Uniform Delay, d1		32.9			32.3			4.6			3.1	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.7			1.1			3.7			0.9	
Delay (s)		34.6			33.4			8.4			4.0	
Level of Service		C			C			A			A	
Approach Delay (s)		34.6			33.4			8.4			4.0	
Approach LOS		C			C			A			A	

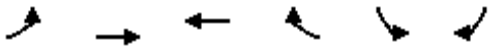
Intersection Summary			
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	81.1	Sum of lost time (s)	9.0
Intersection Capacity Utilization	91.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	193	257	199	0	78
Future Volume (vph)	0	193	257	199	0	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.941			0.865
Flt Protected						
Satd. Flow (prot)	0	1842	1733	0	0	1593
Flt Permitted						
Satd. Flow (perm)	0	1842	1733	0	0	1593
Link Speed (k/h)		50	50		50	
Link Distance (m)		758.7	169.9		123.2	
Travel Time (s)		54.6	12.2		8.9	
Confl. Peds. (#/hr)				106		
Confl. Bikes (#/hr)				102		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	210	279	216	0	85
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	210	495	0	0	85
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	193	257	199	0	78
Future Volume (Veh/h)	0	193	257	199	0	78
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	210	279	216	0	85
Pedestrians					106	
Lane Width (m)					3.5	
Walking Speed (m/s)					1.0	
Percent Blockage					10	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			170			
pX, platoon unblocked	0.87				0.87	0.87
vC, conflicting volume	601				703	493
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	467				584	343
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	84
cM capacity (veh/h)	854				370	546

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	210	495	85
Volume Left	0	0	0
Volume Right	0	216	85
cSH	1700	1700	546
Volume to Capacity	0.12	0.29	0.16
Queue Length 95th (m)	0.0	0.0	4.2
Control Delay (s)	0.0	0.0	12.8
Lane LOS			B
Approach Delay (s)	0.0	0.0	12.8
Approach LOS			B

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2176	60	90	1881	8	13
Future Volume (vph)	2176	60	90	1881	8	13
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)			15.0		15.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt	0.996					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3486	0	1750	3500	1750	1566
Flt Permitted			0.046		0.950	
Satd. Flow (perm)	3486	0	85	3500	1750	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	5					14
Link Speed (k/h)	50			50	50	
Link Distance (m)	910.1			111.6	71.0	
Travel Time (s)	65.5			8.0	5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2365	65	98	2045	9	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2430	0	98	2045	9	14
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6		2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Perm	Perm
Protected Phases	4		3	8		
Permitted Phases			8		5	2

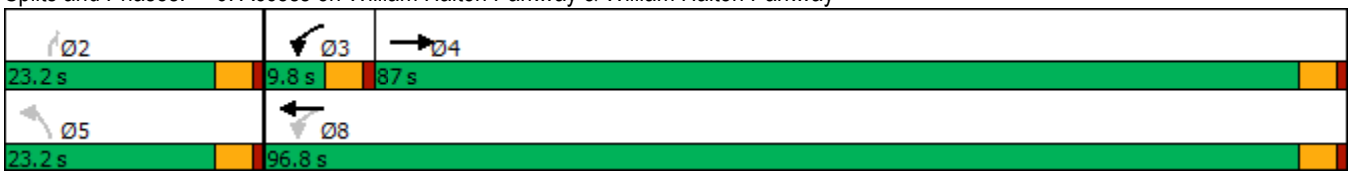
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	4		3	8	5	2
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	22.5		9.5	22.5	9.5	22.5
Total Split (s)	87.0		9.8	96.8	23.2	23.2
Total Split (%)	72.5%		8.2%	80.7%	19.3%	19.3%
Maximum Green (s)	82.5		5.3	92.3	18.7	18.7
Yellow Time (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	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	None	None	Max
Walk Time (s)	7.0			7.0		7.0
Flash Dont Walk (s)	11.0			11.0		11.0
Pedestrian Calls (#/hr)	0			0		0
Act Effct Green (s)	82.5		92.3	92.3	8.5	18.7
Actuated g/C Ratio	0.69		0.77	0.77	0.07	0.16
v/c Ratio	1.01		0.71	0.76	0.07	0.05
Control Delay	41.1		45.2	10.1	49.6	20.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	41.1		45.2	10.1	49.6	20.0
LOS	D		D	B	D	B
Approach Delay	41.1			11.7	31.6	
Approach LOS	D			B	C	
Queue Length 50th (m)	~294.4		7.3	118.9	2.1	0.0
Queue Length 95th (m)	#358.5		#32.9	144.0	6.6	5.9
Internal Link Dist (m)	886.1			87.6	47.0	
Turn Bay Length (m)			75.0			
Base Capacity (vph)	2398		138	2692	272	255
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	1.01		0.71	0.76	0.03	0.05

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 120			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.01			
Intersection Signal Delay: 27.3		Intersection LOS: C	
Intersection Capacity Utilization 82.5%		ICU Level of Service E	
Analysis Period (min) 15			

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

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

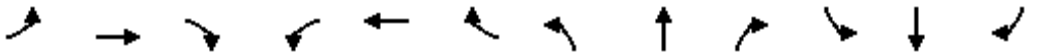
Splits and Phases: 6: Access on William Halton Parkway & William Halton Parkway



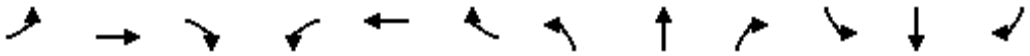
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2176	60	90	1881	8	13
Future Volume (vph)	2176	60	90	1881	8	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	1.00		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3486		1750	3500	1750	1566
Flt Permitted	1.00		0.05	1.00	0.95	1.00
Satd. Flow (perm)	3486		85	3500	1750	1566
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2365	65	98	2045	9	14
RTOR Reduction (vph)	2	0	0	0	0	12
Lane Group Flow (vph)	2428	0	98	2045	9	2
Turn Type	NA		pm+pt	NA	Perm	Perm
Protected Phases	4		3	8		
Permitted Phases			8		5	2
Actuated Green, G (s)	82.5		92.3	92.3	18.7	18.7
Effective Green, g (s)	82.5		92.3	92.3	18.7	18.7
Actuated g/C Ratio	0.69		0.77	0.77	0.16	0.16
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2396		138	2692	272	244
v/s Ratio Prot	c0.70		0.03	c0.58		
v/s Ratio Perm			0.51		c0.01	0.00
v/c Ratio	1.01		0.71	0.76	0.03	0.01
Uniform Delay, d1	18.8		36.6	7.7	43.0	42.8
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	21.8		15.8	1.3	0.0	0.1
Delay (s)	40.6		52.4	9.0	43.0	42.9
Level of Service	D		D	A	D	D
Approach Delay (s)	40.6			11.0	42.9	
Approach LOS	D			B	D	

Intersection Summary			
HCM 2000 Control Delay	26.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	107	37	87	237	32	199	539	75	73	465	20
Future Volume (vph)	49	107	37	87	237	32	199	539	75	73	465	20
Ideal Flow (vphpl)	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)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	0.98		0.97	0.99		0.92	0.98		0.96	0.99	
Frt		0.961			0.982			0.982			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1762	0	1770	1814	0	1770	3398	0	1770	3481	0
Flt Permitted	0.289			0.663			0.469			0.332		
Satd. Flow (perm)	529	1762	0	1201	1814	0	802	3398	0	596	3481	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			7			20			7	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		169.9			629.3			302.6			268.3	
Travel Time (s)		12.2			45.3			21.8			19.3	
Confl. Peds. (#/hr)	30		30	30		30	121		76	76		121
Confl. Bikes (#/hr)			29			29			73			117
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)	51	110	38	90	244	33	205	556	77	75	479	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	148	0	90	277	0	205	633	0	75	500	0
Enter Blocked Intersection	No	No	No	No	No	No	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)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	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	

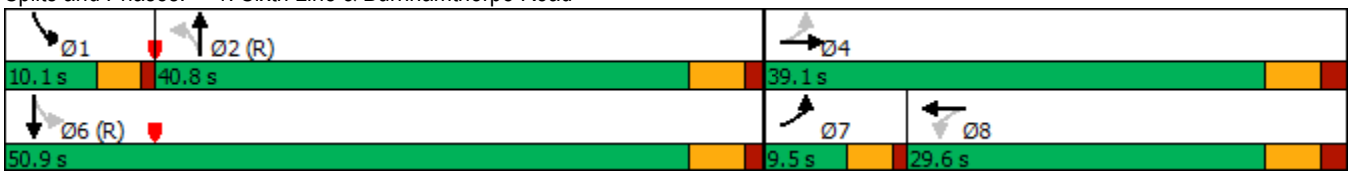


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		1.0	1.0		5.0	5.0	
Minimum Split (s)	9.5	29.6		29.6	29.6		38.1	38.1		10.1	38.1	
Total Split (s)	9.5	39.1		29.6	29.6		40.8	40.8		10.1	50.9	
Total Split (%)	10.6%	43.4%		32.9%	32.9%		45.3%	45.3%		11.2%	56.6%	
Maximum Green (s)	5.5	33.5		24.0	24.0		35.7	35.7		6.1	45.8	
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	Lag		Lead		
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
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)	25.7	24.1		18.4	18.4		46.6	46.6		56.3	55.2	
Actuated g/C Ratio	0.29	0.27		0.20	0.20		0.52	0.52		0.63	0.61	
v/c Ratio	0.23	0.30		0.37	0.74		0.49	0.36		0.16	0.23	
Control Delay	22.3	21.5		33.8	44.3		23.9	15.7		9.9	9.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	22.3	21.5		33.8	44.3		23.9	15.7		9.9	9.5	
LOS	C	C		C	D		C	B		A	A	
Approach Delay		21.7			41.7			17.7			9.6	
Approach LOS		C			D			B			A	
Queue Length 50th (m)	6.0	16.0		13.4	43.9		25.5	36.6		5.3	20.9	
Queue Length 95th (m)	12.5	27.7		25.1	64.8		#54.3	55.1		12.8	34.1	
Internal Link Dist (m)		145.9			605.3			278.6			244.3	
Turn Bay Length (m)	60.0			50.0			50.0			60.0		
Base Capacity (vph)	226	669		320	488		415	1768		460	2139	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.23	0.22		0.28	0.57		0.49	0.36		0.16	0.23	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
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: 0.74	
Intersection Signal Delay: 20.2	Intersection LOS: C

Intersection Capacity Utilization 77.3% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Sixth Line & Burnhamthorpe Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	107	37	87	237	32	199	539	75	73	465	20
Future Volume (vph)	49	107	37	87	237	32	199	539	75	73	465	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.6		5.6	5.6		5.1	5.1		4.0	5.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	0.98		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		0.97	1.00		0.92	1.00		0.99	1.00	
Frt	1.00	0.96		1.00	0.98		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1762	1760		1721	1813		1624	3402		1750	3481	
Flt Permitted	0.29	1.00		0.66	1.00		0.47	1.00		0.33	1.00	
Satd. Flow (perm)	536	1760		1201	1813		801	3402		611	3481	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	51	110	38	90	244	33	205	556	77	75	479	21
RTOR Reduction (vph)	0	16	0	0	6	0	0	10	0	0	3	0
Lane Group Flow (vph)	51	132	0	90	271	0	205	623	0	75	497	0
Confl. Peds. (#/hr)	30		30	30		30	121		76	76		121
Confl. Bikes (#/hr)			29			29			73			117
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		
Actuated Green, G (s)	25.7	25.7		18.4	18.4		44.1	44.1		53.6	53.6	
Effective Green, g (s)	25.7	25.7		18.4	18.4		44.1	44.1		53.6	53.6	
Actuated g/C Ratio	0.29	0.29		0.20	0.20		0.49	0.49		0.60	0.60	
Clearance Time (s)	4.0	5.6		5.6	5.6		5.1	5.1		4.0	5.1	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	198	502		245	370		392	1666		433	2073	
v/s Ratio Prot	0.01	c0.08			c0.15			0.18		0.01	c0.14	
v/s Ratio Perm	0.06			0.07			c0.26			0.09		
v/c Ratio	0.26	0.26		0.37	0.73		0.52	0.37		0.17	0.24	
Uniform Delay, d1	24.4	24.8		30.8	33.5		15.7	14.3		8.2	8.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.3		0.9	7.3		4.9	0.6		0.2	0.3	
Delay (s)	25.1	25.1		31.7	40.9		20.7	15.0		8.4	8.9	
Level of Service	C	C		C	D		C	B		A	A	
Approach Delay (s)		25.1			38.6			16.4			8.8	
Approach LOS		C			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	19.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.7
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2071	192	2	2106	481	6
Future Volume (vph)	2071	192	2	2106	481	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		75.0	75.0		150.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			15.0		15.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.82			0.99	0.94
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	1305	88	3539	1745	1494
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		126				5
Link Speed (k/h)	50			50	50	
Link Distance (m)	165.7			125.2	87.0	
Travel Time (s)	11.9			9.0	6.3	
Confl. Peds. (#/hr)		36	36		6	15
Confl. Bikes (#/hr)		35				15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2251	209	2	2289	523	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2251	209	2	2289	523	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)	3.0			3.0	3.0	
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		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	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	22.9	22.9	23.5	23.5
Total Split (s)	90.0	90.0	90.0	90.0	50.0	50.0
Total Split (%)	64.3%	64.3%	64.3%	64.3%	35.7%	35.7%
Maximum Green (s)	85.1	85.1	85.1	85.1	44.5	44.5
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 Effct Green (s)	86.0	86.0	86.0	86.0	43.6	43.6
Actuated g/C Ratio	0.61	0.61	0.61	0.61	0.31	0.31
v/c Ratio	1.04	0.25	0.04	1.05	0.96	0.01
Control Delay	56.4	5.6	13.0	62.2	77.9	22.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.4	5.6	13.0	62.2	77.9	22.0
LOS	E	A	B	E	E	C
Approach Delay	52.0			62.2	77.2	
Approach LOS	D			E	E	
Queue Length 50th (m)	~355.3	9.2	0.2	~366.8	141.2	0.4
Queue Length 95th (m)	#394.9	20.8	1.6	#406.1	#210.1	4.0
Internal Link Dist (m)	141.7			101.2	63.0	
Turn Bay Length (m)		75.0	75.0		150.0	
Base Capacity (vph)	2174	850	54	2174	554	478
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	1.04	0.25	0.04	1.05	0.94	0.01

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay: 59.0		Intersection LOS: E	

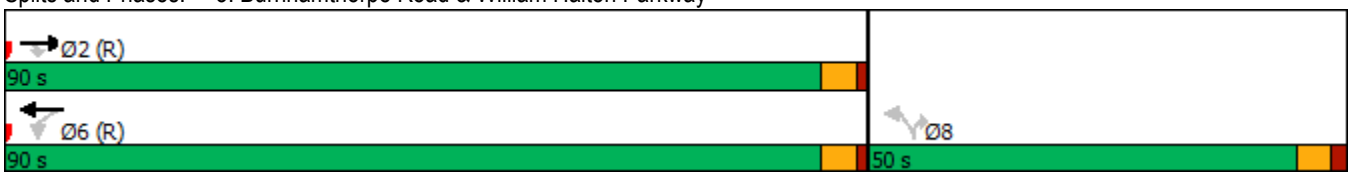
Intersection Capacity Utilization 93.5% ICU Level of Service F

Analysis Period (min) 15

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

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

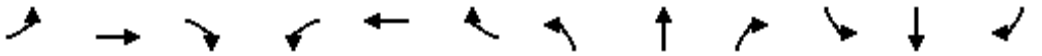
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2071	192	2	2106	481	6
Future Volume (vph)	2071	192	2	2106	481	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.82	1.00	1.00	1.00	0.94
Flpb, ped/bikes	1.00	1.00	1.00	1.00	0.99	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1306	1770	3539	1745	1494
Flt Permitted	1.00	1.00	0.05	1.00	0.95	1.00
Satd. Flow (perm)	3539	1306	87	3539	1745	1494
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2251	209	2	2289	523	7
RTOR Reduction (vph)	0	49	0	0	0	3
Lane Group Flow (vph)	2251	160	2	2289	523	4
Confl. Peds. (#/hr)		36	36		6	15
Confl. Bikes (#/hr)		35				15
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8
Actuated Green, G (s)	86.0	86.0	86.0	86.0	43.6	43.6
Effective Green, g (s)	86.0	86.0	86.0	86.0	43.6	43.6
Actuated g/C Ratio	0.61	0.61	0.61	0.61	0.31	0.31
Clearance Time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2173	802	53	2173	543	465
v/s Ratio Prot	0.64			c0.65		
v/s Ratio Perm		0.12	0.02		c0.30	0.00
v/c Ratio	1.04	0.20	0.04	1.05	0.96	0.01
Uniform Delay, d1	27.0	11.9	10.7	27.0	47.4	33.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	29.3	0.6	1.3	35.2	29.3	0.0
Delay (s)	56.3	12.4	12.0	62.2	76.7	33.3
Level of Service	E	B	B	E	E	C
Approach Delay (s)	52.6			62.1	76.1	
Approach LOS	D			E	E	

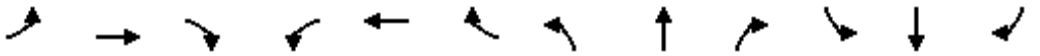
Intersection Summary			
HCM 2000 Control Delay	59.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	93.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	19	267	11	25	19	183	435	7	17	328	90
Future Volume (vph)	12	19	267	11	25	19	183	435	7	17	328	90
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	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt		0.879			0.953			0.998			0.969	
Flt Protected		0.998			0.990			0.986			0.998	
Satd. Flow (prot)	0	1634	0	0	1757	0	0	3483	0	0	3423	0
Flt Permitted		0.998			0.990			0.986			0.998	
Satd. Flow (perm)	0	1634	0	0	1757	0	0	3483	0	0	3423	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		93.7			101.2			268.3			412.8	
Travel Time (s)		6.7			7.3			19.3			29.7	
Confl. Peds. (#/hr)	45		30	30		45	136		30	30		136
Confl. Bikes (#/hr)			29			44			29			131
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	21	290	12	27	21	199	473	8	18	357	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	324	0	0	60	0	0	680	0	0	473	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	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	

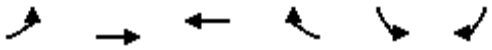
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	19	267	11	25	19	183	435	7	17	328	90
Future Volume (Veh/h)	12	19	267	11	25	19	183	435	7	17	328	90
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	21	290	12	27	21	199	473	8	18	357	98
Pedestrians		136			30			30			45	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		14			3			3			4	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								268				
pX, platoon unblocked	0.93	0.93		0.93	0.93	0.93				0.93		
vC, conflicting volume	1292	1487	394	1450	1532	316	591			511		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1166	1375	394	1336	1424	118	591			328		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	78	75	43	51	66	97	77			98		
cM capacity (veh/h)	60	85	507	25	79	787	847			1110		

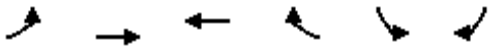
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	324	60	436	244	196	276
Volume Left	13	12	199	0	18	0
Volume Right	290	21	0	8	0	98
cSH	312	70	847	1700	1110	1700
Volume to Capacity	1.04	0.86	0.23	0.14	0.02	0.16
Queue Length 95th (m)	89.5	31.6	6.9	0.0	0.4	0.0
Control Delay (s)	98.8	168.7	6.4	0.0	0.9	0.0
Lane LOS	F	F	A		A	
Approach Delay (s)	98.8	168.7	4.1		0.4	
Approach LOS	F	F				

Intersection Summary				
Average Delay	29.3			
Intersection Capacity Utilization	62.9%	ICU Level of Service	B	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	193	257	199	0	78
Future Volume (vph)	0	193	257	199	0	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.941			0.865
Flt Protected						
Satd. Flow (prot)	0	1863	1753	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	1863	1753	0	0	1611
Link Speed (k/h)		50	50		50	
Link Distance (m)		826.9	169.9		123.2	
Travel Time (s)		59.5	12.2		8.9	
Confl. Peds. (#/hr)				106		
Confl. Bikes (#/hr)				102		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	210	279	216	0	85
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	210	495	0	0	85
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	193	257	199	0	78
Future Volume (Veh/h)	0	193	257	199	0	78
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	210	279	216	0	85
Pedestrians					106	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.0	
Percent Blockage					11	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			170			
pX, platoon unblocked	0.83				0.83	0.83
vC, conflicting volume	601				703	493
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	415				539	285
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	85
cM capacity (veh/h)	847				373	559

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	210	495	85
Volume Left	0	0	0
Volume Right	0	216	85
cSH	1700	1700	559
Volume to Capacity	0.12	0.29	0.15
Queue Length 95th (m)	0.0	0.0	4.1
Control Delay (s)	0.0	0.0	12.6
Lane LOS			B
Approach Delay (s)	0.0	0.0	12.6
Approach LOS			B

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2176	60	90	1881	8	13
Future Volume (vph)	2176	60	90	1881	8	13
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	0.996					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3525	0	1770	3539	1770	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3525	0	1770	3539	1770	1583
Link Speed (k/h)	50			50	50	
Link Distance (m)	910.1			111.6	71.0	
Travel Time (s)	65.5			8.0	5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2365	65	98	2045	9	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2430	0	98	2045	9	14
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)	3.0			3.0	3.0	
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	

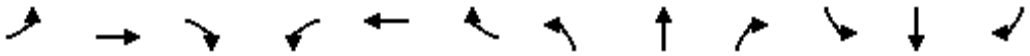
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 80.4%		ICU Level of Service D	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2176	60	90	1881	8	13
Future Volume (Veh/h)	2176	60	90	1881	8	13
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2365	65	98	2045	9	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			2430		3616	1215
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2430		3616	1215
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			49		0	92
cM capacity (veh/h)			191		2	173

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	1577	853	98	1022	1022	9	14
Volume Left	0	0	98	0	0	9	0
Volume Right	0	65	0	0	0	0	14
cSH	1700	1700	191	1700	1700	2	173
Volume to Capacity	0.93	0.50	0.51	0.60	0.60	4.77	0.08
Queue Length 95th (m)	0.0	0.0	19.6	0.0	0.0	Err	2.0
Control Delay (s)	0.0	0.0	42.1	0.0	0.0	Err	27.6
Lane LOS			E			F	D
Approach Delay (s)	0.0		1.9			3929.4	
Approach LOS						F	

Intersection Summary			
Average Delay	20.6		
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	107	37	87	237	32	199	539	75	73	465	20
Future Volume (vph)	49	107	37	87	237	32	199	539	75	73	465	20
Ideal Flow (vphpl)	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)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	0.98		0.97	0.99		0.92	0.98		0.96	0.99	
Frt		0.961			0.982			0.982			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1762	0	1770	1814	0	1770	3398	0	1770	3481	0
Flt Permitted	0.289			0.663			0.469			0.332		
Satd. Flow (perm)	529	1762	0	1201	1814	0	802	3398	0	596	3481	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			7			20			7	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		169.9			629.3			302.6			268.3	
Travel Time (s)		12.2			45.3			21.8			19.3	
Confl. Peds. (#/hr)	30		30	30		30	121		76	76		121
Confl. Bikes (#/hr)			29			29			73			117
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)	51	110	38	90	244	33	205	556	77	75	479	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	148	0	90	277	0	205	633	0	75	500	0
Enter Blocked Intersection	No	No	No	No	No	No	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)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	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	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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		1.0	1.0		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)	9.5	39.1		29.6	29.6		40.8	40.8		10.1	50.9	
Total Split (%)	10.6%	43.4%		32.9%	32.9%		45.3%	45.3%		11.2%	56.6%	
Maximum Green (s)	5.5	33.5		24.0	24.0		35.7	35.7		6.1	45.8	
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	Lag		Lead		
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
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)	25.7	24.1		18.4	18.4		46.6	46.6		56.3	55.2	
Actuated g/C Ratio	0.29	0.27		0.20	0.20		0.52	0.52		0.63	0.61	
v/c Ratio	0.23	0.30		0.37	0.74		0.49	0.36		0.16	0.23	
Control Delay	22.3	21.5		33.8	44.3		23.9	15.7		9.9	9.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	22.3	21.5		33.8	44.3		23.9	15.7		9.9	9.5	
LOS	C	C		C	D		C	B		A	A	
Approach Delay		21.7			41.7			17.7			9.6	
Approach LOS		C			D			B			A	
Queue Length 50th (m)	6.0	16.0		13.4	43.9		25.5	36.6		5.3	20.9	
Queue Length 95th (m)	12.5	27.7		25.1	64.8		#54.3	55.1		12.8	34.1	
Internal Link Dist (m)		145.9			605.3			278.6			244.3	
Turn Bay Length (m)	60.0			50.0			50.0			60.0		
Base Capacity (vph)	226	669		320	488		415	1768		460	2139	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.23	0.22		0.28	0.57		0.49	0.36		0.16	0.23	

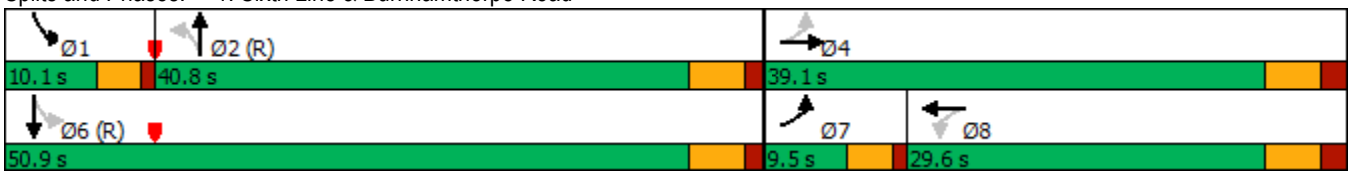
Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 20.2	Intersection LOS: C

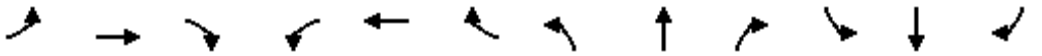
Intersection Capacity Utilization 77.3% ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 1: Sixth Line & Burnhamthorpe Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	107	37	87	237	32	199	539	75	73	465	20
Future Volume (vph)	49	107	37	87	237	32	199	539	75	73	465	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.6		5.6	5.6		5.1	5.1		4.0	5.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	0.98		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		0.97	1.00		0.92	1.00		0.99	1.00	
Frt	1.00	0.96		1.00	0.98		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1762	1760		1721	1813		1624	3402		1750	3481	
Flt Permitted	0.29	1.00		0.66	1.00		0.47	1.00		0.33	1.00	
Satd. Flow (perm)	536	1760		1201	1813		801	3402		611	3481	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	51	110	38	90	244	33	205	556	77	75	479	21
RTOR Reduction (vph)	0	16	0	0	6	0	0	10	0	0	3	0
Lane Group Flow (vph)	51	132	0	90	271	0	205	623	0	75	497	0
Confl. Peds. (#/hr)	30		30	30		30	121		76	76		121
Confl. Bikes (#/hr)			29			29			73			117
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		
Actuated Green, G (s)	25.7	25.7		18.4	18.4		44.1	44.1		53.6	53.6	
Effective Green, g (s)	25.7	25.7		18.4	18.4		44.1	44.1		53.6	53.6	
Actuated g/C Ratio	0.29	0.29		0.20	0.20		0.49	0.49		0.60	0.60	
Clearance Time (s)	4.0	5.6		5.6	5.6		5.1	5.1		4.0	5.1	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	198	502		245	370		392	1666		433	2073	
v/s Ratio Prot	0.01	c0.08			c0.15			0.18		0.01	c0.14	
v/s Ratio Perm	0.06			0.07			c0.26			0.09		
v/c Ratio	0.26	0.26		0.37	0.73		0.52	0.37		0.17	0.24	
Uniform Delay, d1	24.4	24.8		30.8	33.5		15.7	14.3		8.2	8.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.3		0.9	7.3		4.9	0.6		0.2	0.3	
Delay (s)	25.1	25.1		31.7	40.9		20.7	15.0		8.4	8.9	
Level of Service	C	C		C	D		C	B		A	A	
Approach Delay (s)		25.1			38.6			16.4			8.8	
Approach LOS		C			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	19.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.7
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2071	192	2	2106	481	6
Future Volume (vph)	2071	192	2	2106	481	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		75.0	75.0		150.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			15.0		15.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.82			0.99	0.94
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	1305	88	3539	1745	1494
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		126				5
Link Speed (k/h)	50			50	50	
Link Distance (m)	165.7			125.2	87.0	
Travel Time (s)	11.9			9.0	6.3	
Confl. Peds. (#/hr)		36	36		6	15
Confl. Bikes (#/hr)		35				15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2251	209	2	2289	523	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2251	209	2	2289	523	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)	3.0			3.0	3.0	
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		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	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	22.9	22.9	23.5	23.5
Total Split (s)	90.0	90.0	90.0	90.0	50.0	50.0
Total Split (%)	64.3%	64.3%	64.3%	64.3%	35.7%	35.7%
Maximum Green (s)	85.1	85.1	85.1	85.1	44.5	44.5
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 Effct Green (s)	86.0	86.0	86.0	86.0	43.6	43.6
Actuated g/C Ratio	0.61	0.61	0.61	0.61	0.31	0.31
v/c Ratio	1.04	0.25	0.04	1.05	0.96	0.01
Control Delay	56.4	5.6	13.0	62.2	77.9	22.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.4	5.6	13.0	62.2	77.9	22.0
LOS	E	A	B	E	E	C
Approach Delay	52.0			62.2	77.2	
Approach LOS	D			E	E	
Queue Length 50th (m)	~355.3	9.2	0.2	~366.8	141.2	0.4
Queue Length 95th (m)	#394.9	20.8	1.6	#406.1	#210.1	4.0
Internal Link Dist (m)	141.7			101.2	63.0	
Turn Bay Length (m)		75.0	75.0		150.0	
Base Capacity (vph)	2174	850	54	2174	554	478
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	1.04	0.25	0.04	1.05	0.94	0.01

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 140	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 59.0	Intersection LOS: E

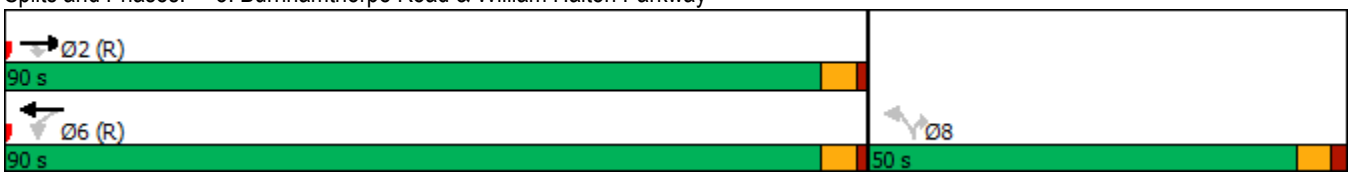
Intersection Capacity Utilization 93.5% ICU Level of Service F

Analysis Period (min) 15

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

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

Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway

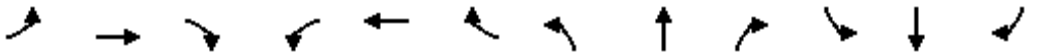


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2071	192	2	2106	481	6
Future Volume (vph)	2071	192	2	2106	481	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.82	1.00	1.00	1.00	0.94
Flpb, ped/bikes	1.00	1.00	1.00	1.00	0.99	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1306	1770	3539	1745	1494
Flt Permitted	1.00	1.00	0.05	1.00	0.95	1.00
Satd. Flow (perm)	3539	1306	87	3539	1745	1494
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2251	209	2	2289	523	7
RTOR Reduction (vph)	0	49	0	0	0	3
Lane Group Flow (vph)	2251	160	2	2289	523	4
Confl. Peds. (#/hr)		36	36		6	15
Confl. Bikes (#/hr)		35				15
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8
Actuated Green, G (s)	86.0	86.0	86.0	86.0	43.6	43.6
Effective Green, g (s)	86.0	86.0	86.0	86.0	43.6	43.6
Actuated g/C Ratio	0.61	0.61	0.61	0.61	0.31	0.31
Clearance Time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2173	802	53	2173	543	465
v/s Ratio Prot	0.64			c0.65		
v/s Ratio Perm		0.12	0.02		c0.30	0.00
v/c Ratio	1.04	0.20	0.04	1.05	0.96	0.01
Uniform Delay, d1	27.0	11.9	10.7	27.0	47.4	33.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	29.3	0.6	1.3	35.2	29.3	0.0
Delay (s)	56.3	12.4	12.0	62.2	76.7	33.3
Level of Service	E	B	B	E	E	C
Approach Delay (s)	52.6			62.1	76.1	
Approach LOS	D			E	E	

Intersection Summary			
HCM 2000 Control Delay	59.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	93.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

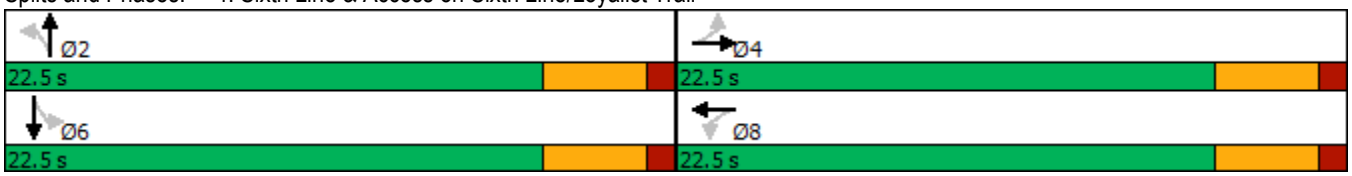
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	19	267	11	25	19	183	435	7	17	328	90
Future Volume (vph)	12	19	267	11	25	19	183	435	7	17	328	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.95			0.97			0.97			0.94	
Frt		0.879			0.953			0.998			0.969	
Flt Protected		0.998			0.990			0.986			0.998	
Satd. Flow (prot)	0	1562	0	0	1716	0	0	3479	0	0	3219	0
Flt Permitted		0.988			0.926			0.710			0.925	
Satd. Flow (perm)	0	1544	0	0	1601	0	0	2441	0	0	2982	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		137			21			3			87	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		93.7			101.2			268.3			412.8	
Travel Time (s)		6.7			7.3			19.3			29.7	
Confl. Peds. (#/hr)	45		30	30		45	136		30	30		136
Confl. Bikes (#/hr)			29			44			29			131
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	21	290	12	27	21	199	473	8	18	357	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	324	0	0	60	0	0	680	0	0	473	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	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		

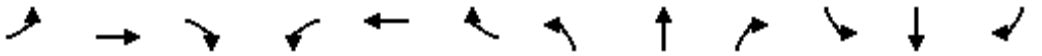


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	18.0	18.0		18.0	18.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
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)	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)		10.4			10.4			19.8			19.8	
Actuated g/C Ratio		0.26			0.26			0.50			0.50	
v/c Ratio		0.64			0.14			0.55			0.31	
Control Delay		12.7			7.7			10.0			6.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		12.7			7.7			10.0			6.2	
LOS		B			A			B			A	
Approach Delay		12.7			7.7			10.0			6.2	
Approach LOS		B			A			B			A	
Queue Length 50th (m)		9.5			1.8			13.5			6.4	
Queue Length 95th (m)		24.2			6.7			34.9			17.6	
Internal Link Dist (m)		69.7			77.2			244.3			388.8	
Turn Bay Length (m)												
Base Capacity (vph)		786			750			1232			1546	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.41			0.08			0.55			0.31	

Intersection Summary			
Area Type:	Other		
Cycle Length: 45			
Actuated Cycle Length: 39.3			
Natural Cycle: 45			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 9.3		Intersection LOS: A	
Intersection Capacity Utilization 65.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 4: Sixth Line & Access on Sixth Line/Loyalist Trail

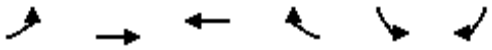




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	19	267	11	25	19	183	435	7	17	328	90
Future Volume (vph)	12	19	267	11	25	19	183	435	7	17	328	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.95			0.97			1.00			0.95	
Flpb, ped/bikes		1.00			1.00			0.98			1.00	
Frt		0.88			0.95			1.00			0.97	
Flt Protected		1.00			0.99			0.99			1.00	
Satd. Flow (prot)		1553			1707			3401			3246	
Flt Permitted		0.99			0.93			0.71			0.93	
Satd. Flow (perm)		1537			1597			2450			3009	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	21	290	12	27	21	199	473	8	18	357	98
RTOR Reduction (vph)	0	101	0	0	15	0	0	1	0	0	43	0
Lane Group Flow (vph)	0	223	0	0	45	0	0	679	0	0	430	0
Confl. Peds. (#/hr)	45		30	30		45	136		30	30		136
Confl. Bikes (#/hr)			29			44			29			131
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		10.4			10.4			19.8			19.8	
Effective Green, g (s)		10.4			10.4			19.8			19.8	
Actuated g/C Ratio		0.27			0.27			0.51			0.51	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		407			423			1237			1519	
v/s Ratio Prot												
v/s Ratio Perm		c0.15			0.03			c0.28			0.14	
v/c Ratio		0.55			0.11			0.55			0.28	
Uniform Delay, d1		12.4			10.9			6.6			5.6	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.5			0.1			1.8			0.5	
Delay (s)		13.9			11.0			8.4			6.1	
Level of Service		B			B			A			A	
Approach Delay (s)		13.9			11.0			8.4			6.1	
Approach LOS		B			B			A			A	

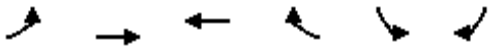
Intersection Summary			
HCM 2000 Control Delay	8.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	39.2	Sum of lost time (s)	9.0
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	193	257	199	0	78
Future Volume (vph)	0	193	257	199	0	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.941			0.865
Flt Protected						
Satd. Flow (prot)	0	1863	1753	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	1863	1753	0	0	1611
Link Speed (k/h)		50	50		50	
Link Distance (m)		826.9	169.9		123.2	
Travel Time (s)		59.5	12.2		8.9	
Confl. Peds. (#/hr)				106		
Confl. Bikes (#/hr)				102		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	210	279	216	0	85
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	210	495	0	0	85
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	193	257	199	0	78
Future Volume (Veh/h)	0	193	257	199	0	78
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	210	279	216	0	85
Pedestrians					106	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.0	
Percent Blockage					11	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			170			
pX, platoon unblocked	0.83				0.83	0.83
vC, conflicting volume	601				703	493
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	415				539	285
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	85
cM capacity (veh/h)	847				373	559

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	210	495	85
Volume Left	0	0	0
Volume Right	0	216	85
cSH	1700	1700	559
Volume to Capacity	0.12	0.29	0.15
Queue Length 95th (m)	0.0	0.0	4.1
Control Delay (s)	0.0	0.0	12.6
Lane LOS			B
Approach Delay (s)	0.0	0.0	12.6
Approach LOS			B

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2176	60	90	1881	8	13
Future Volume (vph)	2176	60	90	1881	8	13
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	0.996					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3525	0	1770	3539	1770	1583
Flt Permitted			0.052		0.950	
Satd. Flow (perm)	3525	0	97	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	5					14
Link Speed (k/h)	50			50	50	
Link Distance (m)	910.1			111.6	71.0	
Travel Time (s)	65.5			8.0	5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2365	65	98	2045	9	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2430	0	98	2045	9	14
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)	3.0			3.0	3.0	
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		pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0

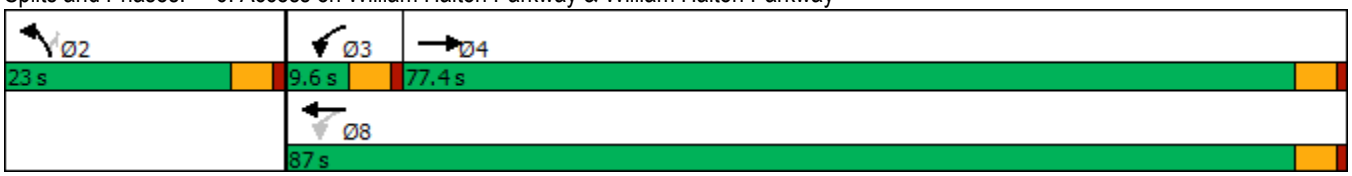
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Split (s)	22.5		9.5	22.5	22.5	22.5
Total Split (s)	77.4		9.6	87.0	23.0	23.0
Total Split (%)	70.4%		8.7%	79.1%	20.9%	20.9%
Maximum Green (s)	72.9		5.1	82.5	18.5	18.5
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	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	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	None	Max	Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	11.0			11.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	72.9		82.5	82.5	18.5	18.5
Actuated g/C Ratio	0.66		0.75	0.75	0.17	0.17
v/c Ratio	1.04		0.65	0.77	0.03	0.05
Control Delay	49.6		34.6	10.7	38.8	18.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	49.6		34.6	10.7	38.8	18.0
LOS	D		C	B	D	B
Approach Delay	49.6			11.8	26.1	
Approach LOS	D			B	C	
Queue Length 50th (m)	~297.4		4.9	116.0	1.6	0.0
Queue Length 95th (m)	#339.4		#27.7	143.2	6.1	5.5
Internal Link Dist (m)	886.1			87.6	47.0	
Turn Bay Length (m)						
Base Capacity (vph)	2337		150	2654	297	277
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	1.04		0.65	0.77	0.03	0.05

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.04			
Intersection Signal Delay: 31.9		Intersection LOS: C	
Intersection Capacity Utilization 82.5%		ICU Level of Service E	
Analysis Period (min) 15			

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

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

Splits and Phases: 6: Access on William Halton Parkway & William Halton Parkway

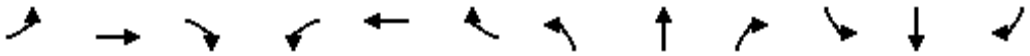


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2176	60	90	1881	8	13
Future Volume (vph)	2176	60	90	1881	8	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	1.00		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3525		1770	3539	1770	1583
Flt Permitted	1.00		0.05	1.00	0.95	1.00
Satd. Flow (perm)	3525		96	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2365	65	98	2045	9	14
RTOR Reduction (vph)	2	0	0	0	0	12
Lane Group Flow (vph)	2428	0	98	2045	9	2
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases			8			2
Actuated Green, G (s)	72.9		82.5	82.5	18.5	18.5
Effective Green, g (s)	72.9		82.5	82.5	18.5	18.5
Actuated g/C Ratio	0.66		0.75	0.75	0.17	0.17
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2336		149	2654	297	266
v/s Ratio Prot	c0.69		0.03	c0.58	c0.01	
v/s Ratio Perm			0.46			0.00
v/c Ratio	1.04		0.66	0.77	0.03	0.01
Uniform Delay, d1	18.5		29.9	8.1	38.3	38.1
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	29.9		10.0	1.4	0.2	0.1
Delay (s)	48.4		39.9	9.6	38.4	38.2
Level of Service	D		D	A	D	D
Approach Delay (s)	48.4			11.0	38.3	
Approach LOS	D			B	D	

Intersection Summary			
HCM 2000 Control Delay	30.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	52	43	131	268	21	105	494	70	62	647	25
Future Volume (vph)	24	52	43	131	268	21	105	494	70	62	647	25
Ideal Flow (vphpl)	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	0		0	0		0	0		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			0.99			0.99			1.00	
Frt		0.951			0.993			0.986			0.995	
Flt Protected		0.990			0.985			0.992			0.996	
Satd. Flow (prot)	0	1706	0	0	1798	0	0	1790	0	0	1820	0
Flt Permitted		0.864			0.862			0.776			0.901	
Satd. Flow (perm)	0	1487	0	0	1567	0	0	1398	0	0	1645	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			3			12			4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		169.9			629.3			302.6			268.3	
Travel Time (s)		12.2			45.3			21.8			19.3	
Confl. Peds. (#/hr)	9		9	9		9	37		23	23		37
Confl. Bikes (#/hr)			9			9			23			36
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)	26	55	46	139	285	22	112	526	74	66	688	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	127	0	0	446	0	0	712	0	0	781	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		1.0	1.0		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)	30.0	30.0		30.0	30.0		50.0	50.0		50.0	50.0	
Total Split (%)	37.5%	37.5%		37.5%	37.5%		62.5%	62.5%		62.5%	62.5%	
Maximum Green (s)	24.4	24.4		24.4	24.4		44.9	44.9		44.9	44.9	
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)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.6			5.6			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)	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 Effct Green (s)		24.0			24.0			45.3			45.3	
Actuated g/C Ratio		0.30			0.30			0.57			0.57	
v/c Ratio		0.27			0.94			0.89			0.84	
Control Delay		16.8			59.3			31.8			24.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		16.8			59.3			31.8			24.7	
LOS		B			E			C			C	
Approach Delay		16.8			59.3			31.8			24.7	
Approach LOS		B			E			C			C	
Queue Length 50th (m)		10.0			64.8			87.4			91.0	
Queue Length 95th (m)		22.8			#119.9			#163.9			#166.3	
Internal Link Dist (m)		145.9			605.3			278.6			244.3	
Turn Bay Length (m)												
Base Capacity (vph)		479			480			796			934	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.27			0.93			0.89			0.84	

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
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: 0.94	
Intersection Signal Delay: 34.1	Intersection LOS: C

Intersection Capacity Utilization 97.3% ICU Level of Service F

Analysis Period (min) 15

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

Splits and Phases: 1: Sixth Line & Burnhamthorpe Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	52	43	131	268	21	105	494	70	62	647	25
Future Volume (vph)	24	52	43	131	268	21	105	494	70	62	647	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.6			5.6			5.1			5.1	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.98			1.00			0.99			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.95			0.99			0.99			1.00	
Flt Protected		0.99			0.98			0.99			1.00	
Satd. Flow (prot)		1704			1791			1787			1819	
Flt Permitted		0.86			0.86			0.78			0.90	
Satd. Flow (perm)		1487			1567			1397			1646	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	26	55	46	139	285	22	112	526	74	66	688	27
RTOR Reduction (vph)	0	26	0	0	2	0	0	5	0	0	2	0
Lane Group Flow (vph)	0	101	0	0	444	0	0	707	0	0	779	0
Confl. Peds. (#/hr)	9		9	9		9	37		23	23		37
Confl. Bikes (#/hr)			9			9			23			36
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0			24.0			45.3			45.3	
Effective Green, g (s)		24.0			24.0			45.3			45.3	
Actuated g/C Ratio		0.30			0.30			0.57			0.57	
Clearance Time (s)		5.6			5.6			5.1			5.1	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		446			470			791			932	
v/s Ratio Prot												
v/s Ratio Perm		0.07			c0.28			c0.51			0.47	
v/c Ratio		0.23			0.94			0.89			0.84	
Uniform Delay, d1		21.0			27.3			15.2			14.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.3			27.8			14.6			8.8	
Delay (s)		21.3			55.2			29.9			23.1	
Level of Service		C			E			C			C	
Approach Delay (s)		21.3			55.2			29.9			23.1	
Approach LOS		C			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	32.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.7
Intersection Capacity Utilization	97.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1889	255	7	2145	441	4
Future Volume (vph)	1889	255	7	2145	441	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		75.0	75.0		150.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			15.0		15.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.95			1.00	0.98
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3500	1566	1750	3500	1750	1566
Flt Permitted			0.045		0.950	
Satd. Flow (perm)	3500	1482	83	3500	1746	1532
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		190				3
Link Speed (k/h)	50			50	50	
Link Distance (m)	165.7			115.3	115.4	
Travel Time (s)	11.9			8.3	8.3	
Confl. Peds. (#/hr)		11	11		2	5
Confl. Bikes (#/hr)		11				5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2053	277	8	2332	479	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2053	277	8	2332	479	4
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	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		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	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)	32.9	32.9	32.9	32.9	39.5	39.5
Total Split (s)	92.0	92.0	92.0	92.0	48.0	48.0
Total Split (%)	65.7%	65.7%	65.7%	65.7%	34.3%	34.3%
Maximum Green (s)	87.1	87.1	87.1	87.1	42.5	42.5
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)	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)	88.9	88.9	88.9	88.9	40.7	40.7
Actuated g/C Ratio	0.64	0.64	0.64	0.64	0.29	0.29
v/c Ratio	0.92	0.27	0.15	1.05	0.94	0.01
Control Delay	31.6	4.4	19.4	59.8	76.4	24.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.6	4.4	19.4	59.8	76.4	24.0
LOS	C	A	B	E	E	C
Approach Delay	28.3			59.7	75.9	
Approach LOS	C			E	E	
Queue Length 50th (m)	258.7	9.2	0.9	~375.8	127.5	0.2
Queue Length 95th (m)	#308.4	21.1	4.4	#415.2	#190.1	3.1
Internal Link Dist (m)	141.7			91.3	91.4	
Turn Bay Length (m)		75.0	75.0		150.0	
Base Capacity (vph)	2221	1009	52	2221	530	467
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	0.92	0.27	0.15	1.05	0.90	0.01

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 140	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 47.0	Intersection LOS: D

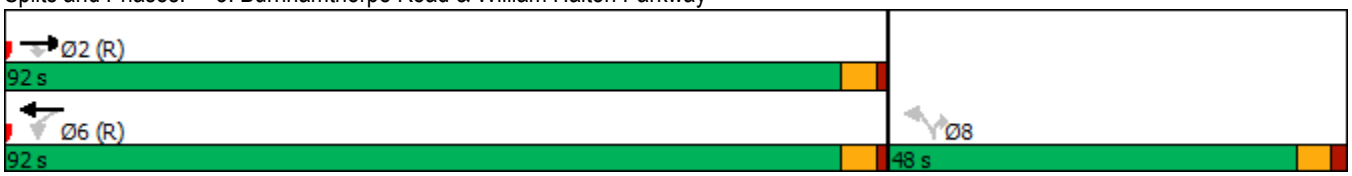
Intersection Capacity Utilization 93.0% ICU Level of Service F

Analysis Period (min) 15

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

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

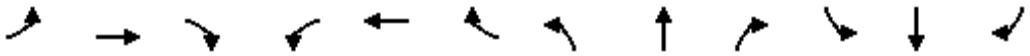
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1889	255	7	2145	441	4
Future Volume (vph)	1889	255	7	2145	441	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.95	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3500	1482	1750	3500	1746	1532
Flt Permitted	1.00	1.00	0.04	1.00	0.95	1.00
Satd. Flow (perm)	3500	1482	83	3500	1746	1532
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2053	277	8	2332	479	4
RTOR Reduction (vph)	0	69	0	0	0	2
Lane Group Flow (vph)	2053	208	8	2332	479	2
Confl. Peds. (#/hr)		11	11		2	5
Confl. Bikes (#/hr)		11				5
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8
Actuated Green, G (s)	88.9	88.9	88.9	88.9	40.7	40.7
Effective Green, g (s)	88.9	88.9	88.9	88.9	40.7	40.7
Actuated g/C Ratio	0.64	0.64	0.64	0.64	0.29	0.29
Clearance Time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2222	941	52	2222	507	445
v/s Ratio Prot	0.59			c0.67		
v/s Ratio Perm		0.14	0.10		c0.27	0.00
v/c Ratio	0.92	0.22	0.15	1.05	0.94	0.00
Uniform Delay, d1	22.6	10.8	10.3	25.5	48.6	35.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.0	0.5	6.2	33.6	26.5	0.0
Delay (s)	30.5	11.4	16.5	59.2	75.1	35.3
Level of Service	C	B	B	E	E	D
Approach Delay (s)	28.3			59.1	74.8	
Approach LOS	C			E	E	

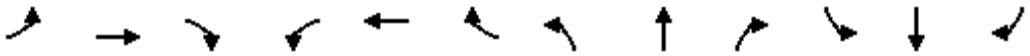
Intersection Summary			
HCM 2000 Control Delay	46.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	93.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	13	194	10	9	25	59	486	13	12	539	30
Future Volume (vph)	8	13	194	10	9	25	59	486	13	12	539	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.878			0.924			0.997			0.993	
Flt Protected		0.998			0.989			0.995			0.999	
Satd. Flow (prot)	0	1614	0	0	1683	0	0	1827	0	0	1827	0
Flt Permitted		0.998			0.989			0.995			0.999	
Satd. Flow (perm)	0	1614	0	0	1683	0	0	1827	0	0	1827	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		93.7			81.5			268.3			172.3	
Travel Time (s)		6.7			5.9			19.3			12.4	
Confl. Peds. (#/hr)	14		9	9		14	42		9	9		42
Confl. Bikes (#/hr)			9			14			9			41
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	14	211	11	10	27	64	528	14	13	586	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	234	0	0	48	0	0	606	0	0	632	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

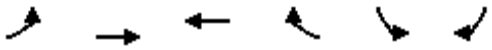
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 79.3%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	13	194	10	9	25	59	486	13	12	539	30
Future Volume (Veh/h)	8	13	194	10	9	25	59	486	13	12	539	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	14	211	11	10	27	64	528	14	13	586	33
Pedestrians		42			9			9			14	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		4			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								268				
pX, platoon unblocked	0.78	0.78		0.78	0.78	0.78				0.78		
vC, conflicting volume	1380	1350	654	1528	1359	558	661			551		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1346	1308	654	1535	1320	297	661			288		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	88	87	52	65	91	95	93			99		
cM capacity (veh/h)	76	109	444	31	107	568	889			989		

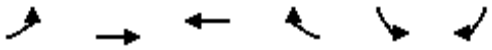
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	234	48	606	632
Volume Left	9	11	64	13
Volume Right	211	27	14	33
cSH	324	97	889	989
Volume to Capacity	0.72	0.49	0.07	0.01
Queue Length 95th (m)	40.3	16.4	1.8	0.3
Control Delay (s)	40.3	73.7	1.9	0.4
Lane LOS	E	F	A	A
Approach Delay (s)	40.3	73.7	1.9	0.4
Approach LOS	E	F		

Intersection Summary				
Average Delay	9.4			
Intersection Capacity Utilization	79.3%	ICU Level of Service	D	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	119	332	65	0	57
Future Volume (vph)	0	119	332	65	0	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.978			0.865
Flt Protected						
Satd. Flow (prot)	0	1842	1802	0	0	1593
Flt Permitted						
Satd. Flow (perm)	0	1842	1802	0	0	1593
Link Speed (k/h)		50	50		50	
Link Distance (m)		778.9	169.9		123.2	
Travel Time (s)		56.1	12.2		8.9	
Confl. Peds. (#/hr)				33		
Confl. Bikes (#/hr)				32		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	129	361	71	0	62
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	129	432	0	0	62
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.1%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	119	332	65	0	57
Future Volume (Veh/h)	0	119	332	65	0	57
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	129	361	71	0	62
Pedestrians					33	
Lane Width (m)					3.5	
Walking Speed (m/s)					1.0	
Percent Blockage					3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			170			
pX, platoon unblocked	0.86				0.86	0.86
vC, conflicting volume	465				558	430
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	299				407	258
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	90
cM capacity (veh/h)	1053				500	651

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	129	432	62
Volume Left	0	0	0
Volume Right	0	71	62
cSH	1700	1700	651
Volume to Capacity	0.08	0.25	0.10
Queue Length 95th (m)	0.0	0.0	2.4
Control Delay (s)	0.0	0.0	11.1
Lane LOS			B
Approach Delay (s)	0.0	0.0	11.1
Approach LOS			B

Intersection Summary			
Average Delay		1.1	
Intersection Capacity Utilization		32.1%	ICU Level of Service
Analysis Period (min)		15	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2126	8	13	1907	52	77
Future Volume (vph)	2126	8	13	1907	52	77
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)			15.0		15.0	
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)	3496	0	1750	3500	1750	1566
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3496	0	1750	3500	1750	1566
Link Speed (k/h)	50			50	50	
Link Distance (m)	910.1			111.6	71.0	
Travel Time (s)	65.5			8.0	5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2311	9	14	2073	57	84
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2320	0	14	2073	57	84
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

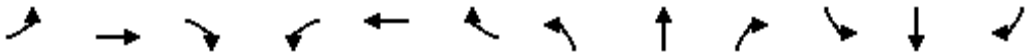
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2126	8	13	1907	52	77
Future Volume (Veh/h)	2126	8	13	1907	52	77
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2311	9	14	2073	57	84
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			2320		3380	1160
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2320		3380	1160
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		0	55
cM capacity (veh/h)			212		5	189

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	1541	779	14	1036	1036	57	84
Volume Left	0	0	14	0	0	57	0
Volume Right	0	9	0	0	0	0	84
cSH	1700	1700	212	1700	1700	5	189
Volume to Capacity	0.91	0.46	0.07	0.61	0.61	10.70	0.45
Queue Length 95th (m)	0.0	0.0	1.6	0.0	0.0	Err	15.8
Control Delay (s)	0.0	0.0	23.2	0.0	0.0	Err	38.5
Lane LOS			C			F	E
Approach Delay (s)	0.0		0.2			4065.1	
Approach LOS						F	

Intersection Summary			
Average Delay	126.1		
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	52	43	131	268	21	105	494	70	62	647	25
Future Volume (vph)	24	52	43	131	268	21	105	494	70	62	647	25
Ideal Flow (vphpl)	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	0		0	0		0	0		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			0.99			0.99			1.00	
Frt		0.951			0.993			0.986			0.995	
Flt Protected		0.990			0.985			0.992			0.996	
Satd. Flow (prot)	0	1706	0	0	1798	0	0	1790	0	0	1820	0
Flt Permitted		0.864			0.862			0.776			0.901	
Satd. Flow (perm)	0	1487	0	0	1567	0	0	1398	0	0	1645	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			3			12			4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		169.9			629.3			302.6			268.3	
Travel Time (s)		12.2			45.3			21.8			19.3	
Confl. Peds. (#/hr)	9		9	9		9	37		23	23		37
Confl. Bikes (#/hr)			9			9			23			36
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)	26	55	46	139	285	22	112	526	74	66	688	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	127	0	0	446	0	0	712	0	0	781	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		1.0	1.0		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)	30.0	30.0		30.0	30.0		50.0	50.0		50.0	50.0	
Total Split (%)	37.5%	37.5%		37.5%	37.5%		62.5%	62.5%		62.5%	62.5%	
Maximum Green (s)	24.4	24.4		24.4	24.4		44.9	44.9		44.9	44.9	
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)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.6			5.6			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)	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 Effct Green (s)		24.0			24.0			45.3			45.3	
Actuated g/C Ratio		0.30			0.30			0.57			0.57	
v/c Ratio		0.27			0.94			0.89			0.84	
Control Delay		16.8			59.3			31.8			24.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		16.8			59.3			31.8			24.7	
LOS		B			E			C			C	
Approach Delay		16.8			59.3			31.8			24.7	
Approach LOS		B			E			C			C	
Queue Length 50th (m)		10.0			64.8			87.4			91.0	
Queue Length 95th (m)		22.8			#119.9			#163.9			#166.3	
Internal Link Dist (m)		145.9			605.3			278.6			244.3	
Turn Bay Length (m)												
Base Capacity (vph)		479			480			796			934	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.27			0.93			0.89			0.84	

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
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: 0.94	
Intersection Signal Delay: 34.1	Intersection LOS: C

Intersection Capacity Utilization 97.3% ICU Level of Service F

Analysis Period (min) 15

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

Splits and Phases: 1: Sixth Line & Burnhamthorpe Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	52	43	131	268	21	105	494	70	62	647	25
Future Volume (vph)	24	52	43	131	268	21	105	494	70	62	647	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.6			5.6			5.1			5.1	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.98			1.00			0.99			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.95			0.99			0.99			1.00	
Flt Protected		0.99			0.98			0.99			1.00	
Satd. Flow (prot)		1704			1791			1787			1819	
Flt Permitted		0.86			0.86			0.78			0.90	
Satd. Flow (perm)		1487			1567			1397			1646	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	26	55	46	139	285	22	112	526	74	66	688	27
RTOR Reduction (vph)	0	26	0	0	2	0	0	5	0	0	2	0
Lane Group Flow (vph)	0	101	0	0	444	0	0	707	0	0	779	0
Confl. Peds. (#/hr)	9		9	9		9	37		23	23		37
Confl. Bikes (#/hr)			9			9			23			36
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0			24.0			45.3			45.3	
Effective Green, g (s)		24.0			24.0			45.3			45.3	
Actuated g/C Ratio		0.30			0.30			0.57			0.57	
Clearance Time (s)		5.6			5.6			5.1			5.1	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		446			470			791			932	
v/s Ratio Prot												
v/s Ratio Perm		0.07			c0.28			c0.51			0.47	
v/c Ratio		0.23			0.94			0.89			0.84	
Uniform Delay, d1		21.0			27.3			15.2			14.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.3			27.8			14.6			8.8	
Delay (s)		21.3			55.2			29.9			23.1	
Level of Service		C			E			C			C	
Approach Delay (s)		21.3			55.2			29.9			23.1	
Approach LOS		C			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	32.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	10.7
Intersection Capacity Utilization	97.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1889	255	7	2145	441	4
Future Volume (vph)	1889	255	7	2145	441	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		75.0	75.0		150.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			15.0		15.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.95			1.00	0.98
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3500	1566	1750	3500	1750	1566
Flt Permitted			0.053		0.950	
Satd. Flow (perm)	3500	1488	98	3500	1746	1533
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		226				4
Link Speed (k/h)	50			50	50	
Link Distance (m)	165.7			115.3	115.4	
Travel Time (s)	11.9			8.3	8.3	
Confl. Peds. (#/hr)		11	11		2	5
Confl. Bikes (#/hr)		11				5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2053	277	8	2332	479	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2053	277	8	2332	479	4
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	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		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	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)	32.9	32.9	32.9	32.9	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)	75.6	75.6	75.6	75.6	34.0	34.0
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)	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)	75.7	75.7	75.7	75.7	33.9	33.9
Actuated g/C Ratio	0.63	0.63	0.63	0.63	0.28	0.28
v/c Ratio	0.93	0.27	0.13	1.06	0.97	0.01
Control Delay	29.0	2.8	15.0	59.3	77.1	19.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.0	2.8	15.0	59.3	77.1	19.5
LOS	C	A	B	E	E	B
Approach Delay	25.9			59.2	76.6	
Approach LOS	C			E	E	
Queue Length 50th (m)	211.7	4.3	0.7	~317.0	111.5	0.0
Queue Length 95th (m)	#260.9	14.3	3.5	#357.8	#176.7	2.7
Internal Link Dist (m)	141.7			91.3	91.4	
Turn Bay Length (m)		75.0	75.0		150.0	
Base Capacity (vph)	2207	1022	61	2207	494	437
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	0.93	0.27	0.13	1.06	0.97	0.01

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: 140	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.06	
Intersection Signal Delay: 45.8	Intersection LOS: D

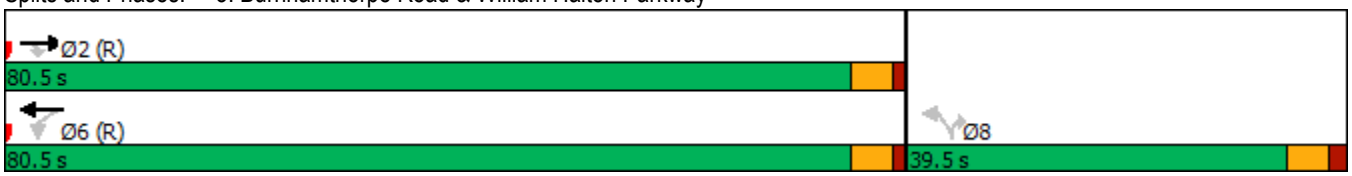
Intersection Capacity Utilization 93.0% ICU Level of Service F

Analysis Period (min) 15

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

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

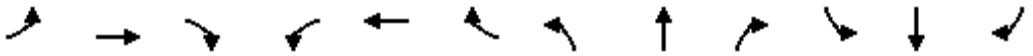
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



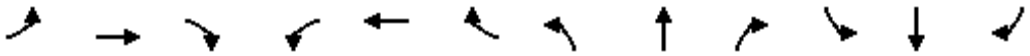
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1889	255	7	2145	441	4
Future Volume (vph)	1889	255	7	2145	441	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.95	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3500	1488	1750	3500	1746	1533
Flt Permitted	1.00	1.00	0.05	1.00	0.95	1.00
Satd. Flow (perm)	3500	1488	97	3500	1746	1533
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2053	277	8	2332	479	4
RTOR Reduction (vph)	0	83	0	0	0	3
Lane Group Flow (vph)	2053	194	8	2332	479	1
Confl. Peds. (#/hr)		11	11		2	5
Confl. Bikes (#/hr)		11				5
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8
Actuated Green, G (s)	75.7	75.7	75.7	75.7	33.9	33.9
Effective Green, g (s)	75.7	75.7	75.7	75.7	33.9	33.9
Actuated g/C Ratio	0.63	0.63	0.63	0.63	0.28	0.28
Clearance Time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2207	938	61	2207	493	433
v/s Ratio Prot	0.59			c0.67		
v/s Ratio Perm		0.13	0.08		c0.27	0.00
v/c Ratio	0.93	0.21	0.13	1.06	0.97	0.00
Uniform Delay, d1	19.8	9.4	8.9	22.1	42.6	30.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.5	0.5	4.4	36.2	33.1	0.0
Delay (s)	28.3	9.9	13.3	58.3	75.7	30.9
Level of Service	C	A	B	E	E	C
Approach Delay (s)	26.1			58.2	75.3	
Approach LOS	C			E	E	

Intersection Summary			
HCM 2000 Control Delay	45.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	93.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



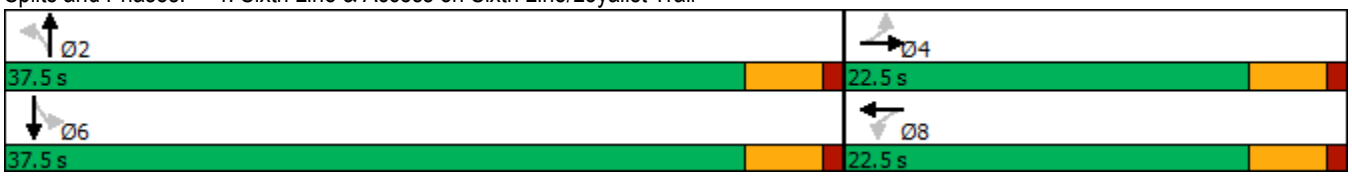
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	13	194	10	9	25	59	486	13	12	539	30
Future Volume (vph)	8	13	194	10	9	25	59	486	13	12	539	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.96			0.96			1.00			0.99	
Frt		0.878			0.924			0.997			0.993	
Flt Protected		0.998			0.989			0.995			0.999	
Satd. Flow (prot)	0	1548	0	0	1627	0	0	1826	0	0	1816	0
Flt Permitted		0.986			0.817			0.900			0.988	
Satd. Flow (perm)	0	1528	0	0	1341	0	0	1647	0	0	1796	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		211			27			3			7	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		93.7			81.5			268.3			172.3	
Travel Time (s)		6.7			5.9			19.3			12.4	
Confl. Peds. (#/hr)	14		9	9		14	42		9	9		42
Confl. Bikes (#/hr)			9			14			9			41
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	14	211	11	10	27	64	528	14	13	586	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	234	0	0	48	0	0	606	0	0	632	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
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		

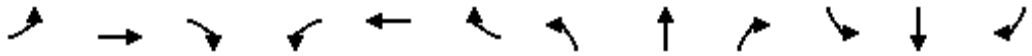


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	22.5	22.5		22.5	22.5		37.5	37.5		37.5	37.5	
Total Split (%)	37.5%	37.5%		37.5%	37.5%		62.5%	62.5%		62.5%	62.5%	
Maximum Green (s)	18.0	18.0		18.0	18.0		33.0	33.0		33.0	33.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
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)	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)		7.6			7.6			36.0			36.0	
Actuated g/C Ratio		0.14			0.14			0.68			0.68	
v/c Ratio		0.58			0.22			0.54			0.51	
Control Delay		10.8			13.6			7.1			6.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		10.8			13.6			7.1			6.5	
LOS		B			B			A			A	
Approach Delay		10.8			13.6			7.1			6.5	
Approach LOS		B			B			A			A	
Queue Length 50th (m)		1.8			1.6			18.5			18.7	
Queue Length 95th (m)		15.9			8.2			55.1			53.9	
Internal Link Dist (m)		69.7			57.5			244.3			148.3	
Turn Bay Length (m)												
Base Capacity (vph)		664			479			1125			1228	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.35			0.10			0.54			0.51	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 52.7			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 7.6		Intersection LOS: A	
Intersection Capacity Utilization 80.3%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 4: Sixth Line & Access on Sixth Line/Loyalist Trail

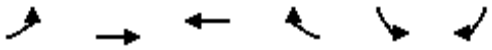




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	13	194	10	9	25	59	486	13	12	539	30
Future Volume (vph)	8	13	194	10	9	25	59	486	13	12	539	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.95			0.96			1.00			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.88			0.92			1.00			0.99	
Flt Protected		1.00			0.99			0.99			1.00	
Satd. Flow (prot)		1533			1609			1821			1817	
Flt Permitted		0.99			0.82			0.90			0.99	
Satd. Flow (perm)		1515			1330			1647			1797	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	14	211	11	10	27	64	528	14	13	586	33
RTOR Reduction (vph)	0	181	0	0	23	0	0	1	0	0	2	0
Lane Group Flow (vph)	0	53	0	0	25	0	0	605	0	0	630	0
Confl. Peds. (#/hr)	14		9	9		14	42		9	9		42
Confl. Bikes (#/hr)			9			14			9			41
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.6			7.6			36.0			36.0	
Effective Green, g (s)		7.6			7.6			36.0			36.0	
Actuated g/C Ratio		0.14			0.14			0.68			0.68	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		218			192			1127			1229	
v/s Ratio Prot												
v/s Ratio Perm		c0.04			0.02			c0.37			0.35	
v/c Ratio		0.25			0.13			0.54			0.51	
Uniform Delay, d1		20.0			19.6			4.1			4.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.6			0.3			1.8			1.5	
Delay (s)		20.5			19.9			6.0			5.6	
Level of Service		C			B			A			A	
Approach Delay (s)		20.5			19.9			6.0			5.6	
Approach LOS		C			B			A			A	

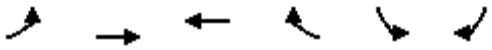
Intersection Summary			
HCM 2000 Control Delay	8.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	52.6	Sum of lost time (s)	9.0
Intersection Capacity Utilization	80.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	119	332	65	0	57
Future Volume (vph)	0	119	332	65	0	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.978			0.865
Flt Protected						
Satd. Flow (prot)	0	1842	1802	0	0	1593
Flt Permitted						
Satd. Flow (perm)	0	1842	1802	0	0	1593
Link Speed (k/h)		50	50		50	
Link Distance (m)		778.9	169.9		123.2	
Travel Time (s)		56.1	12.2		8.9	
Confl. Peds. (#/hr)				33		
Confl. Bikes (#/hr)				32		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	129	361	71	0	62
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	129	432	0	0	62
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.1%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	119	332	65	0	57
Future Volume (Veh/h)	0	119	332	65	0	57
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	129	361	71	0	62
Pedestrians					33	
Lane Width (m)					3.5	
Walking Speed (m/s)					1.0	
Percent Blockage					3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			170			
pX, platoon unblocked	0.86				0.86	0.86
vC, conflicting volume	465				558	430
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	299				407	258
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	90
cM capacity (veh/h)	1053				500	651

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	129	432	62
Volume Left	0	0	0
Volume Right	0	71	62
cSH	1700	1700	651
Volume to Capacity	0.08	0.25	0.10
Queue Length 95th (m)	0.0	0.0	2.4
Control Delay (s)	0.0	0.0	11.1
Lane LOS			B
Approach Delay (s)	0.0	0.0	11.1
Approach LOS			B

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	32.1%	ICU Level of Service	A
Analysis Period (min)	15		

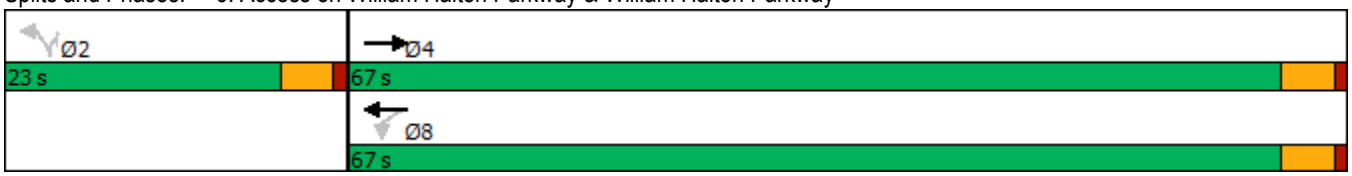
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2126	8	13	1907	52	77
Future Volume (vph)	2126	8	13	1907	52	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	75.0		0.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			15.0		15.0	
Lane Util. Factor	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)	3496	0	1750	3500	1750	1566
Flt Permitted			0.065		0.950	
Satd. Flow (perm)	3496	0	120	3500	1750	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	1					11
Link Speed (k/h)	50			50	50	
Link Distance (m)	910.1			111.6	71.0	
Travel Time (s)	65.5			8.0	5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2311	9	14	2073	57	84
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2320	0	14	2073	57	84
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6		2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	4			8		
Permitted Phases			8		2	2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	4		8	8	2	2
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)	67.0		67.0	67.0	23.0	23.0
Total Split (%)	74.4%		74.4%	74.4%	25.6%	25.6%
Maximum Green (s)	62.5		62.5	62.5	18.5	18.5
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	None	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 Effct Green (s)	61.4		61.4	61.4	18.5	18.5
Actuated g/C Ratio	0.69		0.69	0.69	0.21	0.21
v/c Ratio	0.96		0.17	0.86	0.16	0.25
Control Delay	24.9		10.3	15.2	30.8	28.6
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	24.9		10.3	15.2	30.8	28.6
LOS	C		B	B	C	C
Approach Delay	24.9			15.2	29.5	
Approach LOS	C			B	C	
Queue Length 50th (m)	165.1		0.7	121.7	8.2	10.6
Queue Length 95th (m)	#253.8		3.6	158.7	18.2	23.0
Internal Link Dist (m)	886.1			87.6	47.0	
Turn Bay Length (m)			75.0			
Base Capacity (vph)	2460		84	2462	364	334
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	0.94		0.17	0.84	0.16	0.25

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 88.9			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 20.6		Intersection LOS: C	
Intersection Capacity Utilization 71.3%		ICU Level of Service C	
Analysis Period (min) 15			

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

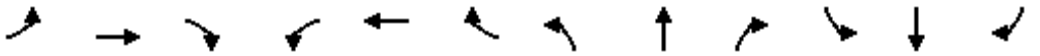
Splits and Phases: 6: Access on William Halton Parkway & William Halton Parkway



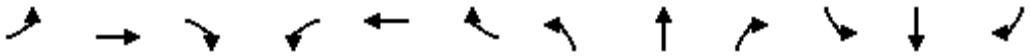
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2126	8	13	1907	52	77
Future Volume (vph)	2126	8	13	1907	52	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	1.00		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3498		1750	3500	1750	1566
Flt Permitted	1.00		0.07	1.00	0.95	1.00
Satd. Flow (perm)	3498		120	3500	1750	1566
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2311	9	14	2073	57	84
RTOR Reduction (vph)	0	0	0	0	0	9
Lane Group Flow (vph)	2320	0	14	2073	57	75
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	4			8		
Permitted Phases			8		2	2
Actuated Green, G (s)	61.4		61.4	61.4	18.5	18.5
Effective Green, g (s)	61.4		61.4	61.4	18.5	18.5
Actuated g/C Ratio	0.69		0.69	0.69	0.21	0.21
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2415		82	2417	364	325
v/s Ratio Prot	c0.66			0.59		
v/s Ratio Perm			0.12		0.03	c0.05
v/c Ratio	0.96		0.17	0.86	0.16	0.23
Uniform Delay, d1	12.6		4.8	10.4	28.8	29.3
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	10.6		1.0	3.2	0.9	1.7
Delay (s)	23.3		5.8	13.7	29.7	30.9
Level of Service	C		A	B	C	C
Approach Delay (s)	23.3			13.6	30.5	
Approach LOS	C			B	C	

Intersection Summary			
HCM 2000 Control Delay	19.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	88.9	Sum of lost time (s)	9.0
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	52	43	131	268	21	105	494	70	62	647	25
Future Volume (vph)	24	52	43	131	268	21	105	494	70	62	647	25
Ideal Flow (vphpl)	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)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	0.99		0.99	1.00		0.99	0.99		0.99	1.00	
Frt		0.932			0.989			0.981			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	1697	0	1750	1818	0	1750	3408	0	1750	3468	0
Flt Permitted	0.395			0.692			0.360			0.417		
Satd. Flow (perm)	724	1697	0	1266	1818	0	654	3408	0	760	3468	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		46			6			31			8	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		169.9			629.3			302.6			268.3	
Travel Time (s)		12.2			45.3			21.8			19.3	
Confl. Peds. (#/hr)	9		9	9		9	37		23	23		37
Confl. Bikes (#/hr)			9			9			23			36
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)	26	55	46	139	285	22	112	526	74	66	688	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	101	0	139	307	0	112	600	0	66	715	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

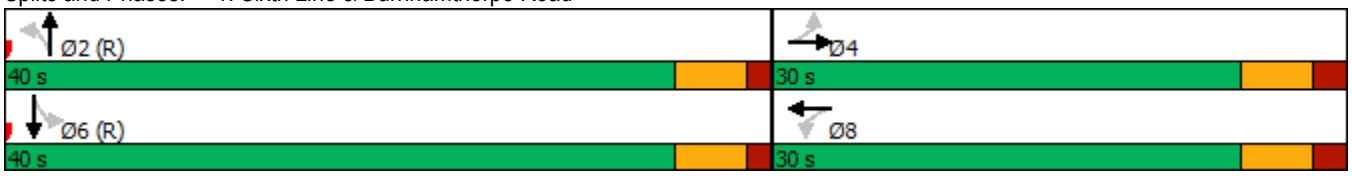


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		1.0	1.0		5.0	5.0	
Minimum Split (s)	29.6	29.6		29.6	29.6		38.1	38.1		38.1	38.1	
Total Split (s)	30.0	30.0		30.0	30.0		40.0	40.0		40.0	40.0	
Total Split (%)	42.9%	42.9%		42.9%	42.9%		57.1%	57.1%		57.1%	57.1%	
Maximum Green (s)	24.4	24.4		24.4	24.4		34.9	34.9		34.9	34.9	
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)	0.0	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		5.1	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)	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 Effct Green (s)	17.0	17.0		17.0	17.0		42.3	42.3		42.3	42.3	
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.60	0.60		0.60	0.60	
v/c Ratio	0.15	0.23		0.45	0.69		0.28	0.29		0.14	0.34	
Control Delay	20.5	12.7		26.2	31.4		10.7	7.5		8.7	8.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.5	12.7		26.2	31.4		10.7	7.5		8.7	8.2	
LOS	C	B		C	C		B	A		A	A	
Approach Delay		14.3			29.7			8.0			8.2	
Approach LOS		B			C			A			A	
Queue Length 50th (m)	2.7	5.7		15.5	35.9		6.2	16.4		3.3	21.3	
Queue Length 95th (m)	7.4	14.3		26.7	52.5		18.7	31.1		10.7	39.1	
Internal Link Dist (m)		145.9			605.3			278.6			244.3	
Turn Bay Length (m)	60.0			50.0			50.0			60.0		
Base Capacity (vph)	252	621		441	637		395	2073		459	2100	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.10	0.16		0.32	0.48		0.28	0.29		0.14	0.34	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 13.2		Intersection LOS: B	

Intersection Capacity Utilization 66.4% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 1: Sixth Line & Burnhamthorpe Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	52	43	131	268	21	105	494	70	62	647	25
Future Volume (vph)	24	52	43	131	268	21	105	494	70	62	647	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6		5.6	5.6		5.1	5.1		5.1	5.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.93		1.00	0.99		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1742	1694		1738	1819		1725	3411		1732	3470	
Flt Permitted	0.39	1.00		0.69	1.00		0.36	1.00		0.42	1.00	
Satd. Flow (perm)	724	1694		1265	1819		654	3411		760	3470	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	26	55	46	139	285	22	112	526	74	66	688	27
RTOR Reduction (vph)	0	35	0	0	5	0	0	12	0	0	3	0
Lane Group Flow (vph)	26	66	0	139	302	0	112	588	0	66	712	0
Confl. Peds. (#/hr)	9		9	9		9	37		23	23		37
Confl. Bikes (#/hr)			9			9			23			36
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	17.0	17.0		17.0	17.0		42.3	42.3		42.3	42.3	
Effective Green, g (s)	17.0	17.0		17.0	17.0		42.3	42.3		42.3	42.3	
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.60	0.60		0.60	0.60	
Clearance Time (s)	5.6	5.6		5.6	5.6		5.1	5.1		5.1	5.1	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	175	411		307	441		395	2061		459	2096	
v/s Ratio Prot		0.04			c0.17			0.17			c0.21	
v/s Ratio Perm	0.04			0.11			0.17			0.09		
v/c Ratio	0.15	0.16		0.45	0.69		0.28	0.29		0.14	0.34	
Uniform Delay, d1	20.8	20.9		22.5	24.1		6.6	6.6		6.0	6.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.2		1.1	4.4		1.8	0.3		0.7	0.4	
Delay (s)	21.2	21.1		23.6	28.5		8.4	7.0		6.7	7.3	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		21.1			27.0			7.2			7.3	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	10.7
Intersection Capacity Utilization	66.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1889	255	7	2145	441	4
Future Volume (vph)	1889	255	7	2145	441	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		75.0	75.0		150.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			15.0		15.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.94			1.00	0.98
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3500	1566	1750	3500	1750	1566
Flt Permitted			0.058		0.950	
Satd. Flow (perm)	3500	1473	107	3500	1744	1527
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		245				4
Link Speed (k/h)	50			50	50	
Link Distance (m)	165.7			125.2	87.0	
Travel Time (s)	11.9			9.0	6.3	
Confl. Peds. (#/hr)		11	11		2	5
Confl. Bikes (#/hr)		11				5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2053	277	8	2332	479	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2053	277	8	2332	479	4
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	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		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	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	22.9	22.9	23.5	23.5
Total Split (s)	74.0	74.0	74.0	74.0	36.0	36.0
Total Split (%)	67.3%	67.3%	67.3%	67.3%	32.7%	32.7%
Maximum Green (s)	69.1	69.1	69.1	69.1	30.5	30.5
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 Effct Green (s)	69.1	69.1	69.1	69.1	30.5	30.5
Actuated g/C Ratio	0.63	0.63	0.63	0.63	0.28	0.28
v/c Ratio	0.93	0.27	0.12	1.06	0.99	0.01
Control Delay	28.0	2.3	13.3	59.4	79.5	18.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.0	2.3	13.3	59.4	79.5	18.5
LOS	C	A	B	E	E	B
Approach Delay	25.0			59.3	79.0	
Approach LOS	C			E	E	
Queue Length 50th (m)	192.6	2.4	0.6	~290.5	102.5	0.0
Queue Length 95th (m)	#248.5	12.0	3.4	#331.7	#168.0	2.7
Internal Link Dist (m)	141.7			101.2	63.0	
Turn Bay Length (m)		75.0	75.0		150.0	
Base Capacity (vph)	2198	1016	67	2198	483	426
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	0.93	0.27	0.12	1.06	0.99	0.01

Intersection Summary	
Area Type:	Other
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.06	
Intersection Signal Delay: 45.6	Intersection LOS: D

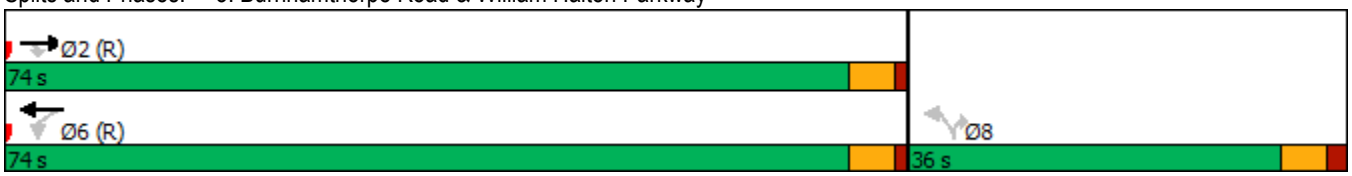
Intersection Capacity Utilization 92.4% ICU Level of Service F

Analysis Period (min) 15

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

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

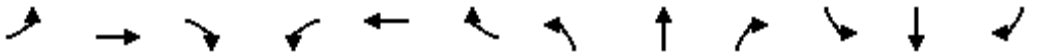
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1889	255	7	2145	441	4
Future Volume (vph)	1889	255	7	2145	441	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.94	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3500	1473	1750	3500	1744	1527
Flt Permitted	1.00	1.00	0.06	1.00	0.95	1.00
Satd. Flow (perm)	3500	1473	107	3500	1744	1527
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2053	277	8	2332	479	4
RTOR Reduction (vph)	0	91	0	0	0	3
Lane Group Flow (vph)	2053	186	8	2332	479	1
Confl. Peds. (#/hr)		11	11		2	5
Confl. Bikes (#/hr)		11				5
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8
Actuated Green, G (s)	69.1	69.1	69.1	69.1	30.5	30.5
Effective Green, g (s)	69.1	69.1	69.1	69.1	30.5	30.5
Actuated g/C Ratio	0.63	0.63	0.63	0.63	0.28	0.28
Clearance Time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2198	925	67	2198	483	423
v/s Ratio Prot	0.59			c0.67		
v/s Ratio Perm		0.13	0.08		c0.27	0.00
v/c Ratio	0.93	0.20	0.12	1.06	0.99	0.00
Uniform Delay, d1	18.4	8.7	8.2	20.5	39.6	28.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.9	0.5	3.6	37.8	38.6	0.0
Delay (s)	27.3	9.2	11.8	58.2	78.3	28.8
Level of Service	C	A	B	E	E	C
Approach Delay (s)	25.2			58.1	77.8	
Approach LOS	C			E	E	

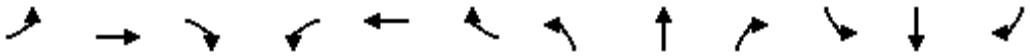
Intersection Summary			
HCM 2000 Control Delay	45.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	92.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	13	194	10	9	25	59	486	13	12	539	30
Future Volume (vph)	8	13	194	10	9	25	59	486	13	12	539	30
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	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt		0.878			0.924			0.997			0.992	
Flt Protected		0.998			0.989			0.995			0.999	
Satd. Flow (prot)	0	1614	0	0	1683	0	0	3472	0	0	3468	0
Flt Permitted		0.998			0.989			0.995			0.999	
Satd. Flow (perm)	0	1614	0	0	1683	0	0	3472	0	0	3468	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		93.7			81.5			268.3			412.8	
Travel Time (s)		6.7			5.9			19.3			29.7	
Confl. Peds. (#/hr)	14		9	9		14	42		9	9		42
Confl. Bikes (#/hr)			9			14			9			41
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	14	211	11	10	27	64	528	14	13	586	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	234	0	0	48	0	0	606	0	0	632	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

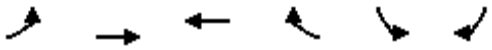
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 56.4%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	13	194	10	9	25	59	486	13	12	539	30
Future Volume (Veh/h)	8	13	194	10	9	25	59	486	13	12	539	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	14	211	11	10	27	64	528	14	13	586	33
Pedestrians		42			9			9			14	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		4			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								268				
pX, platoon unblocked												
vC, conflicting volume	1108	1350	360	1218	1359	294	661			551		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1108	1350	360	1218	1359	294	661			551		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	93	89	65	85	92	96	93			99		
cM capacity (veh/h)	127	130	605	72	128	687	886			1006		

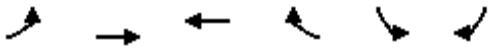
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	234	48	328	278	306	326
Volume Left	9	11	64	0	13	0
Volume Right	211	27	0	14	0	33
cSH	444	178	886	1700	1006	1700
Volume to Capacity	0.53	0.27	0.07	0.16	0.01	0.19
Queue Length 95th (m)	22.8	7.9	1.8	0.0	0.3	0.0
Control Delay (s)	21.8	32.5	2.5	0.0	0.5	0.0
Lane LOS	C	D	A		A	
Approach Delay (s)	21.8	32.5	1.3		0.2	
Approach LOS	C	D				

Intersection Summary				
Average Delay	5.0			
Intersection Capacity Utilization	56.4%	ICU Level of Service		B
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	119	332	65	0	57
Future Volume (vph)	0	119	332	65	0	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.978			0.865
Flt Protected						
Satd. Flow (prot)	0	1842	1802	0	0	1593
Flt Permitted						
Satd. Flow (perm)	0	1842	1802	0	0	1593
Link Speed (k/h)		50	50		50	
Link Distance (m)		826.9	169.9		123.2	
Travel Time (s)		59.5	12.2		8.9	
Confl. Peds. (#/hr)				33		
Confl. Bikes (#/hr)				32		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	129	361	71	0	62
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	129	432	0	0	62
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	32.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	119	332	65	0	57
Future Volume (Veh/h)	0	119	332	65	0	57
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	129	361	71	0	62
Pedestrians					33	
Lane Width (m)					3.5	
Walking Speed (m/s)					1.0	
Percent Blockage					3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			170			
pX, platoon unblocked	0.86				0.86	0.86
vC, conflicting volume	465				558	430
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	301				410	260
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	90
cM capacity (veh/h)	1053				500	651

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	129	432	62
Volume Left	0	0	0
Volume Right	0	71	62
cSH	1700	1700	651
Volume to Capacity	0.08	0.25	0.10
Queue Length 95th (m)	0.0	0.0	2.4
Control Delay (s)	0.0	0.0	11.1
Lane LOS			B
Approach Delay (s)	0.0	0.0	11.1
Approach LOS			B

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	32.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2126	8	13	1907	52	77
Future Volume (vph)	2126	8	13	1907	52	77
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)			15.0		15.0	
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)	3496	0	1750	3500	1750	1566
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3496	0	1750	3500	1750	1566
Link Speed (k/h)	50			50	50	
Link Distance (m)	910.1			111.6	71.0	
Travel Time (s)	65.5			8.0	5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2311	9	14	2073	57	84
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2320	0	14	2073	57	84
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

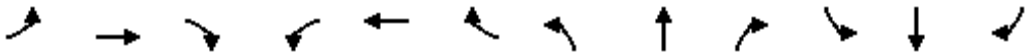
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 70.5%		ICU Level of Service C	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2126	8	13	1907	52	77
Future Volume (Veh/h)	2126	8	13	1907	52	77
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2311	9	14	2073	57	84
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			2320		3380	1160
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2320		3380	1160
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		0	55
cM capacity (veh/h)			212		5	189

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	1541	779	14	1036	1036	57	84
Volume Left	0	0	14	0	0	57	0
Volume Right	0	9	0	0	0	0	84
cSH	1700	1700	212	1700	1700	5	189
Volume to Capacity	0.91	0.46	0.07	0.61	0.61	10.70	0.45
Queue Length 95th (m)	0.0	0.0	1.6	0.0	0.0	Err	15.8
Control Delay (s)	0.0	0.0	23.2	0.0	0.0	Err	38.5
Lane LOS			C			F	E
Approach Delay (s)	0.0		0.2			4065.1	
Approach LOS						F	

Intersection Summary			
Average Delay	126.1		
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	52	43	131	268	21	105	494	70	62	647	25
Future Volume (vph)	24	52	43	131	268	21	105	494	70	62	647	25
Ideal Flow (vphpl)	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)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	0.99		0.99	1.00		0.99	0.99		0.99	1.00	
Frt		0.932			0.989			0.981			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	1697	0	1750	1818	0	1750	3408	0	1750	3468	0
Flt Permitted	0.395			0.692			0.360			0.417		
Satd. Flow (perm)	724	1697	0	1266	1818	0	654	3408	0	760	3468	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		46			6			31			8	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		169.9			629.3			302.6			268.3	
Travel Time (s)		12.2			45.3			21.8			19.3	
Confl. Peds. (#/hr)	9		9	9		9	37		23	23		37
Confl. Bikes (#/hr)			9			9			23			36
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)	26	55	46	139	285	22	112	526	74	66	688	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	101	0	139	307	0	112	600	0	66	715	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

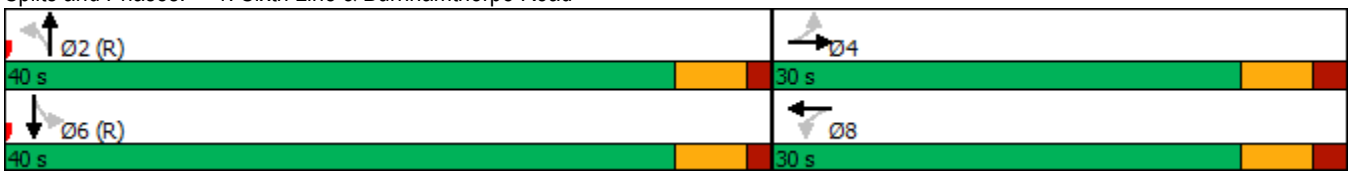


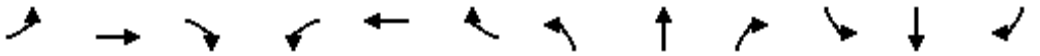
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		1.0	1.0		5.0	5.0	
Minimum Split (s)	29.6	29.6		29.6	29.6		38.1	38.1		38.1	38.1	
Total Split (s)	30.0	30.0		30.0	30.0		40.0	40.0		40.0	40.0	
Total Split (%)	42.9%	42.9%		42.9%	42.9%		57.1%	57.1%		57.1%	57.1%	
Maximum Green (s)	24.4	24.4		24.4	24.4		34.9	34.9		34.9	34.9	
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)	0.0	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		5.1	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)	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 Effct Green (s)	17.0	17.0		17.0	17.0		42.3	42.3		42.3	42.3	
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.60	0.60		0.60	0.60	
v/c Ratio	0.15	0.23		0.45	0.69		0.28	0.29		0.14	0.34	
Control Delay	20.5	12.7		26.2	31.4		10.7	7.5		8.7	8.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.5	12.7		26.2	31.4		10.7	7.5		8.7	8.2	
LOS	C	B		C	C		B	A		A	A	
Approach Delay		14.3			29.7			8.0			8.2	
Approach LOS		B			C			A			A	
Queue Length 50th (m)	2.7	5.7		15.5	35.9		6.2	16.4		3.3	21.3	
Queue Length 95th (m)	7.4	14.3		26.7	52.5		18.7	31.1		10.7	39.1	
Internal Link Dist (m)		145.9			605.3			278.6			244.3	
Turn Bay Length (m)	60.0			50.0			50.0			60.0		
Base Capacity (vph)	252	621		441	637		395	2073		459	2100	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.10	0.16		0.32	0.48		0.28	0.29		0.14	0.34	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 13.2		Intersection LOS: B	

Intersection Capacity Utilization 66.4% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 1: Sixth Line & Burnhamthorpe Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	52	43	131	268	21	105	494	70	62	647	25
Future Volume (vph)	24	52	43	131	268	21	105	494	70	62	647	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6		5.6	5.6		5.1	5.1		5.1	5.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.93		1.00	0.99		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1742	1694		1738	1819		1725	3411		1732	3470	
Flt Permitted	0.39	1.00		0.69	1.00		0.36	1.00		0.42	1.00	
Satd. Flow (perm)	724	1694		1265	1819		654	3411		760	3470	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	26	55	46	139	285	22	112	526	74	66	688	27
RTOR Reduction (vph)	0	35	0	0	5	0	0	12	0	0	3	0
Lane Group Flow (vph)	26	66	0	139	302	0	112	588	0	66	712	0
Confl. Peds. (#/hr)	9		9	9		9	37		23	23		37
Confl. Bikes (#/hr)			9			9			23			36
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	17.0	17.0		17.0	17.0		42.3	42.3		42.3	42.3	
Effective Green, g (s)	17.0	17.0		17.0	17.0		42.3	42.3		42.3	42.3	
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.60	0.60		0.60	0.60	
Clearance Time (s)	5.6	5.6		5.6	5.6		5.1	5.1		5.1	5.1	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	175	411		307	441		395	2061		459	2096	
v/s Ratio Prot		0.04			c0.17			0.17			c0.21	
v/s Ratio Perm	0.04			0.11			0.17			0.09		
v/c Ratio	0.15	0.16		0.45	0.69		0.28	0.29		0.14	0.34	
Uniform Delay, d1	20.8	20.9		22.5	24.1		6.6	6.6		6.0	6.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.2		1.1	4.4		1.8	0.3		0.7	0.4	
Delay (s)	21.2	21.1		23.6	28.5		8.4	7.0		6.7	7.3	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		21.1			27.0			7.2			7.3	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	10.7
Intersection Capacity Utilization	66.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1889	255	7	2145	441	4
Future Volume (vph)	1889	255	7	2145	441	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		75.0	75.0		150.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			15.0		15.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.94			1.00	0.98
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3500	1566	1750	3500	1750	1566
Flt Permitted			0.058		0.950	
Satd. Flow (perm)	3500	1473	107	3500	1744	1527
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		245				4
Link Speed (k/h)	50			50	50	
Link Distance (m)	165.7			125.2	87.0	
Travel Time (s)	11.9			9.0	6.3	
Confl. Peds. (#/hr)		11	11		2	5
Confl. Bikes (#/hr)		11				5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2053	277	8	2332	479	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2053	277	8	2332	479	4
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	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		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	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	22.9	22.9	23.5	23.5
Total Split (s)	74.0	74.0	74.0	74.0	36.0	36.0
Total Split (%)	67.3%	67.3%	67.3%	67.3%	32.7%	32.7%
Maximum Green (s)	69.1	69.1	69.1	69.1	30.5	30.5
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 Effct Green (s)	69.1	69.1	69.1	69.1	30.5	30.5
Actuated g/C Ratio	0.63	0.63	0.63	0.63	0.28	0.28
v/c Ratio	0.93	0.27	0.12	1.06	0.99	0.01
Control Delay	28.0	2.3	13.3	59.4	79.5	18.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.0	2.3	13.3	59.4	79.5	18.5
LOS	C	A	B	E	E	B
Approach Delay	25.0			59.3	79.0	
Approach LOS	C			E	E	
Queue Length 50th (m)	192.6	2.4	0.6	~290.5	102.5	0.0
Queue Length 95th (m)	#248.5	12.0	3.4	#331.7	#168.0	2.7
Internal Link Dist (m)	141.7			101.2	63.0	
Turn Bay Length (m)		75.0	75.0		150.0	
Base Capacity (vph)	2198	1016	67	2198	483	426
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	0.93	0.27	0.12	1.06	0.99	0.01

Intersection Summary	
Area Type:	Other
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.06	
Intersection Signal Delay: 45.6	Intersection LOS: D

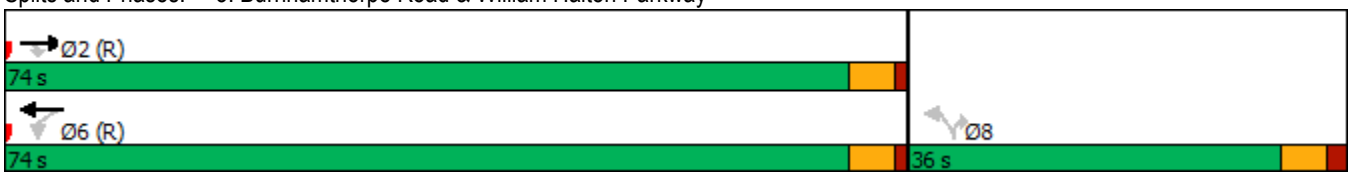
Intersection Capacity Utilization 92.4% ICU Level of Service F

Analysis Period (min) 15

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

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

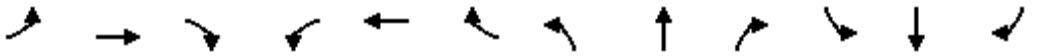
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



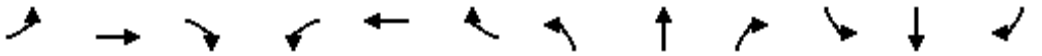
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1889	255	7	2145	441	4
Future Volume (vph)	1889	255	7	2145	441	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.94	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3500	1473	1750	3500	1744	1527
Flt Permitted	1.00	1.00	0.06	1.00	0.95	1.00
Satd. Flow (perm)	3500	1473	107	3500	1744	1527
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2053	277	8	2332	479	4
RTOR Reduction (vph)	0	91	0	0	0	3
Lane Group Flow (vph)	2053	186	8	2332	479	1
Confl. Peds. (#/hr)		11	11		2	5
Confl. Bikes (#/hr)		11				5
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8
Actuated Green, G (s)	69.1	69.1	69.1	69.1	30.5	30.5
Effective Green, g (s)	69.1	69.1	69.1	69.1	30.5	30.5
Actuated g/C Ratio	0.63	0.63	0.63	0.63	0.28	0.28
Clearance Time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2198	925	67	2198	483	423
v/s Ratio Prot	0.59			c0.67		
v/s Ratio Perm		0.13	0.08		c0.27	0.00
v/c Ratio	0.93	0.20	0.12	1.06	0.99	0.00
Uniform Delay, d1	18.4	8.7	8.2	20.5	39.6	28.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.9	0.5	3.6	37.8	38.6	0.0
Delay (s)	27.3	9.2	11.8	58.2	78.3	28.8
Level of Service	C	A	B	E	E	C
Approach Delay (s)	25.2			58.1	77.8	
Approach LOS	C			E	E	

Intersection Summary			
HCM 2000 Control Delay	45.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	92.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



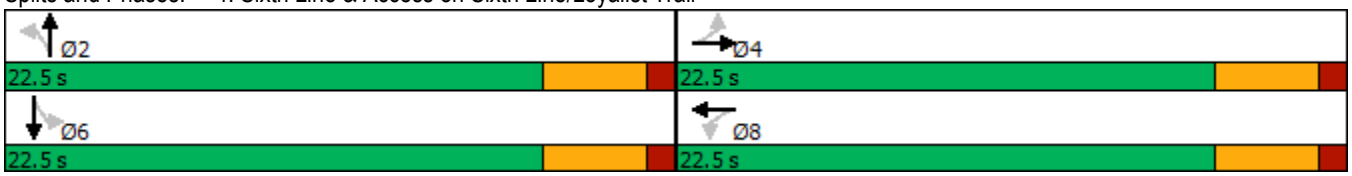
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	13	194	10	9	25	59	486	13	12	539	30
Future Volume (vph)	8	13	194	10	9	25	59	486	13	12	539	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.98			0.98			1.00			0.99	
Frt		0.878			0.924			0.997			0.992	
Flt Protected		0.998			0.989			0.995			0.999	
Satd. Flow (prot)	0	1580	0	0	1655	0	0	3469	0	0	3449	0
Flt Permitted		0.987			0.922			0.853			0.942	
Satd. Flow (perm)	0	1562	0	0	1541	0	0	2967	0	0	3252	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		119			27			6			15	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		93.7			81.5			268.3			412.8	
Travel Time (s)		6.7			5.9			19.3			29.7	
Confl. Peds. (#/hr)	14		9	9		14	42		9	9		42
Confl. Bikes (#/hr)			9			14			9			41
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	14	211	11	10	27	64	528	14	13	586	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	234	0	0	48	0	0	606	0	0	632	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
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		

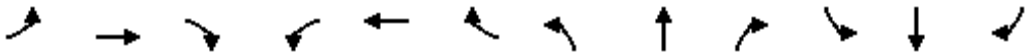


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	18.0	18.0		18.0	18.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
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)	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)		8.4			8.4			22.3			22.3	
Actuated g/C Ratio		0.23			0.23			0.60			0.60	
v/c Ratio		0.52			0.13			0.34			0.32	
Control Delay		10.6			7.3			6.2			5.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		10.6			7.3			6.2			5.9	
LOS		B			A			A			A	
Approach Delay		10.6			7.3			6.2			5.9	
Approach LOS		B			A			A			A	
Queue Length 50th (m)		5.5			1.0			9.2			9.3	
Queue Length 95th (m)		17.0			5.4			22.2			22.1	
Internal Link Dist (m)		69.7			57.5			244.3			388.8	
Turn Bay Length (m)												
Base Capacity (vph)		825			767			1793			1968	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.28			0.06			0.34			0.32	

Intersection Summary			
Area Type:	Other		
Cycle Length: 45			
Actuated Cycle Length: 36.9			
Natural Cycle: 45			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.52			
Intersection Signal Delay: 6.8		Intersection LOS: A	
Intersection Capacity Utilization 57.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 4: Sixth Line & Access on Sixth Line/Loyalist Trail

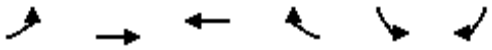




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	13	194	10	9	25	59	486	13	12	539	30
Future Volume (vph)	8	13	194	10	9	25	59	486	13	12	539	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.98			0.98			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.88			0.92			1.00			0.99	
Flt Protected		1.00			0.99			0.99			1.00	
Satd. Flow (prot)		1574			1647			3460			3453	
Flt Permitted		0.99			0.92			0.85			0.94	
Satd. Flow (perm)		1556			1536			2966			3256	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	14	211	11	10	27	64	528	14	13	586	33
RTOR Reduction (vph)	0	96	0	0	22	0	0	3	0	0	7	0
Lane Group Flow (vph)	0	138	0	0	26	0	0	603	0	0	625	0
Confl. Peds. (#/hr)	14		9	9		14	42		9	9		42
Confl. Bikes (#/hr)			9			14			9			41
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.4			7.4			21.4			21.4	
Effective Green, g (s)		7.4			7.4			21.4			21.4	
Actuated g/C Ratio		0.20			0.20			0.57			0.57	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		304			300			1679			1843	
v/s Ratio Prot												
v/s Ratio Perm		c0.09			0.02			c0.20			0.19	
v/c Ratio		0.45			0.09			0.36			0.34	
Uniform Delay, d1		13.4			12.4			4.5			4.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.1			0.1			0.6			0.5	
Delay (s)		14.5			12.6			5.1			4.9	
Level of Service		B			B			A			A	
Approach Delay (s)		14.5			12.6			5.1			4.9	
Approach LOS		B			B			A			A	

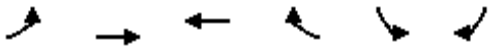
Intersection Summary			
HCM 2000 Control Delay	6.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	37.8	Sum of lost time (s)	9.0
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	119	332	65	0	57
Future Volume (vph)	0	119	332	65	0	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.978			0.865
Flt Protected						
Satd. Flow (prot)	0	1842	1802	0	0	1593
Flt Permitted						
Satd. Flow (perm)	0	1842	1802	0	0	1593
Link Speed (k/h)		50	50		50	
Link Distance (m)		826.9	169.9		123.2	
Travel Time (s)		59.5	12.2		8.9	
Confl. Peds. (#/hr)				33		
Confl. Bikes (#/hr)				32		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	129	361	71	0	62
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	129	432	0	0	62
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.1%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	119	332	65	0	57
Future Volume (Veh/h)	0	119	332	65	0	57
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	129	361	71	0	62
Pedestrians					33	
Lane Width (m)					3.5	
Walking Speed (m/s)					1.0	
Percent Blockage					3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			170			
pX, platoon unblocked	0.86				0.86	0.86
vC, conflicting volume	465				558	430
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	301				410	260
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	90
cM capacity (veh/h)	1053				500	651

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	129	432	62
Volume Left	0	0	0
Volume Right	0	71	62
cSH	1700	1700	651
Volume to Capacity	0.08	0.25	0.10
Queue Length 95th (m)	0.0	0.0	2.4
Control Delay (s)	0.0	0.0	11.1
Lane LOS			B
Approach Delay (s)	0.0	0.0	11.1
Approach LOS			B

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	32.1%	ICU Level of Service	A
Analysis Period (min)	15		

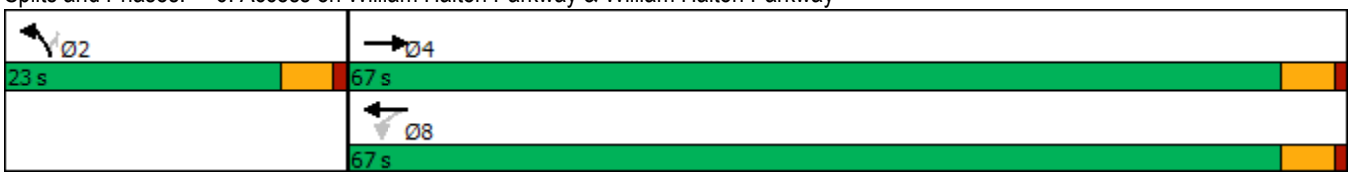
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2126	8	13	1907	52	77
Future Volume (vph)	2126	8	13	1907	52	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	75.0		0.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			15.0		15.0	
Lane Util. Factor	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)	3496	0	1750	3500	1750	1566
Flt Permitted			0.065		0.950	
Satd. Flow (perm)	3496	0	120	3500	1750	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	1					11
Link Speed (k/h)	50			50	50	
Link Distance (m)	910.1			111.6	71.0	
Travel Time (s)	65.5			8.0	5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2311	9	14	2073	57	84
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2320	0	14	2073	57	84
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6		2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	4		8	8	2	2
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)	67.0		67.0	67.0	23.0	23.0
Total Split (%)	74.4%		74.4%	74.4%	25.6%	25.6%
Maximum Green (s)	62.5		62.5	62.5	18.5	18.5
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	None	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 Effct Green (s)	61.4		61.4	61.4	18.5	18.5
Actuated g/C Ratio	0.69		0.69	0.69	0.21	0.21
v/c Ratio	0.96		0.17	0.86	0.16	0.25
Control Delay	24.9		10.3	15.2	30.8	28.6
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	24.9		10.3	15.2	30.8	28.6
LOS	C		B	B	C	C
Approach Delay	24.9			15.2	29.5	
Approach LOS	C			B	C	
Queue Length 50th (m)	165.1		0.7	121.7	8.2	10.6
Queue Length 95th (m)	#253.8		3.6	158.7	18.2	23.0
Internal Link Dist (m)	886.1			87.6	47.0	
Turn Bay Length (m)			75.0			
Base Capacity (vph)	2460		84	2462	364	334
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	0.94		0.17	0.84	0.16	0.25

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 88.9			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 20.6		Intersection LOS: C	
Intersection Capacity Utilization 71.3%		ICU Level of Service C	
Analysis Period (min) 15			

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

Splits and Phases: 6: Access on William Halton Parkway & William Halton Parkway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2126	8	13	1907	52	77
Future Volume (vph)	2126	8	13	1907	52	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	1.00		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3498		1750	3500	1750	1566
Flt Permitted	1.00		0.07	1.00	0.95	1.00
Satd. Flow (perm)	3498		120	3500	1750	1566
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2311	9	14	2073	57	84
RTOR Reduction (vph)	0	0	0	0	0	9
Lane Group Flow (vph)	2320	0	14	2073	57	75
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	61.4		61.4	61.4	18.5	18.5
Effective Green, g (s)	61.4		61.4	61.4	18.5	18.5
Actuated g/C Ratio	0.69		0.69	0.69	0.21	0.21
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2415		82	2417	364	325
v/s Ratio Prot	c0.66			0.59	0.03	
v/s Ratio Perm			0.12			c0.05
v/c Ratio	0.96		0.17	0.86	0.16	0.23
Uniform Delay, d1	12.6		4.8	10.4	28.8	29.3
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	10.6		1.0	3.2	0.9	1.7
Delay (s)	23.3		5.8	13.7	29.7	30.9
Level of Service	C		A	B	C	C
Approach Delay (s)	23.3			13.6	30.5	
Approach LOS	C			B	C	

Intersection Summary			
HCM 2000 Control Delay	19.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	88.9	Sum of lost time (s)	9.0
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

MOVEMENT SUMMARY

Site: 101 [WH & 6th - 2025 AM FT]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	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	66	2.0	0.835	51.5	LOS F	5.2	37.2	0.93	1.32	2.49	32.4
2	T1	254	2.0	0.835	51.0	LOS F	5.3	37.7	0.93	1.32	2.49	32.4
3	R2	261	2.0	0.835	48.5	LOS E	5.3	37.7	0.92	1.31	2.50	32.4
Approach		581	2.0	0.835	50.0	LOS E	5.3	37.7	0.93	1.32	2.50	32.4
East: William Halton												
4	L2	262	2.0	1.519	254.1	LOS F	172.3	1227.0	1.00	5.24	11.27	11.9
5	T1	2360	2.0	1.519	254.0	LOS F	174.8	1244.3	1.00	5.28	11.36	11.8
6	R2	53	2.0	1.519	253.9	LOS F	174.8	1244.3	1.00	5.31	11.43	11.8
Approach		2675	2.0	1.519	254.0	LOS F	174.8	1244.3	1.00	5.28	11.35	11.8
North: Sixth												
7	L2	50	2.0	0.509	27.5	LOS D	1.8	12.5	0.85	0.98	1.37	40.4
8	T1	215	2.0	0.509	26.4	LOS D	1.8	12.5	0.84	0.97	1.36	41.2
9	R2	39	2.0	0.509	25.4	LOS D	1.7	12.4	0.84	0.96	1.35	40.9
Approach		304	2.0	0.509	26.4	LOS D	1.8	12.5	0.84	0.97	1.36	41.0
West: William Halton												
10	L2	13	2.0	1.687	329.5	LOS F	195.7	1393.5	1.00	6.22	15.05	9.6
11	T1	2598	2.0	1.687	329.3	LOS F	199.7	1421.5	1.00	6.28	15.20	9.6
12	R2	125	2.0	1.687	329.1	LOS F	199.7	1421.5	1.00	6.33	15.35	9.5
Approach		2735	2.0	1.687	329.3	LOS F	199.7	1421.5	1.00	6.28	15.20	9.6
All Vehicles		6295	2.0	1.687	256.9	LOS F	199.7	1421.5	0.99	5.14	11.72	11.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [WH & 6th - 2025 PM FT]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles

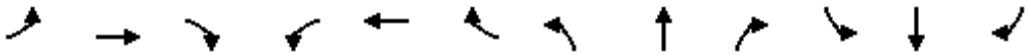
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Sixth												
1	L2	35	2.0	0.754	39.7	LOS E	4.0	28.5	0.90	1.18	2.02	36.2
2	T1	262	2.0	0.754	39.4	LOS E	4.0	28.6	0.89	1.18	2.02	36.1
3	R2	251	2.0	0.754	37.3	LOS E	4.0	28.6	0.88	1.17	2.02	35.9
Approach		547	2.0	0.754	38.4	LOS E	4.0	28.6	0.89	1.17	2.02	36.0
East: William Halton												
4	L2	223	2.0	1.265	145.6	LOS F	103.1	733.9	1.00	3.89	8.03	18.0
5	T1	1974	2.0	1.265	145.4	LOS F	104.4	743.5	1.00	3.91	8.08	17.9
6	R2	21	2.0	1.265	145.3	LOS F	104.4	743.5	1.00	3.93	8.13	17.8
Approach		2218	2.0	1.265	145.5	LOS F	104.4	743.5	1.00	3.91	8.08	17.9
North: Sixth												
7	L2	20	2.0	0.467	25.1	LOS D	1.6	11.1	0.84	0.95	1.29	42.0
8	T1	253	2.0	0.467	24.1	LOS C	1.6	11.1	0.83	0.94	1.28	42.4
9	R2	12	2.0	0.467	23.2	LOS C	1.5	11.0	0.82	0.93	1.27	42.0
Approach		284	2.0	0.467	24.1	LOS C	1.6	11.1	0.83	0.94	1.28	42.4
West: William Halton												
10	L2	52	2.0	1.442	222.2	LOS F	132.3	942.1	1.00	5.07	12.06	13.2
11	T1	2132	2.0	1.442	222.0	LOS F	134.9	960.8	1.00	5.12	12.18	13.1
12	R2	136	2.0	1.442	221.8	LOS F	134.9	960.8	1.00	5.16	12.30	13.0
Approach		2319	2.0	1.442	222.0	LOS F	134.9	960.8	1.00	5.12	12.18	13.1
All Vehicles		5368	2.0	1.442	161.2	LOS F	134.9	960.8	0.98	3.99	8.87	16.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Appendix K

2030 Future Background Conditions Synchro and Sidra Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	120	34	91	197	25	67	451	79	19	283	22
Future Volume (vph)	21	120	34	91	197	25	67	451	79	19	283	22
Ideal Flow (vphpl)	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)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor								1.00				
Frt		0.967			0.983			0.978			0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1801	0	1770	1831	0	1770	3451	0	1770	3500	0
Flt Permitted	0.337			0.656			0.561			0.395		
Satd. Flow (perm)	628	1801	0	1222	1831	0	1045	3451	0	736	3500	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			7			26			13	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		169.9			629.3			302.6			268.3	
Travel Time (s)		12.2			45.3			21.8			19.3	
Confl. Bikes (#/hr)									1			
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)	22	124	35	94	203	26	69	465	81	20	292	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	159	0	94	229	0	69	546	0	20	315	0
Enter Blocked Intersection	No	No	No	No	No	No	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)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	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		Perm	NA		pm+pt	NA	

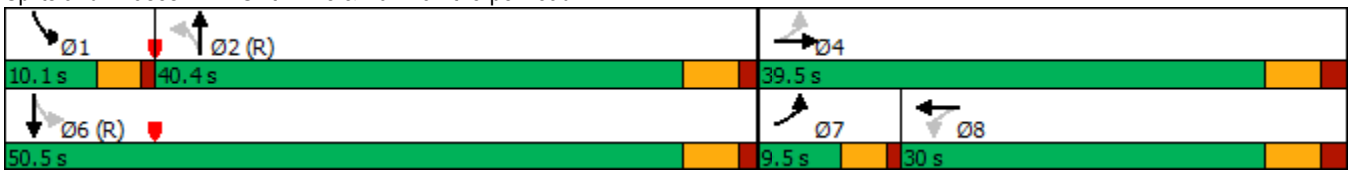


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	7	4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		1.0	1.0		5.0	5.0	
Minimum Split (s)	9.5	29.6		29.6	29.6		38.1	38.1		10.1	38.1	
Total Split (s)	9.5	39.5		30.0	30.0		40.4	40.4		10.1	50.5	
Total Split (%)	10.6%	43.9%		33.3%	33.3%		44.9%	44.9%		11.2%	56.1%	
Maximum Green (s)	5.5	33.9		24.4	24.4		35.3	35.3		6.1	45.4	
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	Lag		Lead		
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
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)	21.6	20.0		16.2	16.2		55.1	55.1		60.4	59.3	
Actuated g/C Ratio	0.24	0.22		0.18	0.18		0.61	0.61		0.67	0.66	
v/c Ratio	0.10	0.38		0.43	0.69		0.11	0.26		0.04	0.14	
Control Delay	22.5	26.7		37.6	43.6		12.9	10.8		8.0	7.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	22.5	26.7		37.6	43.6		12.9	10.8		8.0	7.1	
LOS	C	C		D	D		B	B		A	A	
Approach Delay		26.2			41.8			11.0			7.2	
Approach LOS		C			D			B			A	
Queue Length 50th (m)	3.1	21.9		14.6	36.3		3.3	14.2		0.9	7.6	
Queue Length 95th (m)	7.1	31.2		26.9	54.7		16.1	44.8		4.6	20.1	
Internal Link Dist (m)		145.9			605.3			278.6			244.3	
Turn Bay Length (m)	60.0			50.0			50.0			60.0		
Base Capacity (vph)	220	689		331	501		640	2123		566	2311	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.10	0.23		0.28	0.46		0.11	0.26		0.04	0.14	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
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: 0.69			
Intersection Signal Delay: 18.9		Intersection LOS: B	
Intersection Capacity Utilization 50.8%		ICU Level of Service A	

Analysis Period (min) 15

Splits and Phases: 1: Sixth Line & Burnhamthorpe Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	120	34	91	197	25	67	451	79	19	283	22
Future Volume (vph)	21	120	34	91	197	25	67	451	79	19	283	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.6		5.6	5.6		5.1	5.1		4.0	5.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.98		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1801		1770	1831		1770	3450		1770	3500	
Flt Permitted	0.34	1.00		0.66	1.00		0.56	1.00		0.39	1.00	
Satd. Flow (perm)	627	1801		1222	1831		1044	3450		736	3500	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	22	124	35	94	203	26	69	465	81	20	292	23
RTOR Reduction (vph)	0	14	0	0	6	0	0	11	0	0	5	0
Lane Group Flow (vph)	22	145	0	94	223	0	69	535	0	20	310	0
Confl. Bikes (#/hr)									1			
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		
Actuated Green, G (s)	22.4	22.4		16.2	16.2		50.3	50.3		56.9	56.9	
Effective Green, g (s)	22.4	22.4		16.2	16.2		50.3	50.3		56.9	56.9	
Actuated g/C Ratio	0.25	0.25		0.18	0.18		0.56	0.56		0.63	0.63	
Clearance Time (s)	4.0	5.6		5.6	5.6		5.1	5.1		4.0	5.1	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	183	448		219	329		583	1928		495	2212	
v/s Ratio Prot	0.00	c0.08			c0.12			c0.15		0.00	c0.09	
v/s Ratio Perm	0.03			0.08			0.07			0.02		
v/c Ratio	0.12	0.32		0.43	0.68		0.12	0.28		0.04	0.14	
Uniform Delay, d1	26.2	27.6		32.8	34.5		9.4	10.4		6.4	6.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.4		1.4	5.5		0.4	0.4		0.0	0.1	
Delay (s)	26.5	28.0		34.1	39.9		9.8	10.7		6.4	6.8	
Level of Service	C	C		C	D		A	B		A	A	
Approach Delay (s)		27.9			38.3			10.6			6.8	
Approach LOS		C			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	18.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.7
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1926	174	2	2098	423	6
Future Volume (vph)	1926	174	2	2098	423	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)			15.0		15.0	
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			0.057		0.950	
Satd. Flow (perm)	3539	1583	106	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		168				7
Link Speed (k/h)	50			50	50	
Link Distance (m)	165.7			125.2	87.0	
Travel Time (s)	11.9			9.0	6.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2093	189	2	2280	460	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2093	189	2	2280	460	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)	3.0			3.0	3.0	
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

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)	22.9	22.9	22.9	22.9	23.5	23.5
Total Split (s)	75.0	75.0	75.0	75.0	35.0	35.0
Total Split (%)	68.2%	68.2%	68.2%	68.2%	31.8%	31.8%
Maximum Green (s)	70.1	70.1	70.1	70.1	29.5	29.5
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 Effct Green (s)	70.1	70.1	70.1	70.1	29.5	29.5
Actuated g/C Ratio	0.64	0.64	0.64	0.64	0.27	0.27
v/c Ratio	0.93	0.18	0.03	1.01	0.97	0.02
Control Delay	26.7	2.0	9.0	42.4	75.4	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.7	2.0	9.0	42.4	75.4	16.8
LOS	C	A	A	D	E	B
Approach Delay	24.6			42.4	74.5	
Approach LOS	C			D	E	
Queue Length 50th (m)	193.1	1.5	0.1	~249.3	97.7	0.0
Queue Length 95th (m)	#244.5	9.1	1.2	#313.0	#160.6	3.5
Internal Link Dist (m)	141.7			101.2	63.0	
Turn Bay Length (m)		75.0	75.0			
Base Capacity (vph)	2255	1069	67	2255	474	429
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	0.93	0.18	0.03	1.01	0.97	0.02

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.01			
Intersection Signal Delay: 37.3		Intersection LOS: D	
Intersection Capacity Utilization 90.1%		ICU Level of Service E	
Analysis Period (min) 15			

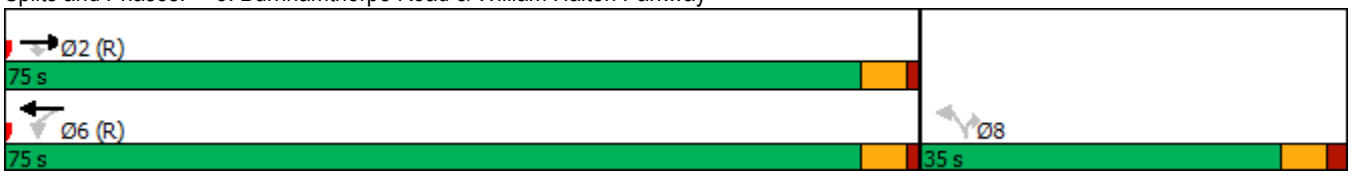
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

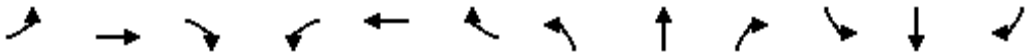
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1926	174	2	2098	423	6
Future Volume (vph)	1926	174	2	2098	423	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted	1.00	1.00	0.06	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	106	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2093	189	2	2280	460	7
RTOR Reduction (vph)	0	61	0	0	0	5
Lane Group Flow (vph)	2093	128	2	2280	460	2
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8
Actuated Green, G (s)	70.1	70.1	70.1	70.1	29.5	29.5
Effective Green, g (s)	70.1	70.1	70.1	70.1	29.5	29.5
Actuated g/C Ratio	0.64	0.64	0.64	0.64	0.27	0.27
Clearance Time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2255	1008	67	2255	474	424
v/s Ratio Prot	0.59			c0.64		
v/s Ratio Perm		0.08	0.02		c0.26	0.00
v/c Ratio	0.93	0.13	0.03	1.01	0.97	0.00
Uniform Delay, d1	17.7	7.9	7.4	20.0	39.8	29.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.2	0.3	0.8	21.7	33.6	0.0
Delay (s)	25.9	8.1	8.2	41.7	73.5	29.5
Level of Service	C	A	A	D	E	C
Approach Delay (s)	24.5			41.6	72.8	
Approach LOS	C			D	E	

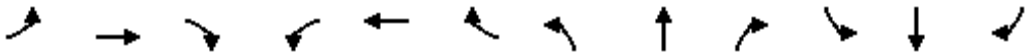
Intersection Summary			
HCM 2000 Control Delay	36.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	12	0	21	0	496	8	19	363	0
Future Volume (vph)	0	0	0	12	0	21	0	496	8	19	363	0
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	0.95	0.95	0.95	0.95	0.95	0.95
Frt					0.914			0.998				
Flt Protected					0.982						0.997	
Satd. Flow (prot)	0	1863	0	0	1672	0	0	3532	0	0	3529	0
Flt Permitted					0.982						0.997	
Satd. Flow (perm)	0	1863	0	0	1672	0	0	3532	0	0	3529	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		93.7			81.5			268.3			172.3	
Travel Time (s)		6.7			5.9			19.3			12.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	13	0	23	0	539	9	21	395	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	36	0	0	548	0	0	416	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	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	

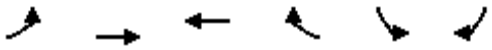
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.1%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	12	0	21	0	496	8	19	363	0
Future Volume (Veh/h)	0	0	0	12	0	21	0	496	8	19	363	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	13	0	23	0	539	9	21	395	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								268				
pX, platoon unblocked	0.98	0.98		0.98	0.98	0.98				0.98		
vC, conflicting volume	730	985	198	783	980	274	395			548		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	683	943	198	737	939	218	395			497		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	96	100	97	100			98		
cM capacity (veh/h)	314	251	811	296	252	771	1160			1041		

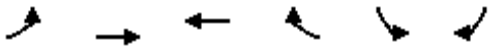
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	36	270	278	218	198
Volume Left	0	13	0	0	21	0
Volume Right	0	23	0	9	0	0
cSH	1700	488	1160	1700	1041	1700
Volume to Capacity	0.00	0.07	0.00	0.16	0.02	0.12
Queue Length 95th (m)	0.0	1.8	0.0	0.0	0.5	0.0
Control Delay (s)	0.0	13.0	0.0	0.0	1.0	0.0
Lane LOS	A	B			A	
Approach Delay (s)	0.0	13.0	0.0		0.5	
Approach LOS	A	B				

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	34.1%	ICU Level of Service		A
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	174	286	0	0	0
Future Volume (vph)	0	174	286	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	1863	1863	0	0	1863
Flt Permitted						
Satd. Flow (perm)	0	1863	1863	0	0	1863
Link Speed (k/h)		50	50		50	
Link Distance (m)		826.9	169.9		123.2	
Travel Time (s)		59.5	12.2		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	189	311	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	189	311	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.4%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	174	286	0	0	0
Future Volume (Veh/h)	0	174	286	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	189	311	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			170			
pX, platoon unblocked	0.90				0.90	0.90
vC, conflicting volume	311				500	311
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	184				393	184
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1257				552	776

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	189	311	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1700
Volume to Capacity	0.11	0.18	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	18.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2100	0	0	1840	0	0
Future Volume (vph)	2100	0	0	1840	0	0
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						
Flt Protected						
Satd. Flow (prot)	3539	0	1863	3539	1863	1863
Flt Permitted						
Satd. Flow (perm)	3539	0	1863	3539	1863	1863
Link Speed (k/h)	50			50	50	
Link Distance (m)	910.1			111.6	71.0	
Travel Time (s)	65.5			8.0	5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2283	0	0	2000	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2283	0	0	2000	0	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)	3.0			3.0	3.0	
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	

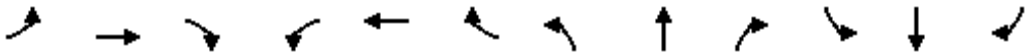
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 61.4%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2100	0	0	1840	0	0
Future Volume (Veh/h)	2100	0	0	1840	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2283	0	0	2000	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			2283		3283	1142
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2283		3283	1142
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			219		7	194

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	1522	761	0	1000	1000	0	0
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.90	0.45	0.00	0.59	0.59	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						A	A
Approach Delay (s)	0.0		0.0			0.0	
Approach LOS						A	

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	75	41	139	281	21	57	486	77	17	583	24
Future Volume (vph)	13	75	41	139	281	21	57	486	77	17	583	24
Ideal Flow (vphpl)	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)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor								1.00				
Frt		0.947			0.990			0.979			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	1744	0	1750	1824	0	1750	3417	0	1750	3479	0
Flt Permitted	0.253			0.677			0.406			0.360		
Satd. Flow (perm)	466	1744	0	1247	1824	0	748	3417	0	663	3479	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36			4			23			7	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		169.9			629.3			302.6			268.3	
Travel Time (s)		12.2			45.3			21.8			19.3	
Confl. Bikes (#/hr)									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
Adj. Flow (vph)	14	80	44	148	299	22	61	517	82	18	620	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	124	0	148	321	0	61	599	0	18	646	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	

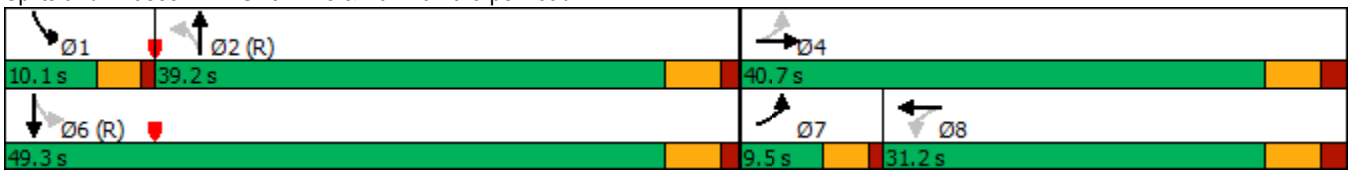


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	7	4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		1.0	1.0		5.0	5.0	
Minimum Split (s)	9.5	29.6		29.6	29.6		38.1	38.1		10.1	38.1	
Total Split (s)	9.5	40.7		31.2	31.2		39.2	39.2		10.1	49.3	
Total Split (%)	10.6%	45.2%		34.7%	34.7%		43.6%	43.6%		11.2%	54.8%	
Maximum Green (s)	5.5	35.1		25.6	25.6		34.1	34.1		6.1	44.2	
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	Lag		Lead		
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
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)	23.9	22.3		20.4	20.4		53.0	53.0		58.1	57.0	
Actuated g/C Ratio	0.27	0.25		0.23	0.23		0.59	0.59		0.65	0.63	
v/c Ratio	0.07	0.27		0.52	0.77		0.14	0.30		0.04	0.29	
Control Delay	20.9	18.6		36.6	44.7		14.3	11.8		8.6	9.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.9	18.6		36.6	44.7		14.3	11.8		8.6	9.0	
LOS	C	B		D	D		B	B		A	A	
Approach Delay		18.8			42.2			12.0			9.0	
Approach LOS		B			D			B			A	
Queue Length 50th (m)	1.8	12.4		22.4	51.2		3.6	19.6		1.0	22.2	
Queue Length 95th (m)	4.9	20.7		38.2	74.2		16.3	53.2		4.7	46.9	
Internal Link Dist (m)		145.9			605.3			278.6			244.3	
Turn Bay Length (m)	60.0			50.0			50.0			60.0		
Base Capacity (vph)	201	702		354	521		440	2021		502	2207	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.07	0.18		0.42	0.62		0.14	0.30		0.04	0.29	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
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: 0.77			
Intersection Signal Delay: 18.8		Intersection LOS: B	
Intersection Capacity Utilization 49.4%		ICU Level of Service A	

Analysis Period (min) 15

Splits and Phases: 1: Sixth Line & Burnhamthorpe Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	75	41	139	281	21	57	486	77	17	583	24
Future Volume (vph)	13	75	41	139	281	21	57	486	77	17	583	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.6		5.6	5.6		5.1	5.1		4.0	5.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	0.99		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	1744		1750	1823		1750	3418		1750	3479	
Flt Permitted	0.25	1.00		0.68	1.00		0.41	1.00		0.36	1.00	
Satd. Flow (perm)	466	1744		1248	1823		749	3418		663	3479	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	14	80	44	148	299	22	61	517	82	18	620	26
RTOR Reduction (vph)	0	26	0	0	3	0	0	11	0	0	3	0
Lane Group Flow (vph)	14	98	0	148	318	0	61	588	0	18	643	0
Confl. Bikes (#/hr)									1			
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		
Actuated Green, G (s)	25.5	25.5		20.4	20.4		47.4	47.4		53.8	53.8	
Effective Green, g (s)	25.5	25.5		20.4	20.4		47.4	47.4		53.8	53.8	
Actuated g/C Ratio	0.28	0.28		0.23	0.23		0.53	0.53		0.60	0.60	
Clearance Time (s)	4.0	5.6		5.6	5.6		5.1	5.1		4.0	5.1	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	147	494		282	413		394	1800		425	2079	
v/s Ratio Prot	0.00	c0.06			c0.17			c0.17		0.00	c0.18	
v/s Ratio Perm	0.03			0.12			0.08			0.02		
v/c Ratio	0.10	0.20		0.52	0.77		0.15	0.33		0.04	0.31	
Uniform Delay, d1	24.3	24.5		30.5	32.6		11.0	12.2		7.7	8.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.2		1.8	8.4		0.8	0.5		0.0	0.4	
Delay (s)	24.6	24.7		32.3	41.0		11.8	12.7		7.8	9.3	
Level of Service	C	C		C	D		B	B		A	A	
Approach Delay (s)		24.7			38.3			12.6			9.3	
Approach LOS		C			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	18.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.7
Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1844	256	6	2094	408	4
Future Volume (vph)	1844	256	6	2094	408	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		75.0	75.0		150.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			15.0		15.0	
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)	3500	1566	1750	3500	1750	1566
Flt Permitted			0.057		0.950	
Satd. Flow (perm)	3500	1566	105	3500	1750	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		258				4
Link Speed (k/h)	50			50	50	
Link Distance (m)	165.7			125.2	87.0	
Travel Time (s)	11.9			9.0	6.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2004	278	7	2276	443	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2004	278	7	2276	443	4
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	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

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)	22.9	22.9	22.9	22.9	23.5	23.5
Total Split (s)	75.0	75.0	75.0	75.0	35.0	35.0
Total Split (%)	68.2%	68.2%	68.2%	68.2%	31.8%	31.8%
Maximum Green (s)	70.1	70.1	70.1	70.1	29.5	29.5
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 Effct Green (s)	70.5	70.5	70.5	70.5	29.1	29.1
Actuated g/C Ratio	0.64	0.64	0.64	0.64	0.26	0.26
v/c Ratio	0.89	0.25	0.11	1.02	0.96	0.01
Control Delay	23.4	1.9	12.2	43.5	73.0	19.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.4	1.9	12.2	43.5	73.0	19.0
LOS	C	A	B	D	E	B
Approach Delay	20.8			43.4	72.5	
Approach LOS	C			D	E	
Queue Length 50th (m)	176.8	1.5	0.5	~273.5	93.3	0.0
Queue Length 95th (m)	218.8	10.5	2.9	#315.2	#153.3	2.7
Internal Link Dist (m)	141.7			101.2	63.0	
Turn Bay Length (m)		75.0	75.0		150.0	
Base Capacity (vph)	2242	1096	66	2242	469	422
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	0.89	0.25	0.11	1.02	0.94	0.01

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.02			
Intersection Signal Delay: 35.7		Intersection LOS: D	
Intersection Capacity Utilization 89.2%		ICU Level of Service E	
Analysis Period (min) 15			

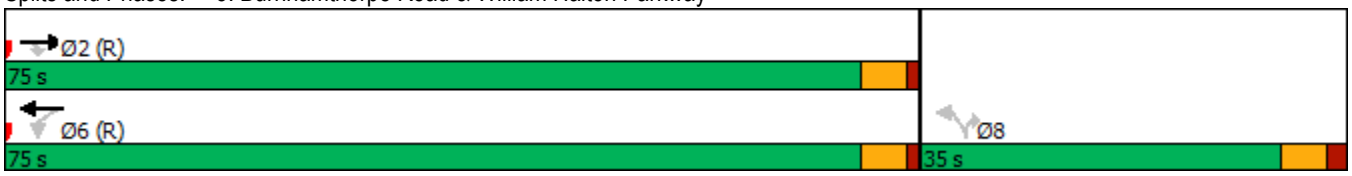
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

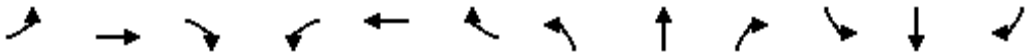
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1844	256	6	2094	408	4
Future Volume (vph)	1844	256	6	2094	408	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3500	1566	1750	3500	1750	1566
Flt Permitted	1.00	1.00	0.06	1.00	0.95	1.00
Satd. Flow (perm)	3500	1566	105	3500	1750	1566
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2004	278	7	2276	443	4
RTOR Reduction (vph)	0	93	0	0	0	3
Lane Group Flow (vph)	2004	185	7	2276	443	1
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8
Actuated Green, G (s)	70.5	70.5	70.5	70.5	29.1	29.1
Effective Green, g (s)	70.5	70.5	70.5	70.5	29.1	29.1
Actuated g/C Ratio	0.64	0.64	0.64	0.64	0.26	0.26
Clearance Time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2243	1003	67	2243	462	414
v/s Ratio Prot	0.57			c0.65		
v/s Ratio Perm		0.12	0.07		c0.25	0.00
v/c Ratio	0.89	0.18	0.10	1.01	0.96	0.00
Uniform Delay, d1	16.6	8.0	7.6	19.8	39.9	29.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.0	0.4	3.1	22.7	31.1	0.0
Delay (s)	22.6	8.5	10.7	42.5	71.0	29.8
Level of Service	C	A	B	D	E	C
Approach Delay (s)	20.9			42.4	70.6	
Approach LOS	C			D	E	

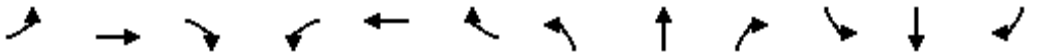
Intersection Summary			
HCM 2000 Control Delay	35.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	11	0	28	0	527	14	13	622	0
Future Volume (vph)	0	0	0	11	0	28	0	527	14	13	622	0
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	0.95	0.95	0.95	0.95	0.95	0.95
Frt					0.904			0.996				
Flt Protected					0.986						0.999	
Satd. Flow (prot)	0	1842	0	0	1642	0	0	3486	0	0	3496	0
Flt Permitted					0.986						0.999	
Satd. Flow (perm)	0	1842	0	0	1642	0	0	3486	0	0	3496	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		93.7			81.5			268.3			172.3	
Travel Time (s)		6.7			5.9			19.3			12.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	12	0	30	0	573	15	14	676	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	42	0	0	588	0	0	690	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

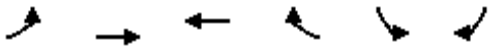
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.5%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	11	0	28	0	527	14	13	622	0
Future Volume (Veh/h)	0	0	0	11	0	28	0	527	14	13	622	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	12	0	30	0	573	15	14	676	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								268				
pX, platoon unblocked	0.95	0.95		0.95	0.95	0.95				0.95		
vC, conflicting volume	1020	1292	338	946	1284	294	676			588		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	926	1211	338	849	1203	165	676			473		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	95	100	96	100			99		
cM capacity (veh/h)	203	171	658	240	172	812	911			1036		

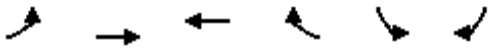
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	42	286	302	352	338
Volume Left	0	12	0	0	14	0
Volume Right	0	30	0	15	0	0
cSH	1700	483	911	1700	1036	1700
Volume to Capacity	0.00	0.09	0.00	0.18	0.01	0.20
Queue Length 95th (m)	0.0	2.2	0.0	0.0	0.3	0.0
Control Delay (s)	0.0	13.2	0.0	0.0	0.5	0.0
Lane LOS	A	B			A	
Approach Delay (s)	0.0	13.2	0.0		0.2	
Approach LOS	A	B				

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	36.5%	ICU Level of Service		A
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	129	362	0	0	0
Future Volume (vph)	0	129	362	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	1842	1842	0	0	1842
Flt Permitted						
Satd. Flow (perm)	0	1842	1842	0	0	1842
Link Speed (k/h)		50	50		50	
Link Distance (m)		826.9	169.9		123.2	
Travel Time (s)		59.5	12.2		8.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	140	393	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	140	393	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.4%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	129	362	0	0	0
Future Volume (Veh/h)	0	129	362	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	140	393	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			170			
pX, platoon unblocked	0.84				0.84	0.84
vC, conflicting volume	393				533	393
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	190				355	190
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1169				543	720

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	140	393	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1700
Volume to Capacity	0.08	0.23	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	22.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2100	0	0	1782	0	0
Future Volume (vph)	2100	0	0	1782	0	0
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)			15.0		15.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	3500	0	1842	3500	1842	1842
Flt Permitted						
Satd. Flow (perm)	3500	0	1842	3500	1842	1842
Link Speed (k/h)	50			50	50	
Link Distance (m)	910.1			111.6	71.0	
Travel Time (s)	65.5			8.0	5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2283	0	0	1937	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2283	0	0	1937	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2100	0	0	1782	0	0
Future Volume (Veh/h)	2100	0	0	1782	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2283	0	0	1937	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			2283		3252	1142
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2283		3252	1142
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			219		7	194

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	1522	761	0	968	968	0	0
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.90	0.45	0.00	0.57	0.57	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						A	A
Approach Delay (s)	0.0		0.0			0.0	
Approach LOS						A	

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
Analysis Period (min)	15		

MOVEMENT SUMMARY

Site: 101 [WH & 6th - 2030 AM FB]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	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	21	2.0	0.897	62.2	LOS F	6.8	48.2	0.95	1.47	3.02	29.8
2	T1	276	2.0	0.897	62.2	LOS F	6.8	48.2	0.95	1.47	3.02	29.7
3	R2	365	2.0	1.015	86.0	LOS F	13.1	92.9	1.00	1.94	4.81	24.3
Approach		663	2.0	1.015	75.3	LOS F	13.1	92.9	0.98	1.73	4.01	26.5
East: William Halton												
4	L2	291	2.0	1.463	229.7	LOS F	162.0	1153.1	1.00	4.91	10.18	12.8
5	T1	2268	2.0	1.463	229.6	LOS F	164.0	1167.8	1.00	4.94	10.26	12.8
6	R2	66	2.0	1.463	229.5	LOS F	164.0	1167.8	1.00	4.96	10.32	12.7
Approach		2625	2.0	1.463	229.6	LOS F	164.0	1167.8	1.00	4.94	10.25	12.8
North: Sixth												
7	L2	56	2.0	0.491	26.2	LOS D	1.7	11.9	0.84	0.96	1.33	40.9
8	T1	230	2.0	0.491	25.0	LOS C	1.7	11.9	0.83	0.95	1.32	41.8
9	R2	11	2.0	0.491	24.2	LOS C	1.7	11.8	0.83	0.95	1.31	41.5
Approach		298	2.0	0.491	25.2	LOS D	1.7	11.9	0.84	0.95	1.32	41.6
West: William Halton												
10	L2	9	2.0	1.677	325.5	LOS F	184.8	1316.0	1.00	6.24	15.62	9.7
11	T1	2591	2.0	1.677	325.3	LOS F	189.0	1345.5	1.00	6.30	15.79	9.7
12	R2	25	2.0	1.677	325.1	LOS F	189.0	1345.5	1.00	6.36	15.97	9.6
Approach		2625	2.0	1.677	325.3	LOS F	189.0	1345.5	1.00	6.30	15.79	9.7
All Vehicles		6210	2.0	1.677	243.8	LOS F	189.0	1345.5	0.99	4.98	11.50	12.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [WH & 6th - 2030 PM FB]

New Site
Site Category: (None)
Roundabout

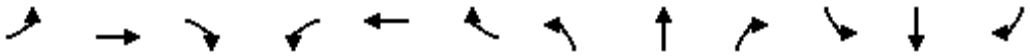
Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Sixth												
1	L2	33	2.0	0.773	39.8	LOS E	4.4	31.7	0.89	1.20	2.11	36.1
2	T1	286	2.0	0.773	39.6	LOS E	4.5	31.9	0.89	1.20	2.11	36.1
3	R2	277	2.0	0.773	37.6	LOS E	4.5	31.9	0.88	1.19	2.10	35.8
Approach		596	2.0	0.773	38.7	LOS E	4.5	31.9	0.89	1.20	2.11	35.9
East: William Halton												
4	L2	325	2.0	1.269	147.6	LOS F	102.9	732.8	1.00	3.93	8.21	17.8
5	T1	1835	2.0	1.269	147.4	LOS F	104.3	742.7	1.00	3.96	8.27	17.8
6	R2	51	2.0	1.269	147.3	LOS F	104.3	742.7	1.00	3.97	8.32	17.6
Approach		2211	2.0	1.269	147.4	LOS F	104.3	742.7	1.00	3.95	8.26	17.8
North: Sixth												
7	L2	22	2.0	0.491	25.5	LOS D	1.7	12.0	0.84	0.96	1.32	41.8
8	T1	276	2.0	0.491	24.5	LOS C	1.7	12.0	0.83	0.95	1.31	42.2
9	R2	8	2.0	0.491	23.6	LOS C	1.7	11.9	0.82	0.94	1.31	41.7
Approach		306	2.0	0.491	24.6	LOS C	1.7	12.0	0.83	0.95	1.31	42.2
West: William Halton												
10	L2	35	2.0	1.485	242.2	LOS F	129.6	922.9	1.00	5.36	13.75	12.3
11	T1	2093	2.0	1.485	242.0	LOS F	132.9	946.0	1.00	5.42	13.92	12.3
12	R2	83	2.0	1.485	241.7	LOS F	132.9	946.0	1.00	5.48	14.09	12.2
Approach		2211	2.0	1.485	242.0	LOS F	132.9	946.0	1.00	5.42	13.92	12.3
All Vehicles		5323	2.0	1.485	167.4	LOS F	132.9	946.0	0.98	4.08	9.52	16.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Appendix L

2030 Future Total Conditions Synchro and Sidra Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	120	34	91	256	32	204	611	79	65	493	22
Future Volume (vph)	60	120	34	91	256	32	204	611	79	65	493	22
Ideal Flow (vphpl)	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)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	0.99		0.97	0.99		0.92	0.98		0.96	0.99	
Frt		0.967			0.983			0.983			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1775	0	1770	1818	0	1770	3414	0	1770	3481	0
Flt Permitted	0.333			0.615			0.451			0.363		
Satd. Flow (perm)	608	1775	0	1115	1818	0	776	3414	0	652	3481	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			7			26			8	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		169.9			629.3			302.6			268.3	
Travel Time (s)		12.2			45.3			21.8			19.3	
Confl. Peds. (#/hr)	30		30	30		30	121		76	76		121
Confl. Bikes (#/hr)			29			29			73			117
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)	62	124	35	94	264	33	210	630	81	67	508	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	159	0	94	297	0	210	711	0	67	531	0
Enter Blocked Intersection	No	No	No	No	No	No	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)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	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	

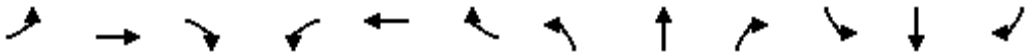


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		1.0	1.0		5.0	5.0	
Minimum Split (s)	29.6	29.6		29.6	29.6		38.1	38.1		38.1	38.1	
Total Split (s)	33.0	33.0		33.0	33.0		57.0	57.0		57.0	57.0	
Total Split (%)	36.7%	36.7%		36.7%	36.7%		63.3%	63.3%		63.3%	63.3%	
Maximum Green (s)	27.4	27.4		27.4	27.4		51.9	51.9		51.9	51.9	
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)	0.0	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		5.1	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)	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 Effct Green (s)	19.6	19.6		19.6	19.6		59.7	59.7		59.7	59.7	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.66	0.66		0.66	0.66	
v/c Ratio	0.47	0.40		0.39	0.74		0.41	0.31		0.16	0.23	
Control Delay	41.1	28.8		33.4	42.9		11.2	7.3		8.2	6.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	41.1	28.8		33.4	42.9		11.2	7.3		8.2	6.9	
LOS	D	C		C	D		B	A		A	A	
Approach Delay		32.2			40.6			8.2			7.0	
Approach LOS		C			D			A			A	
Queue Length 50th (m)	9.4	21.1		14.0	47.0		14.8	23.2		3.8	16.7	
Queue Length 95th (m)	20.2	34.9		25.5	67.2		36.6	39.8		11.3	29.3	
Internal Link Dist (m)		145.9			605.3			278.6			244.3	
Turn Bay Length (m)	60.0			50.0			50.0			60.0		
Base Capacity (vph)	185	551		339	558		514	2273		432	2311	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.34	0.29		0.28	0.53		0.41	0.31		0.16	0.23	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 16.3		Intersection LOS: B	

Intersection Capacity Utilization 79.2% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 1: Sixth Line & Burnhamthorpe Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	120	34	91	256	32	204	611	79	65	493	22
Future Volume (vph)	60	120	34	91	256	32	204	611	79	65	493	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6		5.6	5.6		5.1	5.1		5.1	5.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	0.98		1.00	0.99	
Flpb, ped/bikes	0.98	1.00		0.97	1.00		0.92	1.00		0.96	1.00	
Frt	1.00	0.97		1.00	0.98		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1737	1772		1723	1817		1631	3416		1704	3480	
Flt Permitted	0.33	1.00		0.62	1.00		0.45	1.00		0.36	1.00	
Satd. Flow (perm)	609	1772		1116	1817		775	3416		651	3480	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	62	124	35	94	264	33	210	630	81	67	508	23
RTOR Reduction (vph)	0	13	0	0	5	0	0	9	0	0	3	0
Lane Group Flow (vph)	62	146	0	94	292	0	210	702	0	67	528	0
Confl. Peds. (#/hr)	30		30	30		30	121		76	76		121
Confl. Bikes (#/hr)			29			29			73			117
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	19.6	19.6		19.6	19.6		59.7	59.7		59.7	59.7	
Effective Green, g (s)	19.6	19.6		19.6	19.6		59.7	59.7		59.7	59.7	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.66	0.66		0.66	0.66	
Clearance Time (s)	5.6	5.6		5.6	5.6		5.1	5.1		5.1	5.1	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	132	385		243	395		514	2265		431	2308	
v/s Ratio Prot		0.08			c0.16			0.21			0.15	
v/s Ratio Perm	0.10			0.08			c0.27			0.10		
v/c Ratio	0.47	0.38		0.39	0.74		0.41	0.31		0.16	0.23	
Uniform Delay, d1	30.7	30.0		30.1	32.8		7.0	6.4		5.7	6.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.6	0.6		1.0	7.1		2.4	0.4		0.8	0.2	
Delay (s)	33.3	30.7		31.1	39.9		9.4	6.8		6.5	6.2	
Level of Service	C	C		C	D		A	A		A	A	
Approach Delay (s)		31.4			37.8			7.4			6.3	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	10.7
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2065	213	2	2106	517	6
Future Volume (vph)	2065	213	2	2106	517	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		75.0	75.0		150.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			15.0		15.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.82			0.99	0.94
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted			0.048		0.950	
Satd. Flow (perm)	3539	1305	89	3539	1745	1495
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		135				5
Link Speed (k/h)	50			50	50	
Link Distance (m)	165.7			125.2	87.0	
Travel Time (s)	11.9			9.0	6.3	
Confl. Peds. (#/hr)		36	36		6	15
Confl. Bikes (#/hr)		35				15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2245	232	2	2289	562	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2245	232	2	2289	562	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)	3.0			3.0	3.0	
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		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	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	22.9	22.9	23.5	23.5
Total Split (s)	88.0	88.0	88.0	88.0	52.0	52.0
Total Split (%)	62.9%	62.9%	62.9%	62.9%	37.1%	37.1%
Maximum Green (s)	83.1	83.1	83.1	83.1	46.5	46.5
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 Effct Green (s)	83.5	83.5	83.5	83.5	46.1	46.1
Actuated g/C Ratio	0.60	0.60	0.60	0.60	0.33	0.33
v/c Ratio	1.06	0.28	0.04	1.08	0.98	0.01
Control Delay	67.6	6.4	14.0	75.4	79.0	21.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.6	6.4	14.0	75.4	79.0	21.2
LOS	E	A	B	E	E	C
Approach Delay	61.9			75.3	78.3	
Approach LOS	E			E	E	
Queue Length 50th (m)	~361.2	11.3	0.2	~374.4	153.2	0.4
Queue Length 95th (m)	#400.7	24.6	1.6	#413.7	#226.5	3.9
Internal Link Dist (m)	141.7			101.2	63.0	
Turn Bay Length (m)		75.0	75.0		150.0	
Base Capacity (vph)	2110	832	52	2110	579	499
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	1.06	0.28	0.04	1.08	0.97	0.01

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 140	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.08	
Intersection Signal Delay: 69.4	Intersection LOS: E

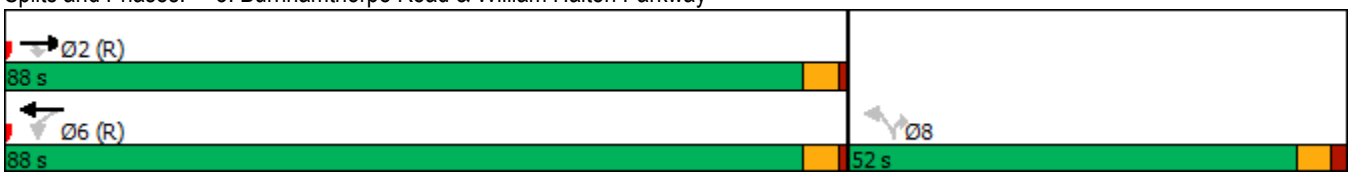
Intersection Capacity Utilization 95.5% ICU Level of Service F

Analysis Period (min) 15

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

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

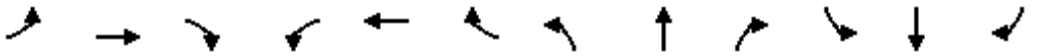
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2065	213	2	2106	517	6
Future Volume (vph)	2065	213	2	2106	517	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.82	1.00	1.00	1.00	0.94
Flpb, ped/bikes	1.00	1.00	1.00	1.00	0.99	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1305	1770	3539	1745	1495
Flt Permitted	1.00	1.00	0.05	1.00	0.95	1.00
Satd. Flow (perm)	3539	1305	89	3539	1745	1495
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2245	232	2	2289	562	7
RTOR Reduction (vph)	0	54	0	0	0	3
Lane Group Flow (vph)	2245	178	2	2289	562	4
Confl. Peds. (#/hr)		36	36		6	15
Confl. Bikes (#/hr)		35				15
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8
Actuated Green, G (s)	83.5	83.5	83.5	83.5	46.1	46.1
Effective Green, g (s)	83.5	83.5	83.5	83.5	46.1	46.1
Actuated g/C Ratio	0.60	0.60	0.60	0.60	0.33	0.33
Clearance Time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2110	778	53	2110	574	492
v/s Ratio Prot	0.63			c0.65		
v/s Ratio Perm		0.14	0.02		c0.32	0.00
v/c Ratio	1.06	0.23	0.04	1.08	0.98	0.01
Uniform Delay, d1	28.2	13.2	11.7	28.2	46.5	31.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	39.2	0.7	1.3	47.0	31.9	0.0
Delay (s)	67.5	13.9	13.0	75.3	78.3	31.6
Level of Service	E	B	B	E	E	C
Approach Delay (s)	62.4			75.2	77.8	
Approach LOS	E			E	E	

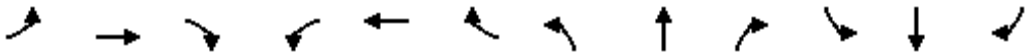
Intersection Summary			
HCM 2000 Control Delay	69.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	95.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	19	250	12	24	21	171	531	8	19	368	98
Future Volume (vph)	12	19	250	12	24	21	171	531	8	19	368	98
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	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt		0.880			0.950			0.998			0.970	
Flt Protected		0.998			0.990			0.988			0.998	
Satd. Flow (prot)	0	1636	0	0	1752	0	0	3490	0	0	3426	0
Flt Permitted		0.998			0.990			0.988			0.998	
Satd. Flow (perm)	0	1636	0	0	1752	0	0	3490	0	0	3426	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		93.7			101.2			268.3			412.8	
Travel Time (s)		6.7			7.3			19.3			29.7	
Confl. Peds. (#/hr)	45		30	30		45	136		30	30		136
Confl. Bikes (#/hr)			29			44			29			131
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	21	272	13	26	23	186	577	9	21	400	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	306	0	0	62	0	0	772	0	0	528	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	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	

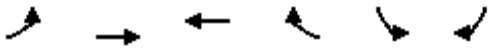
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 65.5%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	19	250	12	24	21	171	531	8	19	368	98
Future Volume (Veh/h)	12	19	250	12	24	21	171	531	8	19	368	98
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	21	272	13	26	23	186	577	9	21	400	107
Pedestrians		136			30			30			45	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		14			3			3			4	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								268				
pX, platoon unblocked	0.96	0.96		0.96	0.96	0.96				0.96		
vC, conflicting volume	1373	1620	420	1538	1668	368	643			616		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1314	1569	420	1485	1620	272	643			529		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	70	69	44	32	58	96	77			98		
cM capacity (veh/h)	44	67	488	19	62	649	810			968		

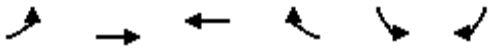
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	306	62	474	298	221	307
Volume Left	13	13	186	0	21	0
Volume Right	272	23	0	9	0	107
cSH	262	55	810	1700	968	1700
Volume to Capacity	1.17	1.13	0.23	0.17	0.02	0.18
Queue Length 95th (m)	104.8	40.3	6.7	0.0	0.5	0.0
Control Delay (s)	149.1	286.0	6.0	0.0	1.0	0.0
Lane LOS	F	F	A		A	
Approach Delay (s)	149.1	286.0	3.7		0.4	
Approach LOS	F	F				

Intersection Summary				
Average Delay	39.8			
Intersection Capacity Utilization	65.5%	ICU Level of Service	C	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	213	286	195	0	94
Future Volume (vph)	0	213	286	195	0	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.945			0.865
Flt Protected						
Satd. Flow (prot)	0	1863	1760	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	1863	1760	0	0	1611
Link Speed (k/h)		50	50		50	
Link Distance (m)		826.9	169.9		123.2	
Travel Time (s)		59.5	12.2		8.9	
Confl. Peds. (#/hr)				106		
Confl. Bikes (#/hr)				102		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	232	311	212	0	102
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	232	523	0	0	102
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	41.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	213	286	195	0	94
Future Volume (Veh/h)	0	213	286	195	0	94
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	232	311	212	0	102
Pedestrians					106	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.0	
Percent Blockage					11	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			170			
pX, platoon unblocked	0.85				0.85	0.85
vC, conflicting volume	629				755	523
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	474				622	349
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	81
cM capacity (veh/h)	826				342	527

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	232	523	102
Volume Left	0	0	0
Volume Right	0	212	102
cSH	1700	1700	527
Volume to Capacity	0.14	0.31	0.19
Queue Length 95th (m)	0.0	0.0	5.4
Control Delay (s)	0.0	0.0	13.5
Lane LOS			B
Approach Delay (s)	0.0	0.0	13.5
Approach LOS			B

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	41.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2183	56	85	1840	8	11
Future Volume (vph)	2183	56	85	1840	8	11
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	0.996					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3525	0	1770	3539	1770	1583
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3525	0	1770	3539	1770	1583
Link Speed (k/h)	50			50	50	
Link Distance (m)	910.1			111.6	71.0	
Travel Time (s)	65.5			8.0	5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2373	61	92	2000	9	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2434	0	92	2000	9	12
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)	3.0			3.0	3.0	
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	

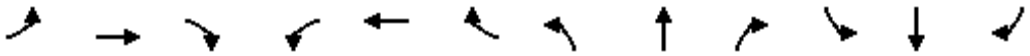
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 80.2%		ICU Level of Service D	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2183	56	85	1840	8	11
Future Volume (Veh/h)	2183	56	85	1840	8	11
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2373	61	92	2000	9	12
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			2434		3588	1217
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2434		3588	1217
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			52		0	93
cM capacity (veh/h)			191		2	173

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	1582	852	92	1000	1000	9	12
Volume Left	0	0	92	0	0	9	0
Volume Right	0	61	0	0	0	0	12
cSH	1700	1700	191	1700	1700	2	173
Volume to Capacity	0.93	0.50	0.48	0.59	0.59	4.29	0.07
Queue Length 95th (m)	0.0	0.0	17.9	0.0	0.0	Err	1.7
Control Delay (s)	0.0	0.0	40.3	0.0	0.0	Err	27.4
Lane LOS			E			F	D
Approach Delay (s)	0.0		1.8			4300.9	
Approach LOS						F	

Intersection Summary			
Average Delay	20.7		
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	120	34	91	256	32	204	611	79	65	493	22
Future Volume (vph)	60	120	34	91	256	32	204	611	79	65	493	22
Ideal Flow (vphpl)	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)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	0.99		0.97	0.99		0.92	0.98		0.96	0.99	
Frt		0.967			0.983			0.983			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1775	0	1770	1818	0	1770	3414	0	1770	3481	0
Flt Permitted	0.333			0.615			0.451			0.363		
Satd. Flow (perm)	608	1775	0	1115	1818	0	776	3414	0	652	3481	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			7			26			8	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		169.9			629.3			302.6			268.3	
Travel Time (s)		12.2			45.3			21.8			19.3	
Confl. Peds. (#/hr)	30		30	30		30	121		76	76		121
Confl. Bikes (#/hr)			29			29			73			117
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)	62	124	35	94	264	33	210	630	81	67	508	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	159	0	94	297	0	210	711	0	67	531	0
Enter Blocked Intersection	No	No	No	No	No	No	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)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	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	

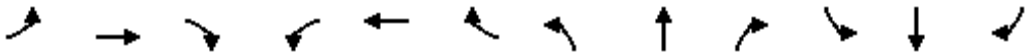


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		1.0	1.0		5.0	5.0	
Minimum Split (s)	29.6	29.6		29.6	29.6		38.1	38.1		38.1	38.1	
Total Split (s)	33.0	33.0		33.0	33.0		57.0	57.0		57.0	57.0	
Total Split (%)	36.7%	36.7%		36.7%	36.7%		63.3%	63.3%		63.3%	63.3%	
Maximum Green (s)	27.4	27.4		27.4	27.4		51.9	51.9		51.9	51.9	
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)	0.0	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		5.1	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)	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 Effct Green (s)	19.6	19.6		19.6	19.6		59.7	59.7		59.7	59.7	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.66	0.66		0.66	0.66	
v/c Ratio	0.47	0.40		0.39	0.74		0.41	0.31		0.16	0.23	
Control Delay	41.1	28.8		33.4	42.9		11.2	7.3		8.2	6.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	41.1	28.8		33.4	42.9		11.2	7.3		8.2	6.9	
LOS	D	C		C	D		B	A		A	A	
Approach Delay		32.2			40.6			8.2			7.0	
Approach LOS		C			D			A			A	
Queue Length 50th (m)	9.4	21.1		14.0	47.0		14.8	23.2		3.8	16.7	
Queue Length 95th (m)	20.2	34.9		25.5	67.2		36.6	39.8		11.3	29.3	
Internal Link Dist (m)		145.9			605.3			278.6			244.3	
Turn Bay Length (m)	60.0			50.0			50.0			60.0		
Base Capacity (vph)	185	551		339	558		514	2273		432	2311	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.34	0.29		0.28	0.53		0.41	0.31		0.16	0.23	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 79.9 (89%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 16.3	Intersection LOS: B

Intersection Capacity Utilization 79.2% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 1: Sixth Line & Burnhamthorpe Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	120	34	91	256	32	204	611	79	65	493	22
Future Volume (vph)	60	120	34	91	256	32	204	611	79	65	493	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6		5.6	5.6		5.1	5.1		5.1	5.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	0.98		1.00	0.99	
Flpb, ped/bikes	0.98	1.00		0.97	1.00		0.92	1.00		0.96	1.00	
Frt	1.00	0.97		1.00	0.98		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1737	1772		1723	1817		1631	3416		1704	3480	
Flt Permitted	0.33	1.00		0.62	1.00		0.45	1.00		0.36	1.00	
Satd. Flow (perm)	609	1772		1116	1817		775	3416		651	3480	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	62	124	35	94	264	33	210	630	81	67	508	23
RTOR Reduction (vph)	0	13	0	0	5	0	0	9	0	0	3	0
Lane Group Flow (vph)	62	146	0	94	292	0	210	702	0	67	528	0
Confl. Peds. (#/hr)	30		30	30		30	121		76	76		121
Confl. Bikes (#/hr)			29			29			73			117
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	19.6	19.6		19.6	19.6		59.7	59.7		59.7	59.7	
Effective Green, g (s)	19.6	19.6		19.6	19.6		59.7	59.7		59.7	59.7	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.66	0.66		0.66	0.66	
Clearance Time (s)	5.6	5.6		5.6	5.6		5.1	5.1		5.1	5.1	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	132	385		243	395		514	2265		431	2308	
v/s Ratio Prot		0.08			c0.16			0.21			0.15	
v/s Ratio Perm	0.10			0.08			c0.27			0.10		
v/c Ratio	0.47	0.38		0.39	0.74		0.41	0.31		0.16	0.23	
Uniform Delay, d1	30.7	30.0		30.1	32.8		7.0	6.4		5.7	6.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.6	0.6		1.0	7.1		2.4	0.4		0.8	0.2	
Delay (s)	33.3	30.7		31.1	39.9		9.4	6.8		6.5	6.2	
Level of Service	C	C		C	D		A	A		A	A	
Approach Delay (s)		31.4			37.8			7.4			6.3	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	10.7
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2065	213	2	2106	517	6
Future Volume (vph)	2065	213	2	2106	517	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		75.0	75.0		150.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			15.0		15.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.82			0.99	0.94
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted			0.048		0.950	
Satd. Flow (perm)	3539	1305	89	3539	1745	1495
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		135				5
Link Speed (k/h)	50			50	50	
Link Distance (m)	165.7			125.2	87.0	
Travel Time (s)	11.9			9.0	6.3	
Confl. Peds. (#/hr)		36	36		6	15
Confl. Bikes (#/hr)		35				15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2245	232	2	2289	562	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2245	232	2	2289	562	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)	3.0			3.0	3.0	
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		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	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	22.9	22.9	23.5	23.5
Total Split (s)	88.0	88.0	88.0	88.0	52.0	52.0
Total Split (%)	62.9%	62.9%	62.9%	62.9%	37.1%	37.1%
Maximum Green (s)	83.1	83.1	83.1	83.1	46.5	46.5
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 Effct Green (s)	83.5	83.5	83.5	83.5	46.1	46.1
Actuated g/C Ratio	0.60	0.60	0.60	0.60	0.33	0.33
v/c Ratio	1.06	0.28	0.04	1.08	0.98	0.01
Control Delay	67.6	6.4	14.0	75.4	79.0	21.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.6	6.4	14.0	75.4	79.0	21.2
LOS	E	A	B	E	E	C
Approach Delay	61.9			75.3	78.3	
Approach LOS	E			E	E	
Queue Length 50th (m)	~361.2	11.3	0.2	~374.4	153.2	0.4
Queue Length 95th (m)	#400.7	24.6	1.6	#413.7	#226.5	3.9
Internal Link Dist (m)	141.7			101.2	63.0	
Turn Bay Length (m)		75.0	75.0		150.0	
Base Capacity (vph)	2110	832	52	2110	579	499
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	1.06	0.28	0.04	1.08	0.97	0.01

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 140	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.08	
Intersection Signal Delay: 69.4	Intersection LOS: E

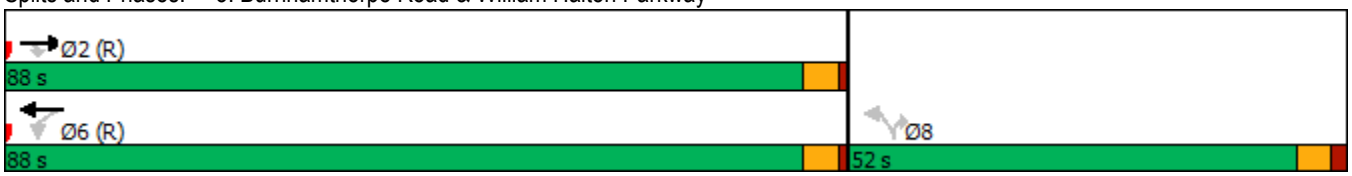
Intersection Capacity Utilization 95.5% ICU Level of Service F

Analysis Period (min) 15

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

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

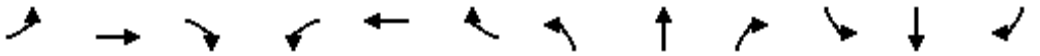
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



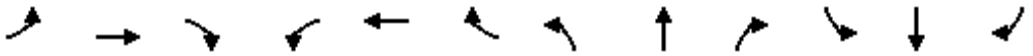
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2065	213	2	2106	517	6
Future Volume (vph)	2065	213	2	2106	517	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.82	1.00	1.00	1.00	0.94
Flpb, ped/bikes	1.00	1.00	1.00	1.00	0.99	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3539	1305	1770	3539	1745	1495
Flt Permitted	1.00	1.00	0.05	1.00	0.95	1.00
Satd. Flow (perm)	3539	1305	89	3539	1745	1495
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2245	232	2	2289	562	7
RTOR Reduction (vph)	0	54	0	0	0	3
Lane Group Flow (vph)	2245	178	2	2289	562	4
Confl. Peds. (#/hr)		36	36		6	15
Confl. Bikes (#/hr)		35				15
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8
Actuated Green, G (s)	83.5	83.5	83.5	83.5	46.1	46.1
Effective Green, g (s)	83.5	83.5	83.5	83.5	46.1	46.1
Actuated g/C Ratio	0.60	0.60	0.60	0.60	0.33	0.33
Clearance Time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2110	778	53	2110	574	492
v/s Ratio Prot	0.63			c0.65		
v/s Ratio Perm		0.14	0.02		c0.32	0.00
v/c Ratio	1.06	0.23	0.04	1.08	0.98	0.01
Uniform Delay, d1	28.2	13.2	11.7	28.2	46.5	31.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	39.2	0.7	1.3	47.0	31.9	0.0
Delay (s)	67.5	13.9	13.0	75.3	78.3	31.6
Level of Service	E	B	B	E	E	C
Approach Delay (s)	62.4			75.2	77.8	
Approach LOS	E			E	E	

Intersection Summary			
HCM 2000 Control Delay	69.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	95.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	19	250	12	24	21	171	531	8	19	368	98
Future Volume (vph)	12	19	250	12	24	21	171	531	8	19	368	98
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	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.95			0.97			0.98			0.94	
Frt		0.880			0.950			0.998			0.970	
Flt Protected		0.998			0.990			0.988			0.998	
Satd. Flow (prot)	0	1564	0	0	1708	0	0	3486	0	0	3227	0
Flt Permitted		0.987			0.922			0.720			0.918	
Satd. Flow (perm)	0	1545	0	0	1586	0	0	2491	0	0	2967	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		118			23			3			83	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		93.7			101.2			268.3			412.8	
Travel Time (s)		6.7			7.3			19.3			29.7	
Confl. Peds. (#/hr)	45		30	30		45	136		30	30		136
Confl. Bikes (#/hr)			29			44			29			131
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	21	272	13	26	23	186	577	9	21	400	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	306	0	0	62	0	0	772	0	0	528	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	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		

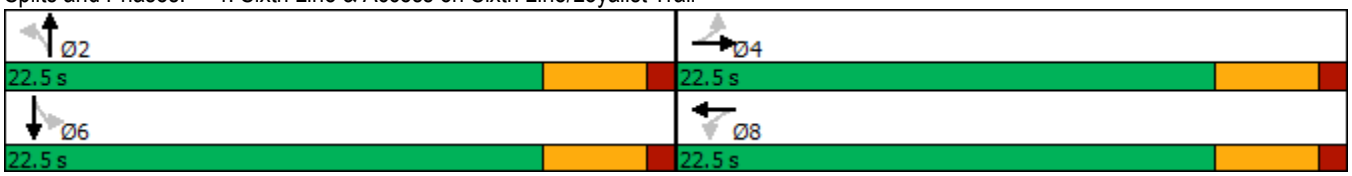


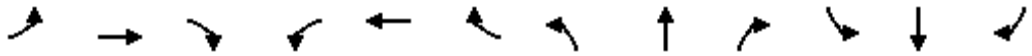
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	18.0	18.0		18.0	18.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
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)	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)		10.4			10.4			20.2			20.2	
Actuated g/C Ratio		0.26			0.26			0.51			0.51	
v/c Ratio		0.62			0.14			0.61			0.34	
Control Delay		13.0			7.6			11.3			6.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		13.0			7.6			11.3			6.5	
LOS		B			A			B			A	
Approach Delay		13.0			7.6			11.3			6.5	
Approach LOS		B			A			B			A	
Queue Length 50th (m)		9.5			1.8			16.0			7.5	
Queue Length 95th (m)		23.9			6.8			#43.5			20.0	
Internal Link Dist (m)		69.7			77.2			244.3			388.8	
Turn Bay Length (m)												
Base Capacity (vph)		770			737			1270			1551	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.40			0.08			0.61			0.34	

Intersection Summary			
Area Type:	Other		
Cycle Length: 45			
Actuated Cycle Length: 39.7			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay: 10.0		Intersection LOS: A	
Intersection Capacity Utilization 66.8%		ICU Level of Service C	
Analysis Period (min) 15			

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

Splits and Phases: 4: Sixth Line & Access on Sixth Line/Loyalist Trail

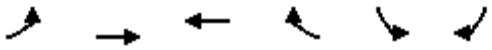




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	19	250	12	24	21	171	531	8	19	368	98
Future Volume (vph)	12	19	250	12	24	21	171	531	8	19	368	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.95			0.97			1.00			0.95	
Flpb, ped/bikes		1.00			1.00			0.98			1.00	
Frt		0.88			0.95			1.00			0.97	
Flt Protected		1.00			0.99			0.99			1.00	
Satd. Flow (prot)		1554			1697			3428			3252	
Flt Permitted		0.99			0.92			0.72			0.92	
Satd. Flow (perm)		1537			1581			2499			2990	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	21	272	13	26	23	186	577	9	21	400	107
RTOR Reduction (vph)	0	87	0	0	17	0	0	1	0	0	41	0
Lane Group Flow (vph)	0	219	0	0	45	0	0	771	0	0	487	0
Confl. Peds. (#/hr)	45		30	30		45	136		30	30		136
Confl. Bikes (#/hr)			29			44			29			131
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		10.4			10.4			20.2			20.2	
Effective Green, g (s)		10.4			10.4			20.2			20.2	
Actuated g/C Ratio		0.26			0.26			0.51			0.51	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		403			415			1274			1525	
v/s Ratio Prot												
v/s Ratio Perm		c0.14			0.03			c0.31			0.16	
v/c Ratio		0.54			0.11			0.60			0.32	
Uniform Delay, d1		12.6			11.1			6.9			5.7	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.5			0.1			2.1			0.6	
Delay (s)		14.1			11.2			9.0			6.2	
Level of Service		B			B			A			A	
Approach Delay (s)		14.1			11.2			9.0			6.2	
Approach LOS		B			B			A			A	

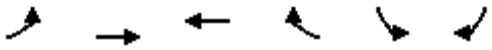
Intersection Summary			
HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	39.6	Sum of lost time (s)	9.0
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	213	286	195	0	94
Future Volume (vph)	0	213	286	195	0	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.945			0.865
Flt Protected						
Satd. Flow (prot)	0	1863	1760	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	1863	1760	0	0	1611
Link Speed (k/h)		50	50		50	
Link Distance (m)		826.9	169.9		123.2	
Travel Time (s)		59.5	12.2		8.9	
Confl. Peds. (#/hr)				106		
Confl. Bikes (#/hr)				102		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	232	311	212	0	102
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	232	523	0	0	102
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	41.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	213	286	195	0	94
Future Volume (Veh/h)	0	213	286	195	0	94
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	232	311	212	0	102
Pedestrians					106	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.0	
Percent Blockage					11	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			170			
pX, platoon unblocked	0.85				0.85	0.85
vC, conflicting volume	629				755	523
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	474				622	349
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	81
cM capacity (veh/h)	826				342	527

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	232	523	102
Volume Left	0	0	0
Volume Right	0	212	102
cSH	1700	1700	527
Volume to Capacity	0.14	0.31	0.19
Queue Length 95th (m)	0.0	0.0	5.4
Control Delay (s)	0.0	0.0	13.5
Lane LOS			B
Approach Delay (s)	0.0	0.0	13.5
Approach LOS			B

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	41.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2183	56	85	1840	8	11
Future Volume (vph)	2183	56	85	1840	8	11
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	0.996					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3525	0	1770	3539	1770	1583
Flt Permitted			0.046		0.950	
Satd. Flow (perm)	3525	0	86	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	5					12
Link Speed (k/h)	50			50	50	
Link Distance (m)	910.1			111.6	71.0	
Travel Time (s)	65.5			8.0	5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2373	61	92	2000	9	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2434	0	92	2000	9	12
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)	3.0			3.0	3.0	
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		pm+pt	NA	Perm	Perm
Protected Phases	4		3	8		
Permitted Phases			8		2	2
Detector Phase	4		3	8	2	2
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0

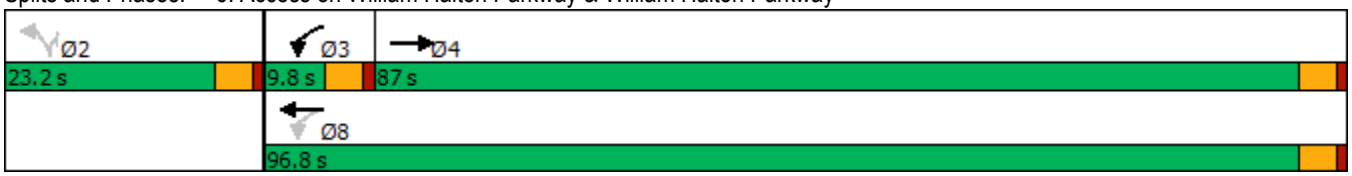
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Split (s)	22.5		9.5	22.5	22.5	22.5
Total Split (s)	87.0		9.8	96.8	23.2	23.2
Total Split (%)	72.5%		8.2%	80.7%	19.3%	19.3%
Maximum Green (s)	82.5		5.3	92.3	18.7	18.7
Yellow Time (s)	3.5		3.5	3.5	3.5	3.5
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	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	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	None	Max	Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	11.0			11.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	82.5		92.3	92.3	18.7	18.7
Actuated g/C Ratio	0.69		0.77	0.77	0.16	0.16
v/c Ratio	1.00		0.66	0.73	0.03	0.05
Control Delay	38.4		38.4	9.4	43.5	20.8
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	38.4		38.4	9.4	43.5	20.8
LOS	D		D	A	D	C
Approach Delay	38.4			10.7	30.5	
Approach LOS	D			B	C	
Queue Length 50th (m)	~279.1		5.6	111.0	1.8	0.0
Queue Length 95th (m)	#356.0		#28.3	134.4	6.6	5.5
Internal Link Dist (m)	886.1			87.6	47.0	
Turn Bay Length (m)						
Base Capacity (vph)	2425		140	2722	275	256
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	1.00		0.66	0.73	0.03	0.05

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 120			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay: 25.6		Intersection LOS: C	
Intersection Capacity Utilization 82.3%		ICU Level of Service E	
Analysis Period (min) 15			

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

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

Splits and Phases: 6: Access on William Halton Parkway & William Halton Parkway

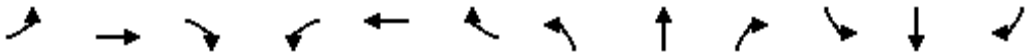


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2183	56	85	1840	8	11
Future Volume (vph)	2183	56	85	1840	8	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	1.00		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3526		1770	3539	1770	1583
Flt Permitted	1.00		0.05	1.00	0.95	1.00
Satd. Flow (perm)	3526		86	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2373	61	92	2000	9	12
RTOR Reduction (vph)	2	0	0	0	0	10
Lane Group Flow (vph)	2432	0	92	2000	9	2
Turn Type	NA		pm+pt	NA	Perm	Perm
Protected Phases	4		3	8		
Permitted Phases			8		2	2
Actuated Green, G (s)	82.5		92.3	92.3	18.7	18.7
Effective Green, g (s)	82.5		92.3	92.3	18.7	18.7
Actuated g/C Ratio	0.69		0.77	0.77	0.16	0.16
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2424		140	2722	275	246
v/s Ratio Prot	c0.69		0.03	c0.57		
v/s Ratio Perm			0.48		c0.01	0.00
v/c Ratio	1.00		0.66	0.73	0.03	0.01
Uniform Delay, d1	18.8		35.0	7.4	43.0	42.8
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	19.1		10.6	1.1	0.2	0.1
Delay (s)	37.9		45.6	8.4	43.2	42.9
Level of Service	D		D	A	D	D
Approach Delay (s)	37.9			10.0	43.0	
Approach LOS	D			B	D	

Intersection Summary			
HCM 2000 Control Delay	25.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	82.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	75	41	139	300	22	103	534	77	55	751	24
Future Volume (vph)	26	75	41	139	300	22	103	534	77	55	751	24
Ideal Flow (vphpl)	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)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	0.99		0.99	1.00		0.98	0.99		0.99	1.00	
Frt		0.947			0.990			0.981			0.995	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	1727	0	1750	1820	0	1750	3400	0	1750	3472	0
Flt Permitted	0.199			0.677			0.341			0.325		
Satd. Flow (perm)	365	1727	0	1235	1820	0	617	3400	0	592	3472	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		30			3			18			5	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		169.9			629.3			302.6			268.3	
Travel Time (s)		12.2			45.3			21.8			19.3	
Confl. Peds. (#/hr)	9		9	9		9	37		23	23		37
Confl. Bikes (#/hr)			9			9			23			36
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	80	44	148	319	23	110	568	82	59	799	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	124	0	148	342	0	110	650	0	59	825	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	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		1.0	1.0		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	
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	Lag		Lead		
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
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)	29.3	27.7		22.0	22.0		52.5	52.5		62.7	61.6	
Actuated g/C Ratio	0.29	0.28		0.22	0.22		0.52	0.52		0.63	0.62	
v/c Ratio	0.15	0.25		0.55	0.85		0.34	0.36		0.13	0.39	
Control Delay	24.0	20.3		42.3	57.1		21.6	16.4		9.9	11.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	24.0	20.3		42.3	57.1		21.6	16.4		9.9	11.4	
LOS	C	C		D	E		C	B		A	B	
Approach Delay		21.0			52.6			17.1			11.3	
Approach LOS		C			D			B			B	
Queue Length 50th (m)	3.6	12.7		24.9	61.7		13.9	42.6		4.8	45.8	
Queue Length 95th (m)	9.3	25.9		44.3	#102.6		30.2	58.8		10.3	59.2	
Internal Link Dist (m)		145.9			605.3			278.6			244.3	
Turn Bay Length (m)	60.0			50.0			50.0			60.0		
Base Capacity (vph)	184	600		296	439		323	1793		544	2139	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.15	0.21		0.50	0.78		0.34	0.36		0.11	0.39	

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: 0.85	
Intersection Signal Delay: 22.7	Intersection LOS: C

Intersection Capacity Utilization 68.0% ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 1: Sixth Line & Burnhamthorpe Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	75	41	139	300	22	103	534	77	55	751	24
Future Volume (vph)	26	75	41	139	300	22	103	534	77	55	751	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.6		5.6	5.6		5.1	5.1		4.0	5.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.98	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	0.99		1.00	0.98		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1749	1726		1733	1820		1719	3403		1744	3473	
Flt Permitted	0.20	1.00		0.68	1.00		0.34	1.00		0.33	1.00	
Satd. Flow (perm)	366	1726		1236	1820		617	3403		597	3473	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	28	80	44	148	319	23	110	568	82	59	799	26
RTOR Reduction (vph)	0	21	0	0	2	0	0	9	0	0	2	0
Lane Group Flow (vph)	28	103	0	148	340	0	110	641	0	59	823	0
Confl. Peds. (#/hr)	9		9	9		9	37		23	23		37
Confl. Bikes (#/hr)			9			9			23			36
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		
Actuated Green, G (s)	29.4	29.4		22.0	22.0		50.0	50.0		59.9	59.9	
Effective Green, g (s)	29.4	29.4		22.0	22.0		50.0	50.0		59.9	59.9	
Actuated g/C Ratio	0.29	0.29		0.22	0.22		0.50	0.50		0.60	0.60	
Clearance Time (s)	4.0	5.6		5.6	5.6		5.1	5.1		4.0	5.1	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	154	507		271	400		308	1701		425	2080	
v/s Ratio Prot	0.01	c0.06			c0.19			0.19		0.01	c0.24	
v/s Ratio Perm	0.05			0.12			0.18			0.07		
v/c Ratio	0.18	0.20		0.55	0.85		0.36	0.38		0.14	0.40	
Uniform Delay, d1	26.8	26.5		34.6	37.4		15.2	15.4		8.9	10.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.2		2.2	15.4		3.2	0.6		0.2	0.6	
Delay (s)	27.3	26.7		36.8	52.8		18.4	16.0		9.1	11.1	
Level of Service	C	C		D	D		B	B		A	B	
Approach Delay (s)		26.8			48.0			16.4			11.0	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	21.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.7
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1880	269	6	2142	474	4
Future Volume (vph)	1880	269	6	2142	474	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		75.0	75.0		150.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			15.0		15.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.93			1.00	0.97
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3500	1566	1750	3500	1750	1566
Flt Permitted			0.047		0.950	
Satd. Flow (perm)	3500	1459	87	3500	1742	1524
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		194				3
Link Speed (k/h)	50			50	50	
Link Distance (m)	165.7			125.2	87.0	
Travel Time (s)	11.9			9.0	6.3	
Confl. Peds. (#/hr)		11	11		2	5
Confl. Bikes (#/hr)		11				5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2043	292	7	2328	515	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2043	292	7	2328	515	4
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	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		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	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	22.9	22.9	23.5	23.5
Total Split (s)	90.0	90.0	90.0	90.0	50.0	50.0
Total Split (%)	64.3%	64.3%	64.3%	64.3%	35.7%	35.7%
Maximum Green (s)	85.1	85.1	85.1	85.1	44.5	44.5
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	Max	Max	None	None	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 Effct Green (s)	85.2	85.2	85.2	85.2	42.8	42.8
Actuated g/C Ratio	0.62	0.62	0.62	0.62	0.31	0.31
v/c Ratio	0.95	0.30	0.13	1.08	0.96	0.01
Control Delay	36.0	5.0	18.8	72.5	76.2	23.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.0	5.0	18.8	72.5	76.2	23.0
LOS	D	A	B	E	E	C
Approach Delay	32.1			72.3	75.8	
Approach LOS	C			E	E	
Queue Length 50th (m)	266.8	10.9	0.8	~382.2	138.1	0.2
Queue Length 95th (m)	#336.8	24.6	3.8	#421.2	#205.2	3.1
Internal Link Dist (m)	141.7			101.2	63.0	
Turn Bay Length (m)		75.0	75.0		150.0	
Base Capacity (vph)	2153	972	53	2153	560	492
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	0.95	0.30	0.13	1.08	0.92	0.01

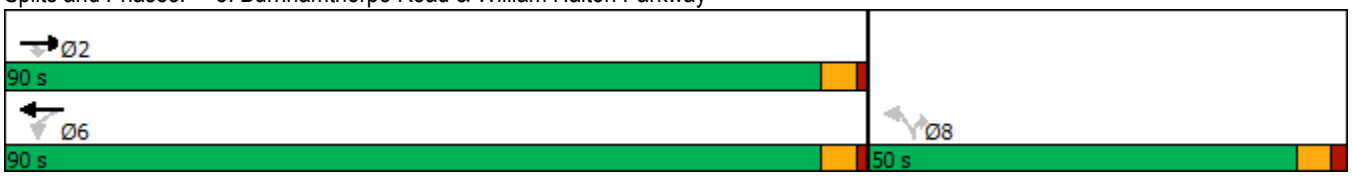
Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 138.4			
Natural Cycle: 140			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.08			
Intersection Signal Delay: 54.6		Intersection LOS: D	
Intersection Capacity Utilization 94.1%		ICU Level of Service F	

Analysis Period (min) 15

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

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

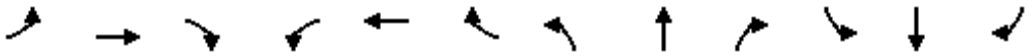
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1880	269	6	2142	474	4
Future Volume (vph)	1880	269	6	2142	474	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.93	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3500	1460	1750	3500	1742	1524
Flt Permitted	1.00	1.00	0.05	1.00	0.95	1.00
Satd. Flow (perm)	3500	1460	87	3500	1742	1524
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2043	292	7	2328	515	4
RTOR Reduction (vph)	0	75	0	0	0	2
Lane Group Flow (vph)	2043	217	7	2328	515	2
Confl. Peds. (#/hr)		11	11		2	5
Confl. Bikes (#/hr)		11				5
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8
Actuated Green, G (s)	85.1	85.1	85.1	85.1	42.8	42.8
Effective Green, g (s)	85.1	85.1	85.1	85.1	42.8	42.8
Actuated g/C Ratio	0.62	0.62	0.62	0.62	0.31	0.31
Clearance Time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2153	898	53	2153	539	471
v/s Ratio Prot	0.58			c0.67		
v/s Ratio Perm		0.15	0.08		c0.30	0.00
v/c Ratio	0.95	0.24	0.13	1.08	0.96	0.00
Uniform Delay, d1	24.6	12.0	11.1	26.6	46.8	33.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.6	0.6	1.1	45.5	27.7	0.0
Delay (s)	35.2	12.7	12.3	72.1	74.5	33.0
Level of Service	D	B	B	E	E	C
Approach Delay (s)	32.4			71.9	74.2	
Approach LOS	C			E	E	

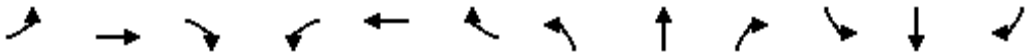
Intersection Summary			
HCM 2000 Control Delay	54.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	138.3	Sum of lost time (s)	10.4
Intersection Capacity Utilization	94.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	13	176	11	9	28	57	532	14	13	652	32
Future Volume (vph)	8	13	176	11	9	28	57	532	14	13	652	32
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	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt		0.880			0.922			0.997			0.993	
Flt Protected		0.998			0.989			0.995			0.999	
Satd. Flow (prot)	0	1618	0	0	1680	0	0	3472	0	0	3472	0
Flt Permitted		0.998			0.989			0.995			0.999	
Satd. Flow (perm)	0	1618	0	0	1680	0	0	3472	0	0	3472	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		93.7			81.5			268.3			412.8	
Travel Time (s)		6.7			5.9			19.3			29.7	
Confl. Peds. (#/hr)	14		9	9		14	42		9	9		42
Confl. Bikes (#/hr)			9			14			9			41
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	14	191	12	10	30	62	578	15	14	709	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	214	0	0	52	0	0	655	0	0	758	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

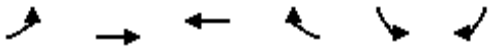
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 59.7%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	13	176	11	9	28	57	532	14	13	652	32
Future Volume (Veh/h)	8	13	176	11	9	28	57	532	14	13	652	32
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	14	191	12	10	30	62	578	15	14	709	35
Pedestrians		42			9			9			14	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		4			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								268				
pX, platoon unblocked	0.92	0.92		0.92	0.92	0.92				0.92		
vC, conflicting volume	1258	1522	423	1308	1532	320	786			602		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1114	1400	423	1167	1411	97	786			403		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	92	87	65	83	91	96	92			99		
cM capacity (veh/h)	115	111	551	72	110	849	795			1055		

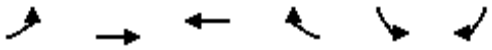
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	214	52	351	304	368	390
Volume Left	9	12	62	0	14	0
Volume Right	191	30	0	15	0	35
cSH	388	177	795	1700	1055	1700
Volume to Capacity	0.55	0.29	0.08	0.18	0.01	0.23
Queue Length 95th (m)	24.4	8.8	1.9	0.0	0.3	0.0
Control Delay (s)	25.1	33.7	2.5	0.0	0.5	0.0
Lane LOS	D	D	A		A	
Approach Delay (s)	25.1	33.7	1.3		0.2	
Approach LOS	D	D				

Intersection Summary				
Average Delay	4.9			
Intersection Capacity Utilization	59.7%	ICU Level of Service	B	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	142	362	65	0	66
Future Volume (vph)	0	142	362	65	0	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.979			0.865
Flt Protected						
Satd. Flow (prot)	0	1842	1803	0	0	1593
Flt Permitted						
Satd. Flow (perm)	0	1842	1803	0	0	1593
Link Speed (k/h)		50	50		50	
Link Distance (m)		826.9	169.9		123.2	
Travel Time (s)		59.5	12.2		8.9	
Confl. Peds. (#/hr)				33		
Confl. Bikes (#/hr)				32		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	154	393	71	0	72
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	154	464	0	0	72
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.2%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	142	362	65	0	66
Future Volume (Veh/h)	0	142	362	65	0	66
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	154	393	71	0	72
Pedestrians					33	
Lane Width (m)					3.5	
Walking Speed (m/s)					1.0	
Percent Blockage					3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			170			
pX, platoon unblocked	0.83				0.83	0.83
vC, conflicting volume	497				616	462
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	288				431	245
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	89
cM capacity (veh/h)	1020				466	636

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	154	464	72
Volume Left	0	0	0
Volume Right	0	71	72
cSH	1700	1700	636
Volume to Capacity	0.09	0.27	0.11
Queue Length 95th (m)	0.0	0.0	2.9
Control Delay (s)	0.0	0.0	11.4
Lane LOS			B
Approach Delay (s)	0.0	0.0	11.4
Approach LOS			B

Intersection Summary			
Average Delay		1.2	
Intersection Capacity Utilization		34.2%	ICU Level of Service
Analysis Period (min)		15	

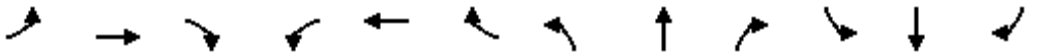
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2128	8	12	1782	48	73
Future Volume (vph)	2128	8	12	1782	48	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	75.0		0.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			15.0		15.0	
Lane Util. Factor	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)	3496	0	1750	3500	1750	1566
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3496	0	1750	3500	1750	1566
Link Speed (k/h)	50			50	50	
Link Distance (m)	910.1			111.6	71.0	
Travel Time (s)	65.5			8.0	5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2313	9	13	1937	52	79
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2322	0	13	1937	52	79
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		

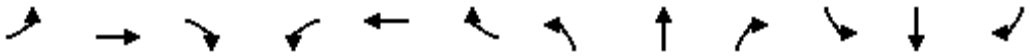
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2128	8	12	1782	48	73
Future Volume (Veh/h)	2128	8	12	1782	48	73
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2313	9	13	1937	52	79
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			2322		3312	1161
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2322		3312	1161
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			94		0	58
cM capacity (veh/h)			211		6	188

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	1542	780	13	968	968	52	79
Volume Left	0	0	13	0	0	52	0
Volume Right	0	9	0	0	0	0	79
cSH	1700	1700	211	1700	1700	6	188
Volume to Capacity	0.91	0.46	0.06	0.57	0.57	8.69	0.42
Queue Length 95th (m)	0.0	0.0	1.5	0.0	0.0	Err	14.5
Control Delay (s)	0.0	0.0	23.2	0.0	0.0	Err	37.2
Lane LOS			C			F	E
Approach Delay (s)	0.0		0.2			3991.5	
Approach LOS						F	

Intersection Summary			
Average Delay	118.8		
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	75	41	139	300	22	103	534	77	55	751	24
Future Volume (vph)	26	75	41	139	300	22	103	534	77	55	751	24
Ideal Flow (vphpl)	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)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	0.99		0.99	1.00		0.98	0.99		0.99	1.00	
Frt		0.947			0.990			0.981			0.995	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	1728	0	1750	1820	0	1750	3402	0	1750	3472	0
Flt Permitted	0.233			0.677			0.341			0.319		
Satd. Flow (perm)	427	1728	0	1236	1820	0	618	3402	0	581	3472	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36			4			20			5	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		169.9			629.3			302.6			268.3	
Travel Time (s)		12.2			45.3			21.8			19.3	
Confl. Peds. (#/hr)	9		9	9		9	37		23	23		37
Confl. Bikes (#/hr)			9			9			23			36
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	80	44	148	319	23	110	568	82	59	799	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	124	0	148	342	0	110	650	0	59	825	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

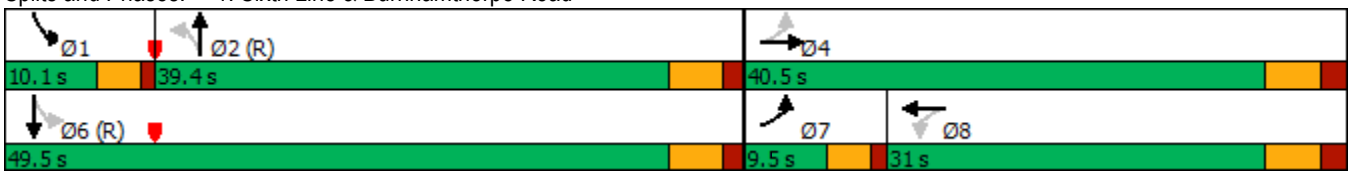


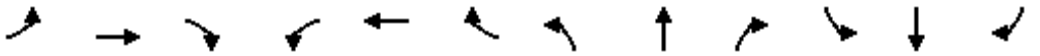
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		1.0	1.0		5.0	5.0	
Minimum Split (s)	9.5	29.6		29.6	29.6		38.1	38.1		10.1	38.1	
Total Split (s)	9.5	40.5		31.0	31.0		39.4	39.4		10.1	49.5	
Total Split (%)	10.6%	45.0%		34.4%	34.4%		43.8%	43.8%		11.2%	55.0%	
Maximum Green (s)	5.5	34.9		25.4	25.4		34.3	34.3		6.1	44.4	
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	Lag		Lead		
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
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)	26.5	24.9		21.1	21.1		46.1	46.1		55.5	54.4	
Actuated g/C Ratio	0.29	0.28		0.23	0.23		0.51	0.51		0.62	0.60	
v/c Ratio	0.14	0.25		0.51	0.80		0.35	0.37		0.13	0.39	
Control Delay	20.2	16.6		35.6	45.9		21.9	16.0		10.3	11.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.2	16.6		35.6	45.9		21.9	16.0		10.3	11.4	
LOS	C	B		D	D		C	B		B	B	
Approach Delay		17.2			42.8			16.9			11.3	
Approach LOS		B			D			B			B	
Queue Length 50th (m)	3.7	12.2		22.1	54.6		10.5	31.8		3.3	31.6	
Queue Length 95th (m)	7.9	20.9		38.4	80.2		30.3	58.4		11.0	62.5	
Internal Link Dist (m)		145.9			605.3			278.6			244.3	
Turn Bay Length (m)	60.0			50.0			50.0			60.0		
Base Capacity (vph)	206	692		348	516		316	1753		440	2101	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.14	0.18		0.43	0.66		0.35	0.37		0.13	0.39	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
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: 0.80	
Intersection Signal Delay: 20.3	Intersection LOS: C

Intersection Capacity Utilization 68.0% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 1: Sixth Line & Burnhamthorpe Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	75	41	139	300	22	103	534	77	55	751	24
Future Volume (vph)	26	75	41	139	300	22	103	534	77	55	751	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.6		5.6	5.6		5.1	5.1		4.0	5.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.98	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	0.99		1.00	0.98		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1748	1726		1735	1820		1722	3404		1745	3473	
Flt Permitted	0.23	1.00		0.68	1.00		0.34	1.00		0.32	1.00	
Satd. Flow (perm)	429	1726		1237	1820		618	3404		586	3473	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	28	80	44	148	319	23	110	568	82	59	799	26
RTOR Reduction (vph)	0	25	0	0	3	0	0	10	0	0	2	0
Lane Group Flow (vph)	28	99	0	148	339	0	110	640	0	59	823	0
Confl. Peds. (#/hr)	9		9	9		9	37		23	23		37
Confl. Bikes (#/hr)			9			9			23			36
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		
Actuated Green, G (s)	27.3	27.3		21.1	21.1		42.9	42.9		52.0	52.0	
Effective Green, g (s)	27.3	27.3		21.1	21.1		42.9	42.9		52.0	52.0	
Actuated g/C Ratio	0.30	0.30		0.23	0.23		0.48	0.48		0.58	0.58	
Clearance Time (s)	4.0	5.6		5.6	5.6		5.1	5.1		4.0	5.1	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	162	523		290	426		294	1622		404	2006	
v/s Ratio Prot	0.00	c0.06			c0.19			0.19		0.01	c0.24	
v/s Ratio Perm	0.05			0.12			0.18			0.08		
v/c Ratio	0.17	0.19		0.51	0.80		0.37	0.39		0.15	0.41	
Uniform Delay, d1	23.4	23.2		30.0	32.4		15.0	15.2		8.9	10.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.2		1.5	9.9		3.6	0.7		0.2	0.6	
Delay (s)	23.9	23.3		31.5	42.3		18.6	15.9		9.1	11.1	
Level of Service	C	C		C	D		B	B		A	B	
Approach Delay (s)		23.5			39.0			16.3			11.0	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.7
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1880	269	6	2142	474	4
Future Volume (vph)	1880	269	6	2142	474	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		75.0	75.0		150.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			15.0		15.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.93			1.00	0.97
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3500	1566	1750	3500	1750	1566
Flt Permitted			0.046		0.950	
Satd. Flow (perm)	3500	1459	85	3500	1742	1524
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		194				3
Link Speed (k/h)	50			50	50	
Link Distance (m)	165.7			125.2	87.0	
Travel Time (s)	11.9			9.0	6.3	
Confl. Peds. (#/hr)		11	11		2	5
Confl. Bikes (#/hr)		11				5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2043	292	7	2328	515	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2043	292	7	2328	515	4
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	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		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	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	22.9	22.9	23.5	23.5
Total Split (s)	90.0	90.0	90.0	90.0	50.0	50.0
Total Split (%)	64.3%	64.3%	64.3%	64.3%	35.7%	35.7%
Maximum Green (s)	85.1	85.1	85.1	85.1	44.5	44.5
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 Effct Green (s)	86.3	86.3	86.3	86.3	43.3	43.3
Actuated g/C Ratio	0.62	0.62	0.62	0.62	0.31	0.31
v/c Ratio	0.95	0.30	0.13	1.08	0.96	0.01
Control Delay	35.9	5.0	19.2	72.0	76.6	23.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.9	5.0	19.2	72.0	76.6	23.0
LOS	D	A	B	E	E	C
Approach Delay	32.0			71.8	76.2	
Approach LOS	C			E	E	
Queue Length 50th (m)	266.8	10.9	0.8	~382.2	138.1	0.2
Queue Length 95th (m)	#336.8	24.6	3.9	#421.2	#205.2	3.1
Internal Link Dist (m)	141.7			101.2	63.0	
Turn Bay Length (m)		75.0	75.0		150.0	
Base Capacity (vph)	2157	973	52	2157	553	486
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	0.95	0.30	0.13	1.08	0.93	0.01

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 140	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.08	
Intersection Signal Delay: 54.3	Intersection LOS: D

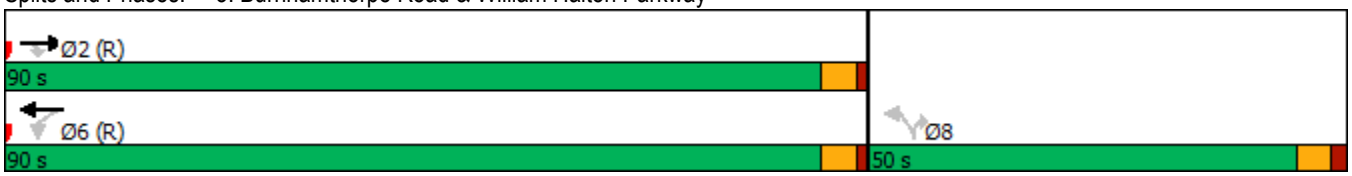
Intersection Capacity Utilization 94.1% ICU Level of Service F

Analysis Period (min) 15

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

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

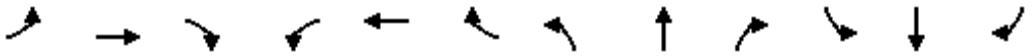
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



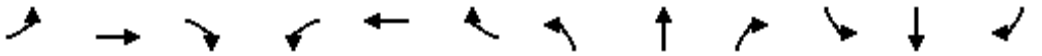
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1880	269	6	2142	474	4
Future Volume (vph)	1880	269	6	2142	474	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.93	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3500	1459	1750	3500	1742	1524
Flt Permitted	1.00	1.00	0.05	1.00	0.95	1.00
Satd. Flow (perm)	3500	1459	85	3500	1742	1524
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2043	292	7	2328	515	4
RTOR Reduction (vph)	0	74	0	0	0	2
Lane Group Flow (vph)	2043	218	7	2328	515	2
Confl. Peds. (#/hr)		11	11		2	5
Confl. Bikes (#/hr)		11				5
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8
Actuated Green, G (s)	86.3	86.3	86.3	86.3	43.3	43.3
Effective Green, g (s)	86.3	86.3	86.3	86.3	43.3	43.3
Actuated g/C Ratio	0.62	0.62	0.62	0.62	0.31	0.31
Clearance Time (s)	4.9	4.9	4.9	4.9	5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2157	899	52	2157	538	471
v/s Ratio Prot	0.58			c0.67		
v/s Ratio Perm		0.15	0.08		c0.30	0.00
v/c Ratio	0.95	0.24	0.13	1.08	0.96	0.00
Uniform Delay, d1	24.7	12.1	11.2	26.9	47.4	33.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.4	0.6	5.3	44.7	28.0	0.0
Delay (s)	35.2	12.7	16.5	71.6	75.5	33.4
Level of Service	D	B	B	E	E	C
Approach Delay (s)	32.3			71.4	75.2	
Approach LOS	C			E	E	

Intersection Summary			
HCM 2000 Control Delay	54.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	94.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



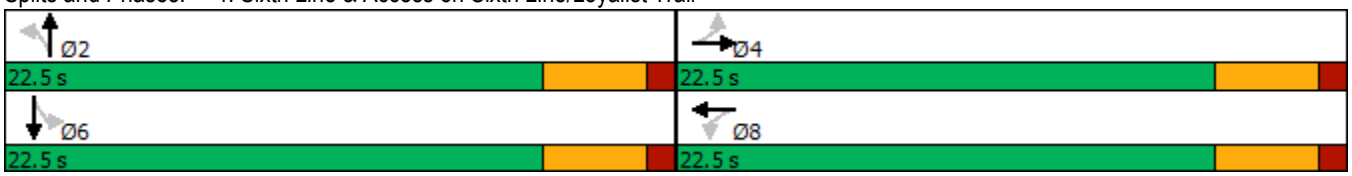
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	13	176	11	9	28	57	532	14	13	652	32
Future Volume (vph)	8	13	176	11	9	28	57	532	14	13	652	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.98			0.98			1.00			0.99	
Frt		0.880			0.922			0.997			0.993	
Flt Protected		0.998			0.989			0.995			0.999	
Satd. Flow (prot)	0	1584	0	0	1651	0	0	3469	0	0	3455	0
Flt Permitted		0.986			0.924			0.846			0.942	
Satd. Flow (perm)	0	1564	0	0	1540	0	0	2945	0	0	3257	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		78			30			6			13	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		93.7			81.5			268.3			412.8	
Travel Time (s)		6.7			5.9			19.3			29.7	
Confl. Peds. (#/hr)	14		9	9		14	42		9	9		42
Confl. Bikes (#/hr)			9			14			9			41
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	14	191	12	10	30	62	578	15	14	709	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	214	0	0	52	0	0	655	0	0	758	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
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		

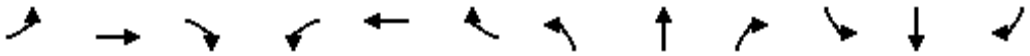


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	18.0	18.0		18.0	18.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
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)	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)		8.8			8.8			22.5			22.5	
Actuated g/C Ratio		0.24			0.24			0.60			0.60	
v/c Ratio		0.50			0.14			0.37			0.39	
Control Delay		12.0			7.1			6.6			6.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		12.0			7.1			6.6			6.5	
LOS		B			A			A			A	
Approach Delay		12.0			7.1			6.6			6.5	
Approach LOS		B			A			A			A	
Queue Length 50th (m)		6.6			1.0			10.5			12.2	
Queue Length 95th (m)		17.9			5.8			24.6			27.8	
Internal Link Dist (m)		69.7			57.5			244.3			388.8	
Turn Bay Length (m)												
Base Capacity (vph)		794			757			1776			1966	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.27			0.07			0.37			0.39	

Intersection Summary			
Area Type:	Other		
Cycle Length: 45			
Actuated Cycle Length: 37.4			
Natural Cycle: 45			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.50			
Intersection Signal Delay: 7.2		Intersection LOS: A	
Intersection Capacity Utilization 61.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 4: Sixth Line & Access on Sixth Line/Loyalist Trail

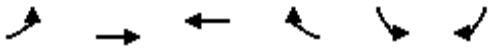




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	13	176	11	9	28	57	532	14	13	652	32
Future Volume (vph)	8	13	176	11	9	28	57	532	14	13	652	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.98			0.98			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.88			0.92			1.00			0.99	
Flt Protected		1.00			0.99			1.00			1.00	
Satd. Flow (prot)		1576			1643			3464			3458	
Flt Permitted		0.99			0.92			0.85			0.94	
Satd. Flow (perm)		1557			1536			2943			3260	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	14	191	12	10	30	62	578	15	14	709	35
RTOR Reduction (vph)	0	62	0	0	24	0	0	3	0	0	6	0
Lane Group Flow (vph)	0	152	0	0	28	0	0	652	0	0	752	0
Confl. Peds. (#/hr)	14		9	9		14	42		9	9		42
Confl. Bikes (#/hr)			9			14			9			41
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.7			7.7			21.6			21.6	
Effective Green, g (s)		7.7			7.7			21.6			21.6	
Actuated g/C Ratio		0.20			0.20			0.56			0.56	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		313			308			1659			1838	
v/s Ratio Prot												
v/s Ratio Perm		c0.10			0.02			0.22			c0.23	
v/c Ratio		0.48			0.09			0.39			0.41	
Uniform Delay, d1		13.5			12.5			4.7			4.7	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.2			0.1			0.7			0.7	
Delay (s)		14.7			12.6			5.4			5.4	
Level of Service		B			B			A			A	
Approach Delay (s)		14.7			12.6			5.4			5.4	
Approach LOS		B			B			A			A	

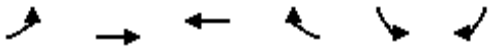
Intersection Summary			
HCM 2000 Control Delay	6.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	38.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	142	362	65	0	66
Future Volume (vph)	0	142	362	65	0	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.979			0.865
Flt Protected						
Satd. Flow (prot)	0	1842	1803	0	0	1593
Flt Permitted						
Satd. Flow (perm)	0	1842	1803	0	0	1593
Link Speed (k/h)		50	50		50	
Link Distance (m)		826.9	169.9		123.2	
Travel Time (s)		59.5	12.2		8.9	
Confl. Peds. (#/hr)				33		
Confl. Bikes (#/hr)				32		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	154	393	71	0	72
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	154	464	0	0	72
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.2%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	142	362	65	0	66
Future Volume (Veh/h)	0	142	362	65	0	66
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	154	393	71	0	72
Pedestrians					33	
Lane Width (m)					3.5	
Walking Speed (m/s)					1.0	
Percent Blockage					3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			170			
pX, platoon unblocked	0.83				0.83	0.83
vC, conflicting volume	497				616	462
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	294				437	252
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	89
cM capacity (veh/h)	1020				465	634

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	154	464	72
Volume Left	0	0	0
Volume Right	0	71	72
cSH	1700	1700	634
Volume to Capacity	0.09	0.27	0.11
Queue Length 95th (m)	0.0	0.0	2.9
Control Delay (s)	0.0	0.0	11.4
Lane LOS			B
Approach Delay (s)	0.0	0.0	11.4
Approach LOS			B

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	34.2%	ICU Level of Service	A
Analysis Period (min)	15		

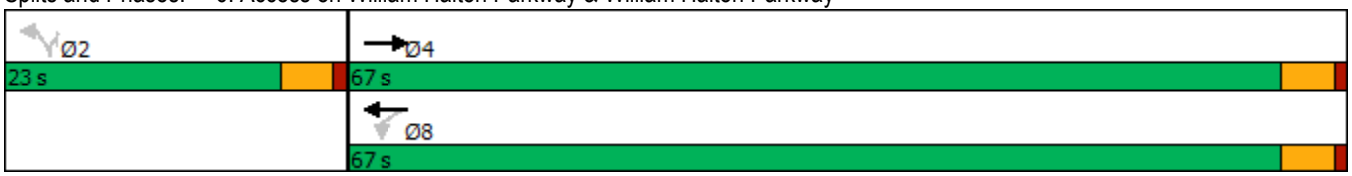
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2128	8	12	1782	48	73
Future Volume (vph)	2128	8	12	1782	48	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	75.0		0.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			15.0		15.0	
Lane Util. Factor	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)	3496	0	1750	3500	1750	1566
Flt Permitted			0.065		0.950	
Satd. Flow (perm)	3496	0	120	3500	1750	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	1					11
Link Speed (k/h)	50			50	50	
Link Distance (m)	910.1			111.6	71.0	
Travel Time (s)	65.5			8.0	5.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2313	9	13	1937	52	79
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2322	0	13	1937	52	79
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6		2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	4			8		
Permitted Phases			8		2	2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	4		8	8	2	2
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)	67.0		67.0	67.0	23.0	23.0
Total Split (%)	74.4%		74.4%	74.4%	25.6%	25.6%
Maximum Green (s)	62.5		62.5	62.5	18.5	18.5
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	None	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 Effct Green (s)	61.4		61.4	61.4	18.5	18.5
Actuated g/C Ratio	0.69		0.69	0.69	0.21	0.21
v/c Ratio	0.96		0.16	0.80	0.14	0.24
Control Delay	25.0		9.8	12.8	30.6	28.3
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	25.0		9.8	12.8	30.6	28.3
LOS	C		A	B	C	C
Approach Delay	25.0			12.8	29.2	
Approach LOS	C			B	C	
Queue Length 50th (m)	165.4		0.7	103.6	7.4	9.8
Queue Length 95th (m)	#254.2		3.4	134.5	16.9	21.8
Internal Link Dist (m)	886.1			87.6	47.0	
Turn Bay Length (m)			75.0			
Base Capacity (vph)	2459		84	2461	364	334
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	0.94		0.15	0.79	0.14	0.24

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 88.9			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 19.7		Intersection LOS: B	
Intersection Capacity Utilization 71.1%		ICU Level of Service C	
Analysis Period (min) 15			

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

Splits and Phases: 6: Access on William Halton Parkway & William Halton Parkway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2128	8	12	1782	48	73
Future Volume (vph)	2128	8	12	1782	48	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	1.00		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3498		1750	3500	1750	1566
Flt Permitted	1.00		0.07	1.00	0.95	1.00
Satd. Flow (perm)	3498		120	3500	1750	1566
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2313	9	13	1937	52	79
RTOR Reduction (vph)	0	0	0	0	0	9
Lane Group Flow (vph)	2322	0	13	1937	52	70
Turn Type	NA		Perm	NA	Perm	Perm
Protected Phases	4			8		
Permitted Phases			8		2	2
Actuated Green, G (s)	61.4		61.4	61.4	18.5	18.5
Effective Green, g (s)	61.4		61.4	61.4	18.5	18.5
Actuated g/C Ratio	0.69		0.69	0.69	0.21	0.21
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2415		82	2417	364	325
v/s Ratio Prot	c0.66			0.55		
v/s Ratio Perm			0.11		0.03	c0.04
v/c Ratio	0.96		0.16	0.80	0.14	0.22
Uniform Delay, d1	12.7		4.8	9.5	28.7	29.2
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	10.7		0.9	2.0	0.8	1.5
Delay (s)	23.4		5.7	11.5	29.6	30.7
Level of Service	C		A	B	C	C
Approach Delay (s)	23.4			11.5	30.3	
Approach LOS	C			B	C	

Intersection Summary			
HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	88.9	Sum of lost time (s)	9.0
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

MOVEMENT SUMMARY

Site: 101 [WH & 6th - 2030 AM FT]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	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	65	2.0	0.992	81.4	LOS F	11.5	82.1	0.99	1.82	4.31	25.8
2	T1	281	2.0	0.992	81.4	LOS F	12.0	85.2	0.99	1.82	4.31	25.7
3	R2	374	2.0	0.992	78.0	LOS F	12.0	85.2	0.99	1.85	4.43	25.7
Approach		720	2.0	0.992	79.6	LOS F	12.0	85.2	0.99	1.84	4.37	25.7
East: William Halton												
4	L2	304	2.0	1.546	266.1	LOS F	174.7	1243.8	1.00	5.43	12.04	11.4
5	T1	2303	2.0	1.546	265.9	LOS F	177.4	1263.0	1.00	5.48	12.14	11.4
6	R2	66	2.0	1.546	265.8	LOS F	177.4	1263.0	1.00	5.51	12.23	11.3
Approach		2673	2.0	1.546	265.9	LOS F	177.4	1263.0	1.00	5.47	12.13	11.4
North: Sixth												
7	L2	56	2.0	0.535	28.2	LOS D	1.9	13.6	0.85	0.99	1.41	40.1
8	T1	235	2.0	0.535	27.0	LOS D	1.9	13.6	0.84	0.98	1.40	40.9
9	R2	38	2.0	0.535	26.1	LOS D	1.9	13.5	0.84	0.97	1.40	40.6
Approach		329	2.0	0.535	27.1	LOS D	1.9	13.6	0.85	0.98	1.40	40.7
West: William Halton												
10	L2	13	2.0	1.756	360.5	LOS F	203.8	1451.1	1.00	6.56	16.54	8.9
11	T1	2596	2.0	1.756	360.3	LOS F	208.4	1484.0	1.00	6.62	16.72	8.9
12	R2	135	2.0	1.756	360.1	LOS F	208.4	1484.0	1.00	6.69	16.92	8.8
Approach		2744	2.0	1.756	360.3	LOS F	208.4	1484.0	1.00	6.62	16.73	8.9
All Vehicles		6465	2.0	1.756	273.1	LOS F	208.4	1484.0	0.99	5.33	12.67	11.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [WH & 6th - 2030 PM FT]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	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	38	2.0	0.769	38.5	LOS E	4.5	31.7	0.89	1.19	2.08	36.6
2	T1	288	2.0	0.769	38.2	LOS E	4.5	31.9	0.89	1.19	2.08	36.5
3	R2	282	2.0	0.769	36.3	LOS E	4.5	31.9	0.88	1.18	2.08	36.2
Approach		608	2.0	0.769	37.4	LOS E	4.5	31.9	0.88	1.19	2.08	36.4
East: William Halton												
4	L2	328	2.0	1.291	156.7	LOS F	105.9	754.3	1.00	4.09	8.75	17.0
5	T1	1839	2.0	1.291	156.5	LOS F	107.5	765.3	1.00	4.12	8.82	17.0
6	R2	51	2.0	1.291	156.4	LOS F	107.5	765.3	1.00	4.14	8.87	16.9
Approach		2218	2.0	1.291	156.6	LOS F	107.5	765.3	1.00	4.11	8.81	17.0
North: Sixth												
7	L2	22	2.0	0.493	25.4	LOS D	1.7	12.2	0.84	0.96	1.32	41.8
8	T1	278	2.0	0.493	24.4	LOS C	1.7	12.2	0.83	0.95	1.31	42.3
9	R2	12	2.0	0.493	23.5	LOS C	1.7	12.0	0.82	0.94	1.31	41.8
Approach		312	2.0	0.493	24.4	LOS C	1.7	12.2	0.83	0.95	1.32	42.2
West: William Halton												
10	L2	54	2.0	1.556	273.2	LOS F	146.0	1039.2	1.00	5.72	14.81	11.2
11	T1	2118	2.0	1.556	273.0	LOS F	149.7	1065.6	1.00	5.79	14.99	11.2
12	R2	144	2.0	1.556	272.7	LOS F	149.7	1065.6	1.00	5.85	15.19	11.1
Approach		2316	2.0	1.556	273.0	LOS F	149.7	1065.6	1.00	5.79	15.00	11.2
All Vehicles		5454	2.0	1.556	185.1	LOS F	149.7	1065.6	0.98	4.32	10.26	15.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.