ARGO Neyagawa

Transportation Impact Study

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TRANSPORTATION

ARGO Neyagawa
Transportation Impact Study

Prepared for:

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December 2023

PN: 2023-043

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Executive Summary

CGH Transportation has been retained by ARGO Neyagawa Corporation to prepare a Transportation Impact Study to support the proposed mixed-use development at ARGO Neyagawa Lands between Neyagawa Boulevard and Fourth Line. This Transportation Impact Study has been prepared to support a Draft Plan of Subdivision, Zoning By-Law, and Official Plan Amendment application and will provide a high-level review on the impact of the proposed development on the transportation network within the Study Area. The study will include a review of existing and planned conditions, a travel demand forecast, a development design review, an operational analysis, and a transportation demand management plan. The focus will be on the major roads and intersections within the Study Area. Through the Terms of Reference, the scope has been confirmed with the Region.

Proposed Development:
The ARGO Neyagawa Lands are located in North Oakville, consisting of the land between Neyagawa Boulevard and Fourth Line, north of Burnhamthorpe Road West (Future William Halton Parkway) and south of Highway 407.

It should be noted that unit counts, block sizes, and retail GFAs are preliminary for the purposes of the study. Further refinement of the unit count and market-driven retail space will be conducted at future site plan stages.

The proposed development will include approximately 1,003 residential units, among which 643 will be apartment units and 360 will be townhouses. In addition, there will be approximately 1,020 square metres of ground-floor retail space in the form of mixed-use buildings. Local roads and condo roads will be provided for internal circulation. The proposed development is anticipated to be fully built out in 2028.

Analysis Process & Key Findings:
The study includes traffic operational analysis at the Study Area intersections for the baseline horizon of 2023, the buildout horizon of 2028, and the buildout plus 5 years horizon of 2033.

The existing conditions indicate that the Study Area is currently operating under good conditions overall, with the exception of the intersection of Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway). Following signal timing adjustments to better represent the assumed signal timing for the intersection, the westbound left-turn is noted as a critical movement due to high westbound left-turn volumes observed at the intersection. All other individual movements are operating without constraints which is consistent with known conditions in the area.

The proposed development is anticipated to generate 275 AM and 358 PM peak hour external two-way vehicle trips. The site generated traffic is much lower than the background traffic, and its impact on the operations of Study Area intersections is anticipated to be relatively low when compared to the impact of the background traffic.

The planned network improvements have been incorporated into the traffic analysis for the 2028 and 2033 horizons. Reviewing the future scenarios, additional mitigation measures have been proposed as a result of the auto mode operational analysis results.

Operational constraints are projected at Neyagawa Boulevard and Burnhamthorpe Road (Future William Halton Parkway). In the 2028 future background analysis, double left-turn lanes have been modelled at the westbound approach with a protected eastbound left-turn, along with an extended signal length and signal timing split optimizations in both the AM and PM peak periods. These improvements have been carried forward to all other future analysis horizons.

Operational constraints are observed at William Halton Parkway and Burnhamthorpe Road. The northbound left-turn storage lane is required to be extended by 2028 to accommodate the queues expected to exceed the provided storage distance in both the AM and PM peak periods. These improvements have been carried forward to all other future analysis horizons.

Operational constraints are projected at Fourth Line at Burnhamthorpe Road (Future William Halton Parkway). As the roundabout is currently being constructed, a signalized intersection has not been considered as a viable mitigation measure. As the 2028 future volumes analyzed at this intersection display critical but no over-capacity movements, it can be assumed that any future traffic growth at this intersection will have to be accommodated by non-auto modes.

The Highway 407 eastbound off-ramp at Neyagawa Boulevard operates without constraints in the future horizons.

A preliminary transportation demand management plan including transit, active modes, and land use measures have been recommended in order to reduce reliance on single occupant vehicle trips.

Given that the impact of the proposed development on the surrounding Study Area road network is relatively minor comparing to the other developments in the area and with all the recommended network upgrades implemented, the proposed development application is recommended to proceed from a transportation perspective.

1 Introduction

This Transportation Impact Study (TIS) has been prepared in support of a Draft Plan of Subdivision, Zoning By-Law, and Official Plan Amendment application for the ARGO Neyagawa property in North Oakville. The site and the surrounding area is currently zoned as Future Development (FD), with the exception of the land directly south and further east of the proposed development, which is zoned as Neyagawa Urban Core (NUC). The purpose of the Official Plan Amendment is to rezone the subject lands as NUC.

The proposed development site is bordered by Highway 407 to the north, Neyagawa Boulevard to the east, Fourth Line to the west, and Burnhamthorpe Road (Future William Halton Parkway) to the south. The Block Concept Plan identifies a number of medium density blocks and a mixed-use block, each of which contain an internal condo road network. A conceptual plan, based on the Block Concept Plan and Draft Plan, has been prepared to inform this analysis and includes a mix of residential units and retail spaces. The current conceptual design will include 360 townhouse dwelling units, 643 high-rise apartment units across two buildings, and 1,020 m^2 of retail space. A total of 1,143 parking spaces will be provided to support to the proposed land uses. It should be noted that unit counts, block sizes, and retail GFAs are preliminary for the purposes of the study and will be subject to refinement at future site plan stages. Access to the proposed development will be provided by three accesses to the surrounding roadway network. Site Access #1 is located on Neyagawa Boulevard approximately 170 metres north of Burnhamthorpe Road (Future William Halton Parkway) and will be a right-in / right-out access. Site Access #2 is located on Burnhamthorpe Road (Future William Halton Parkway) approximately 135 metres west of Neyagawa Boulevard and will be a right-in / right-out access. Site Access #3 is proposed on Fourth Line approximately 210 metres north of Burnhamthorpe Road (Future William Halton Parkway) and will be a full-movement access. Intersection spacing has been measured from intersection centreline to intersection centreline. An additional connection to Fourth Line is noted north of Site Access #3. This connection will function as a free-flow connection to Fourth Line, and as such it will not be directly analyzed within the operational analysis sections of the TIS. Access to the development will be guided by the Halton Region Access Management Guidelines where applicable.

For the purposes of this report, it has been assumed that the proposed development will be built and operational by 2028. Therefore, the analysis horizons will include 2023 existing conditions, a full build-out horizon of 2028, and a full build-out plus five years horizon of 2033. Figure 1 illustrates the site context and Appendix A contains the proposed block concept plan.

The scope of this TIS has been sent to both Town of Oakville and Halton Region transportation staff. Comments and approval have been received from Region staff, however given the submission timelines, the TIS has proceeded prior to receiving feedback from Town staff. The Terms of Reference as well as resulting email correspondence discussing the scope of work has been included in Appendix B.

Figure 1: Site Context

2 Study Area

The Study Area will consist of the following intersections:

- Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway) (Existing)
- Fourth Line at Burnhamthorpe Road (Future William Halton Parkway) (Existing)
- Highway 407 Eastbound Off Ramp at Neyagawa Boulevard (Existing)
- William Halton Parkway at Burnhamthorpe Road (Existing)
- Internal connector (Street B) and local road (Street A) intersection (Future)

The following accesses are proposed for the development:

- Site Access #1 (Street B) at Neyagawa Boulevard (Proposed – Right-in/right-out)
- Site Access #2 (Street A) at Burnhamthorpe Road (Future William Halton Parkway) (Proposed – Right-in/right-out)
- Site Access #3 (Street B) at Fourth Line (Proposed – Full-movement)

3 Existing Conditions

3.1 Area Road Network

Burnhamthorpe Road

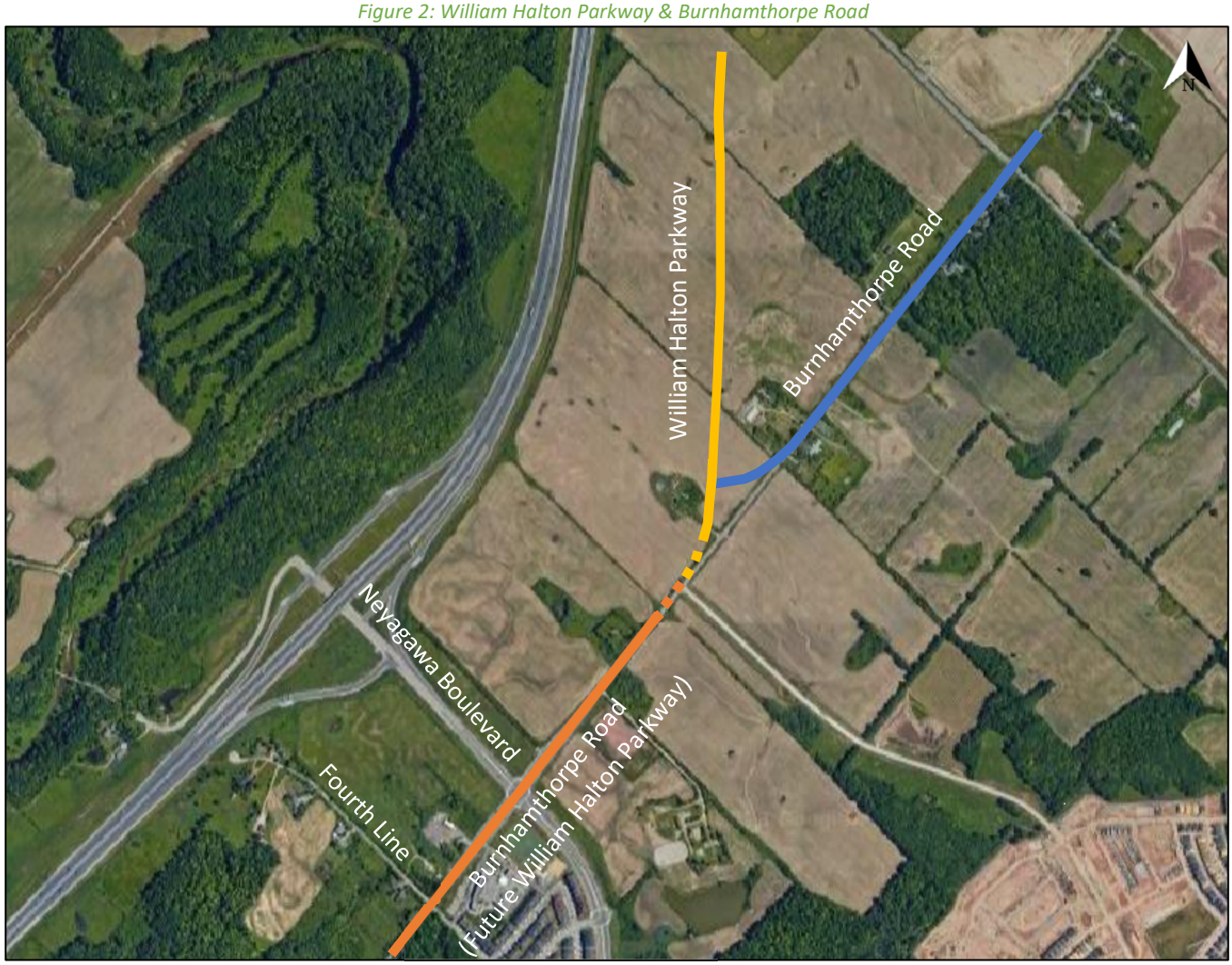
Burnhamthorpe Road is a Halton regional arterial road that within the Study Area. West of Neyagawa Boulevard, Burnhamthorpe Road has a four-lane urban cross-section with paved shoulders until Fourth Line, where it transitions to a two-lane urban cross section. The Halton Region Transportation Master Plan (TMP) protects for a 35-metre right of way for this segment of Burnhamthorpe Road. East of William Halton Parkway, this section of Burnhamthorpe Road has a two-lane rural cross section with gravel shoulders. The Burnhamthorpe Road Character Study protects for a 24-metre right of way for this section of Burnhamthorpe Road. Bike lanes are provided on the section of Burnhamthorpe Road west of Neyagawa Boulevard. No pedestrian facilities are provided. A 50 km/h posted speed limit applies for Burnhamthorpe Road west of Neyagawa Boulevard and a 40 km/h posted speed limit applies to Burnhamthorpe Road east of William Halton Parkway.

With the completion of Phase 2 – Stage 2, and Phase 1 of the William Halton Parkway extension east of Neyagawa Boulevard, responsibility for the remaining portions of this roadway will transfer from Halton Region to the Town of Oakville, as the new William Halton Parkway will replace the regional road function of Burnhamthorpe Road to serve as the north Oakville transportation corridor. The Town completed a Character Study for Burnhamthorpe Road to illustrate the ultimate cross-section and alignment once the Town assumes this road.

William Halton Parkway

William Halton Parkway has a four-lane urban cross-section within the Study Area, east of Neyagawa Boulevard. As the extension of William Halton Parkway from Sixth Line to Neyagawa Boulevard was recently officially opened on November 3, 2023, it is assumed that this portion of William Halton Parkway has been or will be transferred to Halton Region and will be considered a regional road. A raised concrete median is provided for the four-lane section. The Halton Region Transportation Master Plan (TMP) identifies William Halton Parkway within the Study Area as a class C2 Urban road, and therefore protects for a 35-metre right-of-way. A 60 km/h posted speed limit applies east of Fourth Line. Bike lanes are present on both sides of the road. Sidewalks are provided on the north side of William Halton Parkway, and multi-use pathways are provided on the south side of William Halton Parkway in an intermittent manner. It is anticipated that sidewalks and multi-use pathways will be provided continuously within the Study Area shortly. It is noted that the construction for Phase 2 - Stage 1 of the project between Neyagawa Boulevard and Third Line is underway. As a result of the recently completed as well as the ongoing changes to both William Halton Parkway and Burnhamthorpe Road within the Study Area, roadway naming is uncertain at this time. As such, for the purposes of this study, William Halton Parkway and Burnhamthorpe Road roadway segments within the Study Area will be referred to as indicated in Figure 2 below.

Figure 2: William Halton Parkway & Burnhamthorpe Road



Neyagawa Boulevard

Neyagawa Boulevard is a Halton regional road with a four-lane urban cross-section. The Halton Region Transportation Master Plan (TMP) classifies Neyagawa Boulevard as a C4 urban road and protects for a 42-metre right-of-way. Auxiliary turn lanes are provided at major intersections. Bike lanes on both sides of the roadway, and a multi-use pathway on the west side of the road are provided south of William Halton Parkway. A 60 km/h posted speed limit applies.

Fourth Line

Fourth Line is a Town of Oakville road with a two-lane rural cross section. A 20-metre right-of-way is reserved. No pedestrian or cycling facilities are provided. A 60 km/h posted speed limit applies.

Highway 407

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

3.2 Existing Intersections

Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway)

The intersection of Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway) is a signalized intersection with auxiliary left-turn lanes, two through lanes, and a right-turn lane on all approaches. Crosswalks are present on all legs with pedestrian signal heads and call buttons. Sidewalks are noted on the north side of Burnhamthorpe Road (Future William Halton Parkway), east of Neyagawa Boulevard. An asphalt multi-use path is provided on Neyagawa Boulevard on the west side of the road, south of Burnhamthorpe Road (Future William Halton Parkway), and on the south side of Burnhamthorpe Road (Future William Halton Parkway), east of Neyagawa Boulevard. Curbside cycling lanes are provided on all legs of the intersection. Figure 3 illustrates the intersection of Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway).

Figure 3: Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway)

Fourth Line at Burnhamthorpe Road (Future William Halton Parkway)

The intersection of Fourth Line at Burnhamthorpe Road (Future William Halton Parkway) is a four-legged unsignalized intersection with stop control on the north and south approaches. All approaches contain one shared left-turn / right-turn / through lane. No cycling or pedestrian facilities are present at this intersection. Figure 4 illustrates the intersection of Fourth Line at Burnhamthorpe Road (Future William Halton Parkway).

Figure 4: Fourth Line at Burnhamthorpe Road (Future William Halton Parkway)

William Halton Parkway at Burnhamthorpe Road

The intersection of William Halton Parkway at Burnhamthorpe Road is an unsignalized three-legged intersection with stop control on the south leg of the intersection. The northbound approach consists of an auxiliary left-turn lane and a right-turn lane. The eastbound approach consists of two through lanes, and an auxiliary right-turn lane. The westbound approach consists of an auxiliary left-turn lane, and two through lanes. A paved multi-use pathway is provided on the south side of William Halton Parkway, and on-road bike lanes are noted on the north and south sides of William Halton Parkway. No turn restrictions are noted. No aerial imagery is available for this intersection as it has recently been built. Figure 5 shows the proposed intersection configuration as shown in the Burnhamthorpe Road Character Study and Municipal Class Environmental Assessment (2014). Although pedestrian facilities have not been constructed yet on Burnhamthorpe Road, a site visit conducted on October 26, 2023 confirms the proposed intersection configuration shown below has been built. Figure 6, Figure 7, and Figure 8 show the site visit photos from October 26, 2023.

Figure 5: William Halton Parkway at Burnhamthorpe Road Configuration

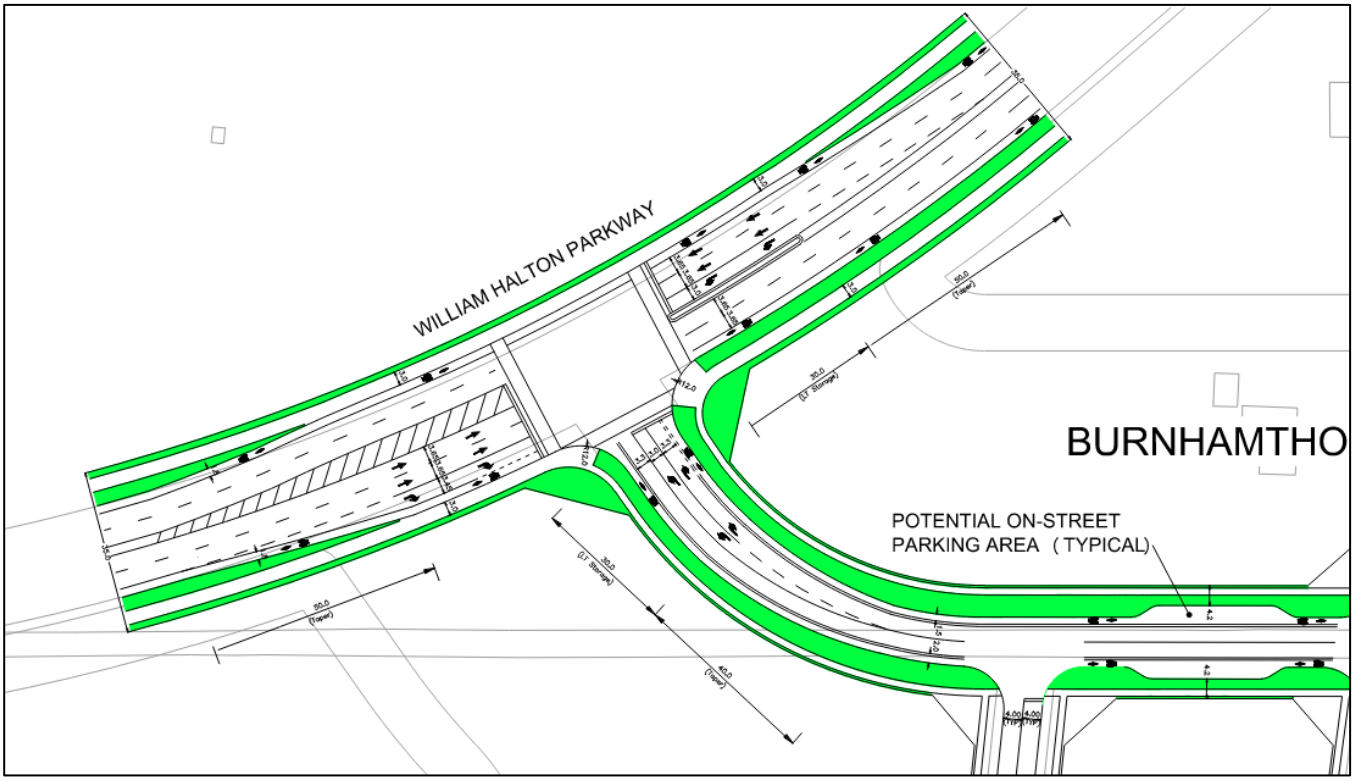


Figure 6: William Halton Parkway at Burnhamthorpe Road – East Leg

Figure 7: William Halton Parkway at Burnhamthorpe Road – West Leg

Figure 8: William Halton Parkway at Burnhamthorpe Road – South Leg

Highway 407 Eastbound Off Ramp at Neyagawa Boulevard

The intersection of the Highway 407 Eastbound Off Ramp at Neyagawa Boulevard is a three-legged intersection containing the exit-only approach from the highway to Neyagawa Boulevard. The Highway 407 Eastbound Off-ramp consists of one left-turn and one right-turn lane. The northbound and southbound approaches both have two through lanes. No cycling or pedestrian facilities are present. Figure 9 illustrates the intersection of the Highway 407 Eastbound Off Ramp at Neyagawa Boulevard.

Figure 9: Highway 407 Eastbound Off Ramp at Neyagawa Boulevard

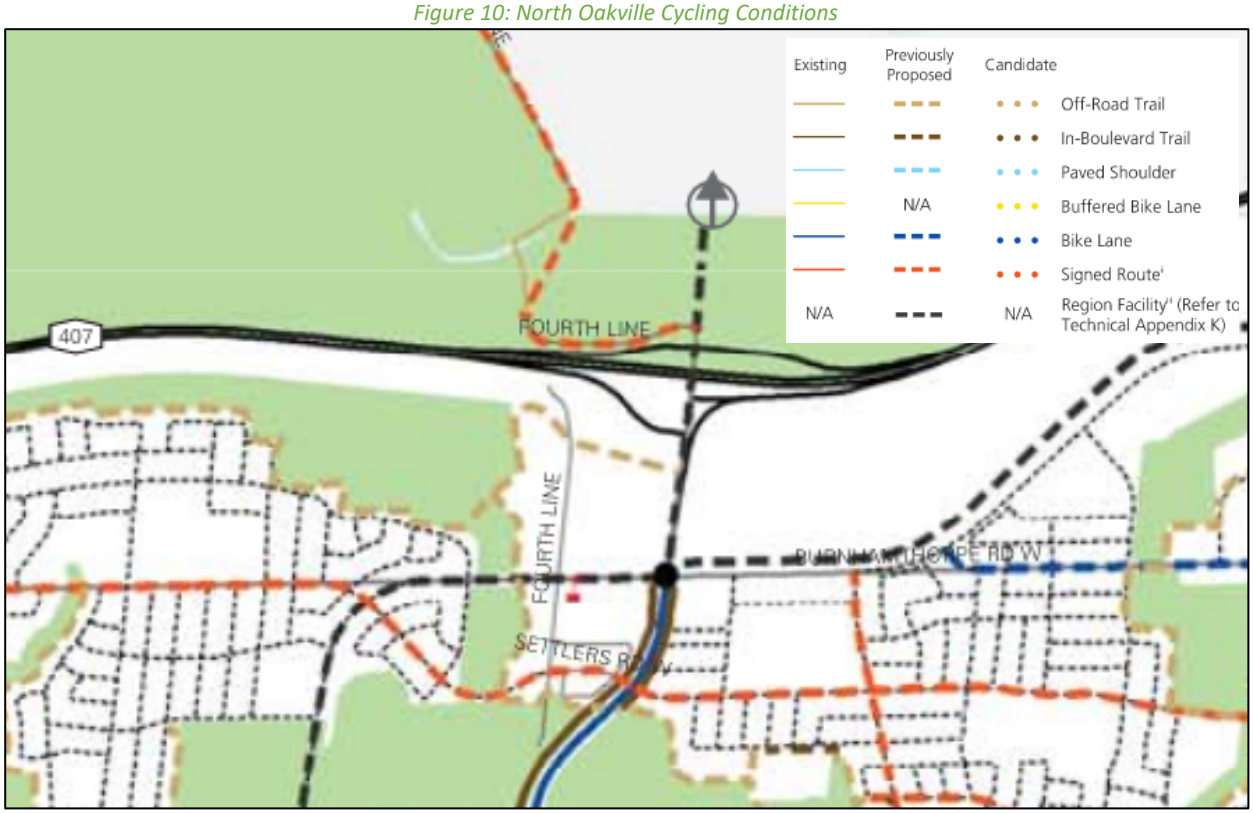
3.3 Cycling and Pedestrian Facilities

Within the Study Area, bike lanes are present on both sides of Burnhamthorpe Road (Future William Halton Parkway) east and west of Neyagawa Boulevard, on Burnhamthorpe Road east of William Halton Parkway, and on Neyagawa Boulevard south of Burnhamthorpe Road.

Multi-use pathways are provided on the south side of Burnhamthorpe Road (Future William Halton Parkway), east and west of Neyagawa Boulevard, and on the west side of Neyagawa Boulevard south of Burnhamthorpe Road (Future William Halton Parkway). Pedestrian crosswalks are shown on all approaches at the intersection of Burnhamthorpe Road and William Halton Parkway.

According to the Town of Oakville Active Transportation Master Plan (ATMP), Burnhamthorpe Road, William Halton Parkway, and Neyagawa Boulevard, as named in the ATMP, are all designated as primary (spine) routes. Bike lanes, where not already present, are proposed to be provided along Burnhamthorpe Road, William Halton Parkway, and Neyagawa Boulevard, which are represented by dashed lines in Figure 10 below. The William Halton Parkway Extension Project, which will be completed in 2024, is planned to include both bicycle lanes and multi-use paths. An off-road trail, indicated by the dashed yellow line on the map, is planned along the north side of the development and terminates on Neyagawa Boulevard south of Highway 407.

Figure 10: North Oakville Cycling Conditions



Source: Oakville Active Transportation Master Plan (2017)

3.4 Existing Transit

There are no transit routes operating within the study area.

The nearest transit facility is the GO Transit Carpool located at Trafalgar Road and Highway 407, approximately four kilometres east of the development. Table 1 below summarizes the details of GO Bus Routes servicing this location.

Table 1: Existing Transit Details

GO Bus Route	Details
#21A	Runs along Trafalgar Road between Milton GO and Oakville GO.
#40	Runs along Highway 403 and Highway 407 between Hamilton GO and Richmond Hill Centre.
#41	Runs between Hamilton GO and Pickering GO via Highway 403, Highway 407 and Highway 401.
#47	Runs between Hamilton GO and Highway 407 Bus Terminal in Vaughan via Highway 403 and Highway 407.
#56	Runs between Oakville GO and Oshawa GO via Trafalgar Road, Highway 407 and Simcoe Street in Oshawa.

3.5 Existing Peak Hour Travel Demand

Given the primarily residential land use of the proposed development, the AM and PM peak periods have been selected as the analysis time periods. 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 2 summarizes the date of the most recent turning movement counts at each existing Study Area intersection.

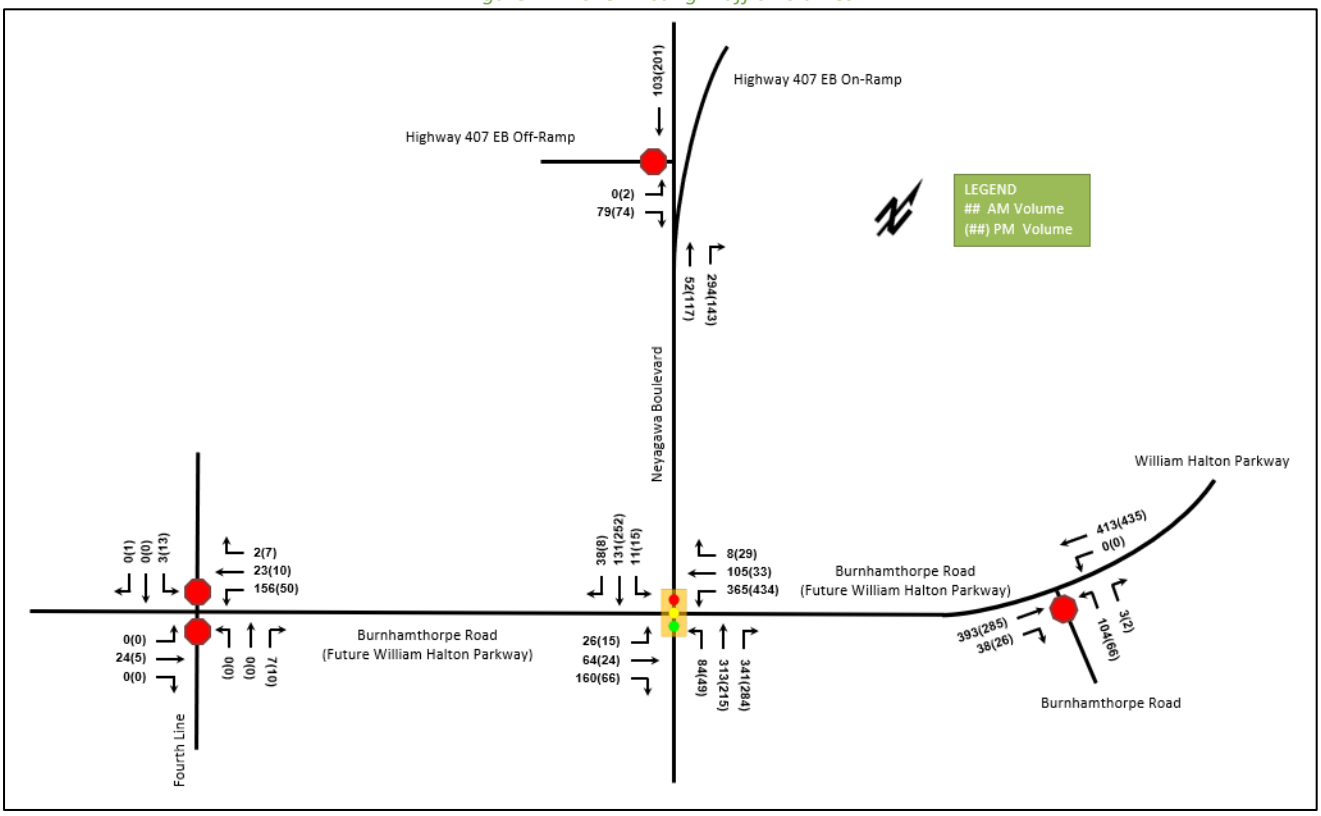
Table 2: TMC Data Dates

Data Type	Location	Count Date
Turning Movement Counts (TMC)	Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway)	Nov 7, 2023
	Fourth Line at Burnhamthorpe Road (Future William Halton Parkway)	
	William Halton Parkway at Burnhamthorpe Road	
	Highway 407 Eastbound Off-Ramp at Neyagawa Boulevard	

It is noted that the turning movements for the four Study Area intersections were collected following the completion of Phase 2 – Stage 2, and Phase 1 of the William Halton Parkway extension.

As shown above, the turning movement counts have been collected in 2023 and therefore no volume balancing or growth has been applied to the counts, as they are representative of existing conditions. Turning movement count data is included in Appendix C and Signal Timing Plan data is included in Appendix D. It is noted that the received Signal Timing Plan from Region staff was dated 2008. When requested, the current Signal Timing Plan was not provided. As such, a more recent version of the Signal Timing Plan from 2016, taken from other TISs completed in the area has been used. While the 2016 Signal Timing Plan is likely outdated and does not accommodate or reflect the impact that the extension of William Halton Parkway completed to date will have on volumes at this intersection, it is considered to be more accurate than the 2008 version. Changes to the signal timing at this intersection will be explored if necessary. Figure 11 illustrates the 2023 existing vehicle traffic volumes.

Figure 11: 2023 Existing Traffic Volumes



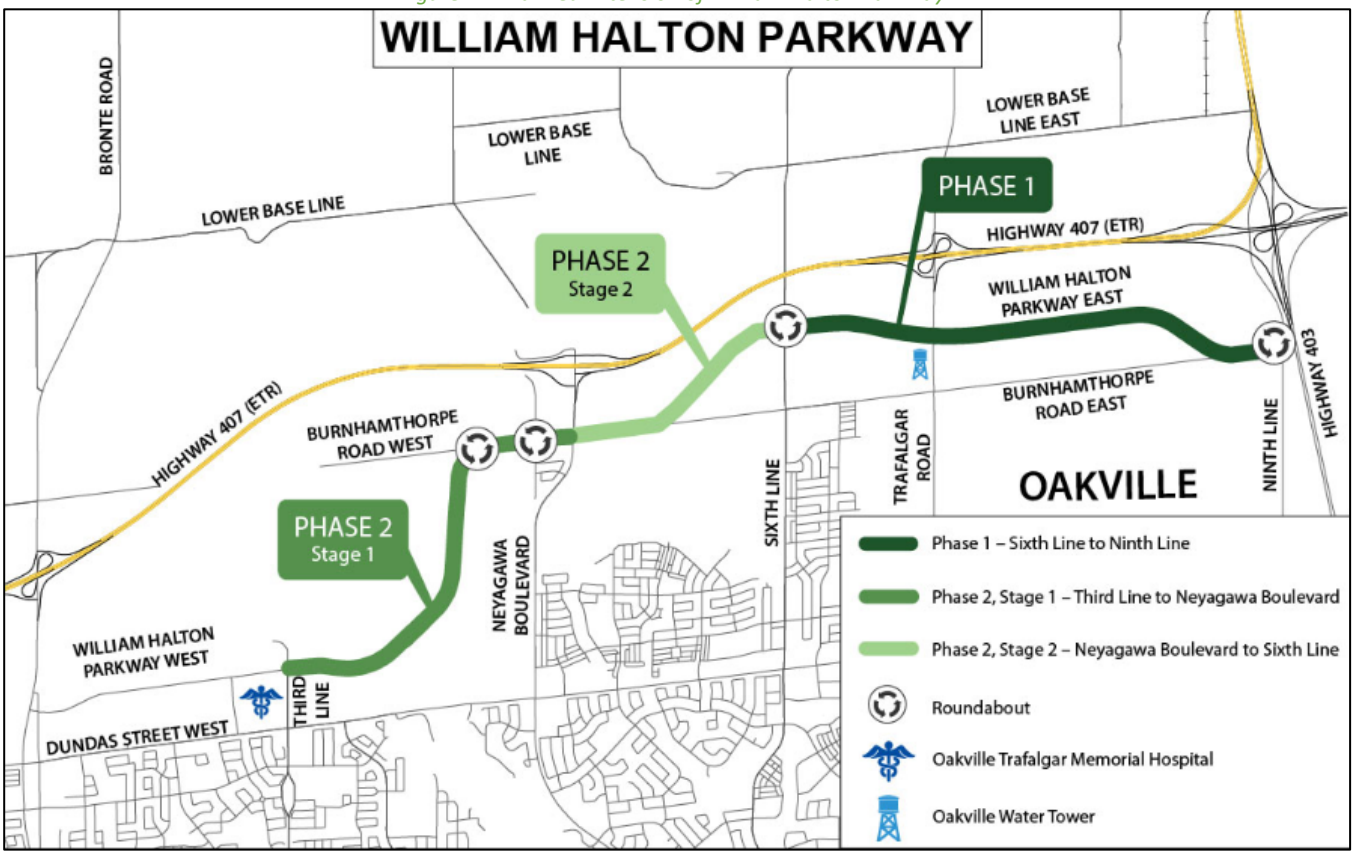
4 Future Background Conditions

4.1 Planned Conditions

4.1.1 William Halton Parkway Extension

As discussed in Section 3.1, William Halton Parkway within the Study Area is a Region of Halton arterial road with a four-lane cross-section. The William Halton Parkway Extension Project will create a new east-west corridor from Bronte Road (Regional Road 25) to Ninth Line (Regional Road 13) and has been split into three phases of design and construction as shown in Figure 12 below. Phase 1 and Phase 2, Stage 2 of the William Halton Parkway Extension Project, which is between Neyagawa Boulevard and Ninth Line has been completed. Phase 2, Stage 1 of the project, which will take place southwest of the development between Third Line and Neyagawa Boulevard, is anticipated to be completed in 2024, and will therefore be considered in both 2028 and 2033 future analysis horizons. The intersection of Burnhamthorpe Road (Future William Halton Parkway) and Fourth Line has therefore been assumed to operate as a four-legged intersection in the 2028 and 2033 future analysis horizons. With the completion of this project, the travel patterns of the east-west traffic within the Study Area are anticipated to change.

Figure 12: Planned Extension of William Halton Parkway



Source: https://www.halton.ca/For-Residents/Roads-Construction/Construction-Projects/William-Halton-Parkway-Extension-Project
Accessed: November 15, 2023

The proposed cross-section of the William Halton Parkway extension can be seen in Figure 13 and shows two proposed vehicle travel lanes in each direction, bikes lanes, a sidewalk, and a multi-use pathway.

Figure 13: Proposed William Halton Parkway Cross Section

Source: https://www.halton.ca/For-Residents/Roads-Construction/Construction-Projects/William-Halton-Parkway-Extension-Project
Accessed: November 15, 2023

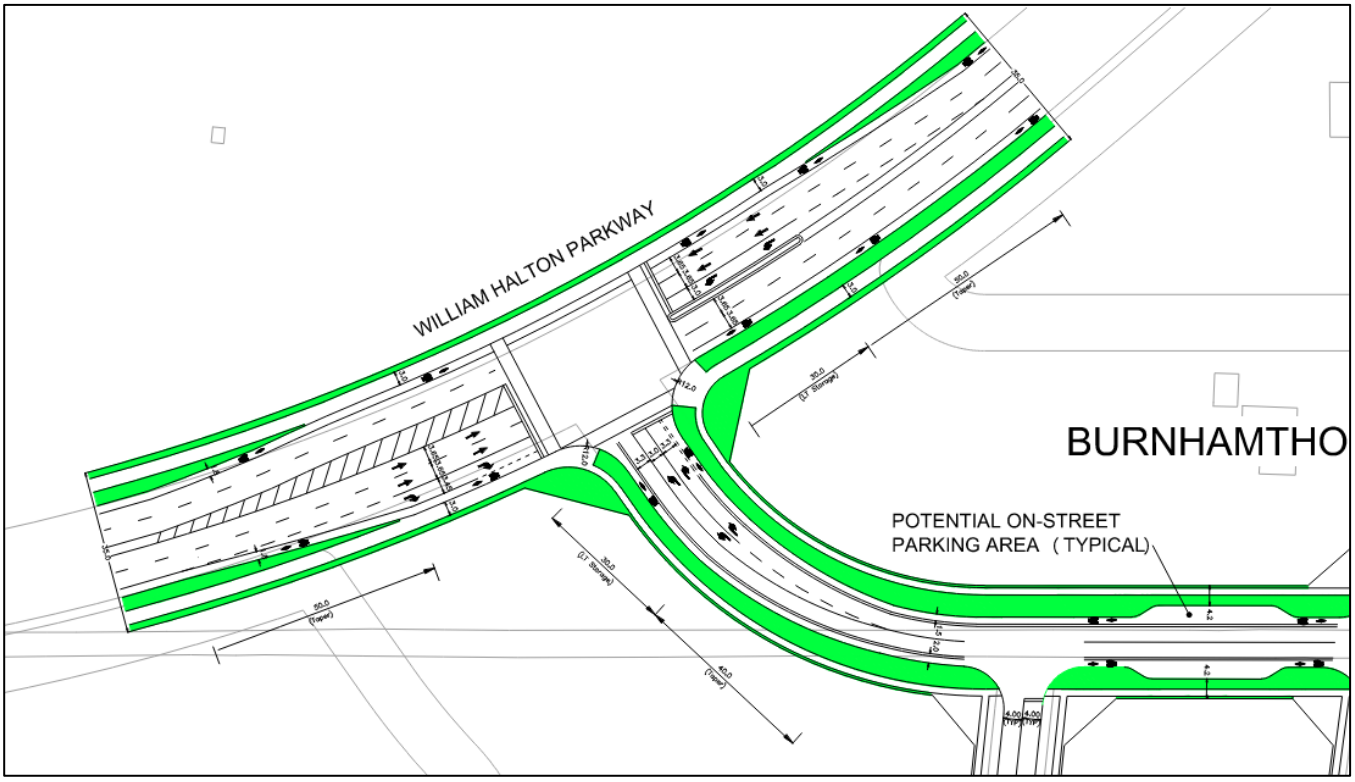
4.1.2 Burnhamthorpe Road

Burnhamthorpe Road west of Sixth Line 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. Within the Study Area, Burnhamthorpe Road will

only exist east of William Halton Parkway in the future analysis horizons as the existing segment west of Neyagawa Boulevard is part of the future William Halton Parkway extension discussed above.

While the intersection of Burnhamthorpe Road and William Halton Parkway has just been completed, pavement marking, active transportation facilities, and signalization of the intersection have not been completed. Figure 14 below illustrates the final intersection configuration that will be considered in both the 2028 and 2033 future analysis horizons.

Figure 14: Final Intersection Configuration of Burnhamthorpe Road at William Halton Parkway



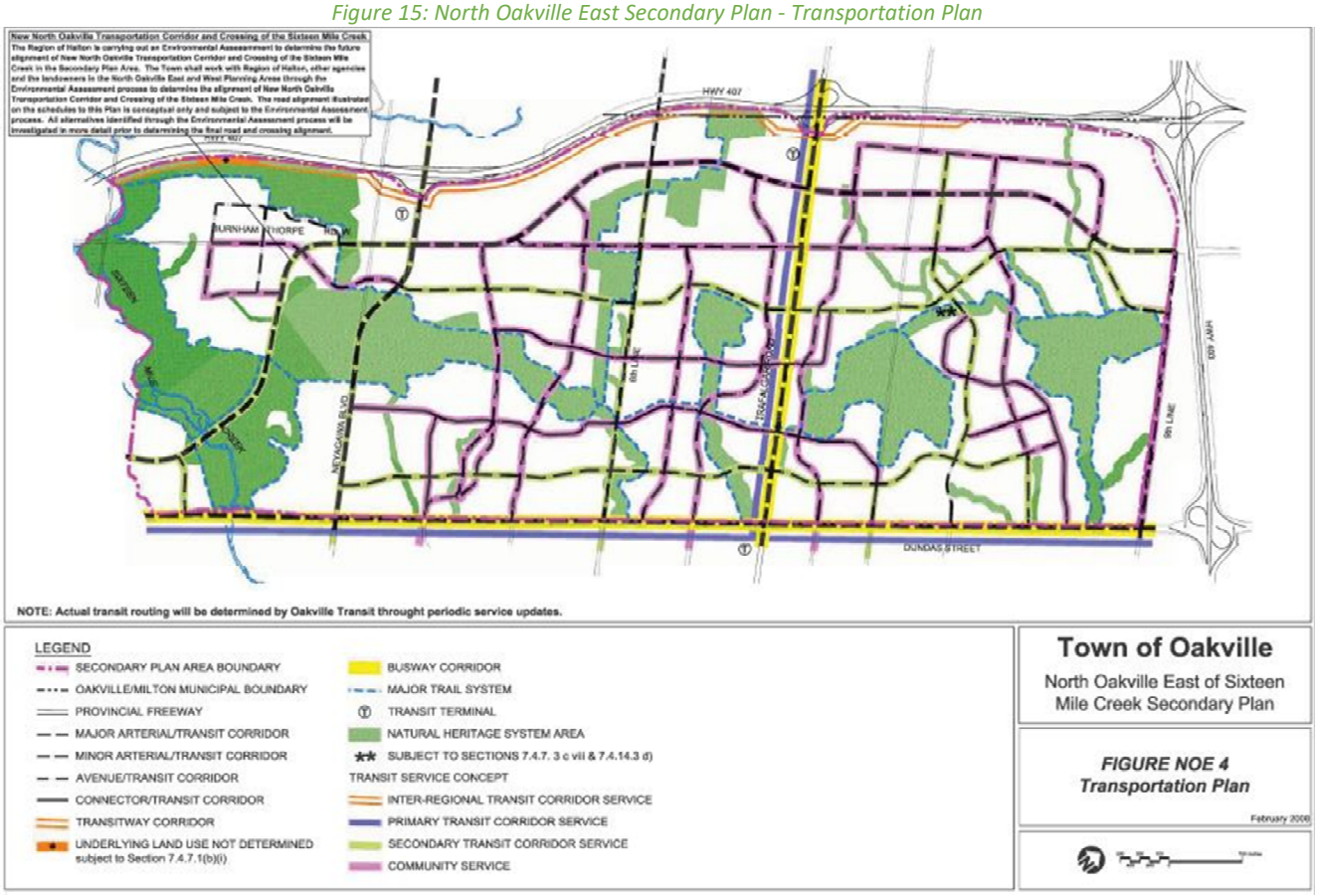
4.1.3 Fourth Line

No widening or urbanization is considered by the Town of Oakville for Fourth Line in any future analysis horizon, despite the intersection of Fourth Line and Burnhamthorpe Road (Future William Halton Parkway) being subject to the William Halton Parkway extension project. It is to be noted that the intersection will be constructed as a four-legged roundabout as part of the project. However, no further changes to Fourth Line will be considered.

4.1.4 North Oakville East Secondary Plan – Transportation Plan

The North Oakville East Secondary Plan includes transit routes along key corridors within the Study Area. Figure 15 illustrates the North Oakville East Secondary Plan Transportation Plan. Within the Study Area, Neyagawa Boulevard is planned as a Secondary Transit Corridor. West of Neyagawa Boulevard, Burnhamthorpe Road (Future William Halton Parkway) is planned as a Secondary Transit Corridor and east of Neyagawa Boulevard it is proposed as a Community Service Corridor. Burnhamthorpe Road is also shown as a Community Service Corridor. An inter-regional transit corridor service is also shown within the Study Area just south of the 407 and represents the future Highway 407 transitway.

Figure 15: North Oakville East Secondary Plan - Transportation Plan



Source: North Oakville East Secondary Plan (2008)

4.1.5 Other Study Area Developments

Proposed developments within close proximity of the ARGO Neyagawa development expected to impact the Study Area intersections and road network have been identified. The following nearby developments are major trip generators and will be considered as part of the background traffic growth:

- Sherborne Lodge Development
- Remington ENO Development
- Neighborhood 9,10,11 Developments
- Sixth Oak Inc. School and Employment Lands
- Star Oak Development

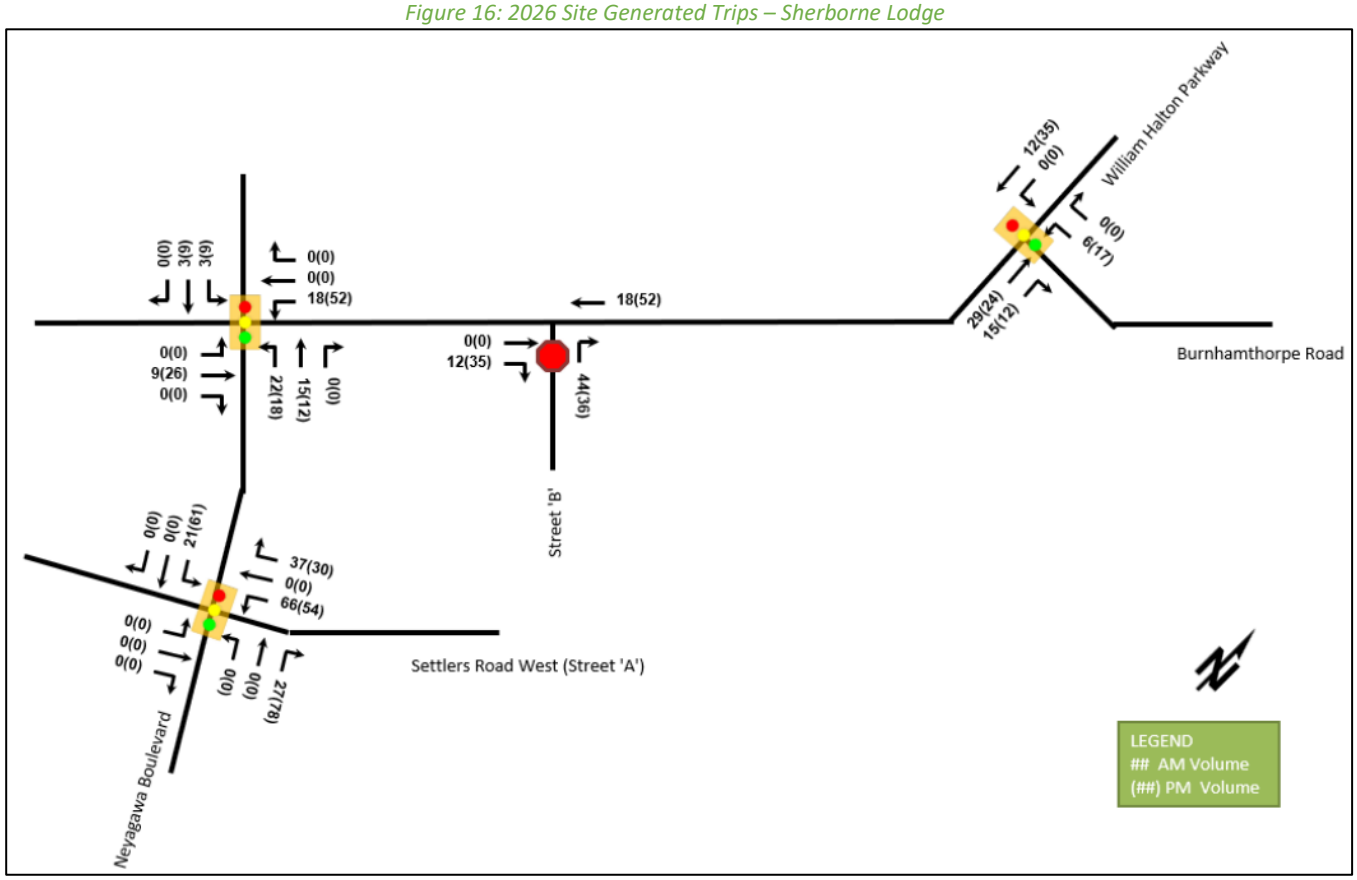
Each background development and the traffic associated with it has been summarized in the subsections below.

4.1.5.1 Sherborne Lodge Development

The future North Oakville Sherborne Lodge development is located to the southeast of the subject site. The following information has been taken from the *Sherborne Lodge Developments Transportation Impact Study (2023)*, prepared by CGH Transportation. This development includes an apartment block with an anticipated 296 units, a low-rise subdivision with 84 single detached homes, 125 townhouses, a commercial block, and an elementary school. This site will connect to the road network via one access on William Halton Parkway, and one access on Settlers Road West. A 2026 build-out year is anticipated. The proposed development is anticipated to generate 205 AM and 293 PM peak hour two-way vehicle trips in the future 2026 analysis horizon considered in

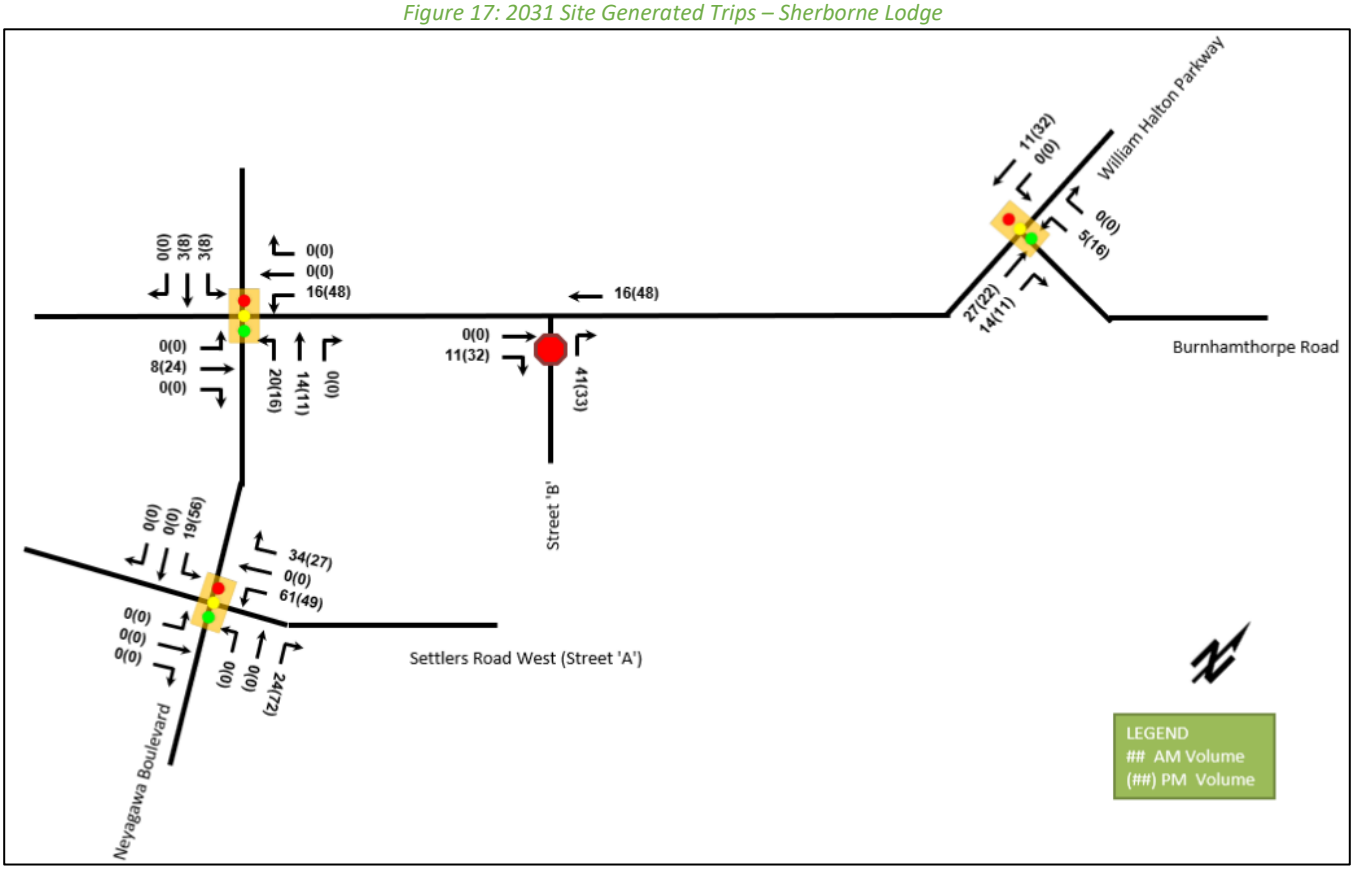
the TIS, and 189 AM and 269 PM peak hour two-way vehicle trips in the 2031 future analysis horizon considered in the TIS. As such, the 2026 vehicle trip generation will be considered in the 2028 future total analysis, and the 2031 vehicle trip generation will be considered in the 2033 future total analysis. The 2026 Sherborne Lodge trip generation is illustrated in Figure 16, and the 2031 Sherborne Lodge trip generation is illustrated in Figure 17.

Figure 16: 2026 Site Generated Trips – Sherborne Lodge



Source: Sherborne Lodge Developments Transportation Impact Study; CGH; September 2023

Figure 17: 2031 Site Generated Trips – Sherborne Lodge

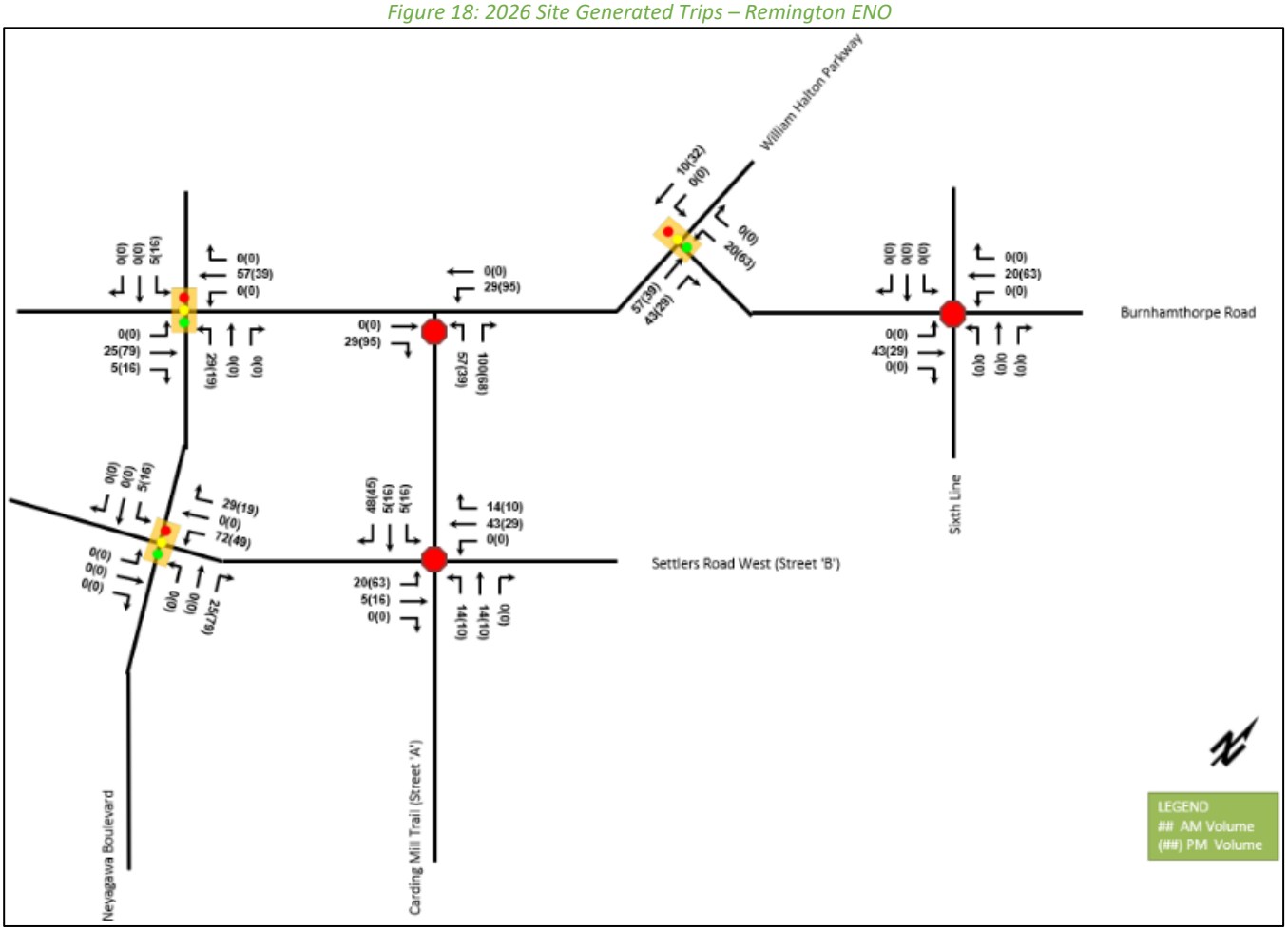


Source: Sherborne Lodge Developments Transportation Impact Study; CGH; September 2023

4.1.5.2 Remington ENO Development

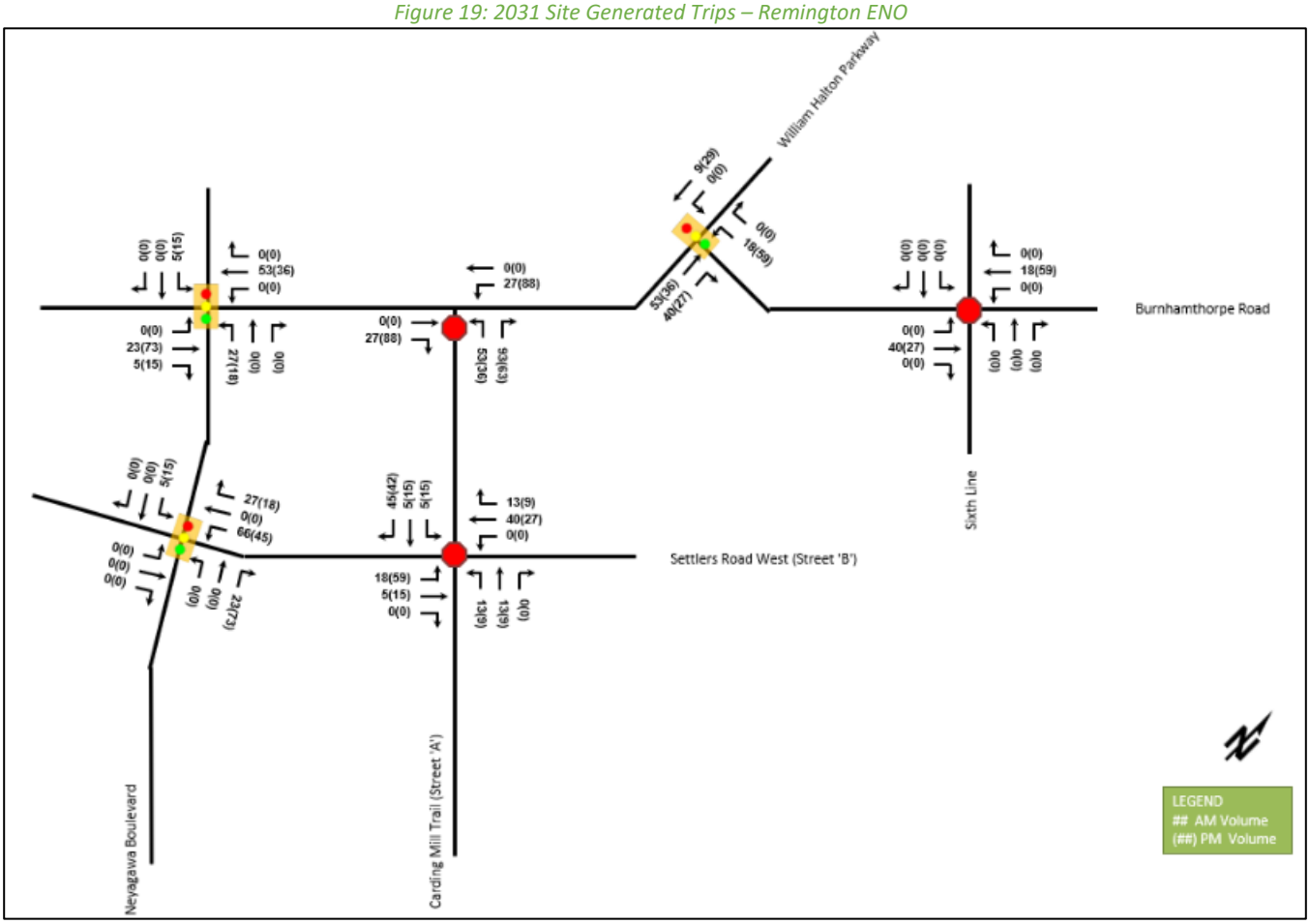
The future Remington Eno development is a proposed subdivision in North Oakville, bordered by William Halton Parkway to the north, and the proposed Sherborne Lodge development to the west. The following information has been taken from the *Remington Eno Transportation Impact Study (2023)*, prepared by CGH Transportation. Remington Eno includes a mix of 290 single detached houses, 307 townhouses, and several multi-storey mid-rise buildings with a total of approximately 1,700 apartment units and a total of approximately 15,000 square feet of retail space. Access to this development will be provided via intersection of Carding Mill Trail and William Halton Parkway, as well as the intersection of Neyagawa Boulevard at Settlers Road West. A 2026 build-out year is anticipated. The proposed development is anticipated to generate 383 AM and 510 PM peak hour two-way vehicle trips in the future 2026 analysis horizon considered in the TIS, and 352 AM and 472 PM peak hour two-way vehicle trips in the 2031 future analysis horizon considered in the TIS. As such, the 2026 vehicle trip generation will be considered in the 2028 future total analysis, and the 2031 vehicle trip generation will be considered in the 2033 future total analysis. The 2026 Remington Eno trip generation can be seen in Figure 18, and the 2031 Remington Eno trip generation can be seen in Figure 19.

Figure 18: 2026 Site Generated Trips – Remington ENO



Source: Remington Eno Transportation Impact Study; CGH; June 2023

Figure 19: 2031 Site Generated Trips – Remington ENO



Source: Remington Eno Transportation Impact Study; CGH; June 2023

4.1.5.3 Neighbourhood 9,10,11 Developments

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

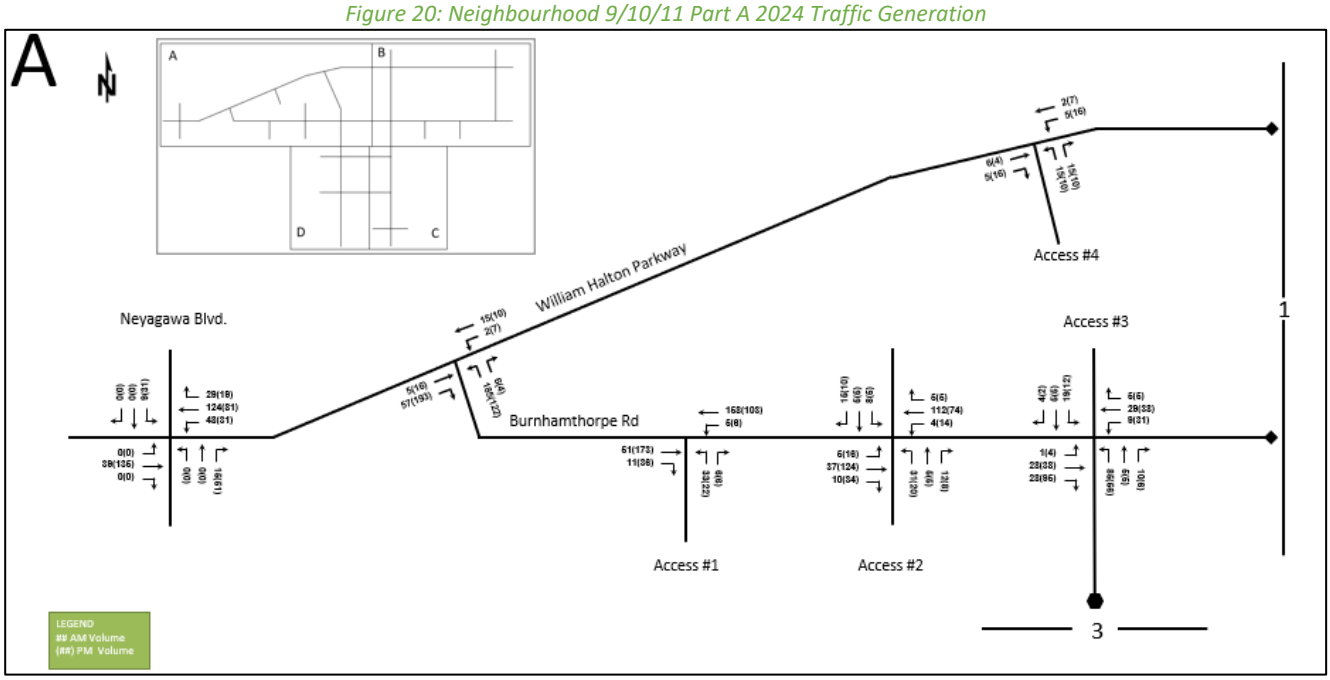
- Timsin Holding Corp. – 29 single family detached units and 18 townhouse units
- Docasa Group Ltd. – 200 single detached residential units and 110 townhouse units
- Star Oak Developments Ltd. – 105 single family detached units and 63 townhouse units
- Digram Developments Inc. – 172 townhouse units and 110 apartment units
- ARGO (West Morrison Creek) Ltd. – 85 single family detached units and 162 townhouse units
- Crosstrail Estates Inc. and TWKD Developments Inc. – 244 townhouse units
- Mattamy Homes Preserve North – 369 single family detached units and 22 townhouses
- Mattamy Homes / SGGC – 202 townhouse units and 75 apartment units
- G.C. Family Investments – 10 townhouse units

The combined development includes a total of 788 single detached homes, 1003 townhouses, and 175 mid-rise units. The projected completion date is 2024, and therefore site generated traffic will be considered in both the

2028 and 2033 future analysis horizons. The development is anticipated to a total of 851 and 1114 two-way vehicle trips during the AM and PM peak hour.

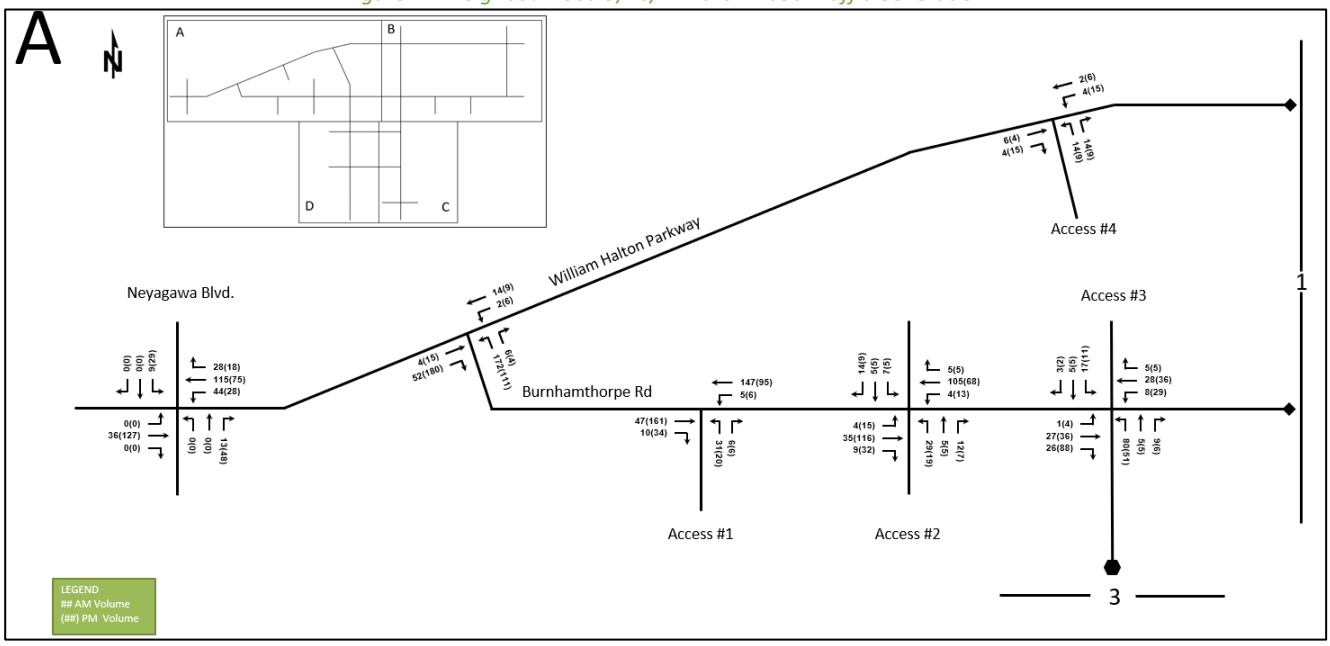
Figure 20 and Figure 21 illustrate the projected 2024 and 2030 site traffic generation of the Neighbourhood 9/10/11 Development, respectively. The 2024 vehicle trip generation will be considered in the 2028 future total analysis, and the 2030 vehicle trip generation will be considered in the 2033 future total analysis. The volumes below have been approved by the Town of Oakville.

Figure 20: Neighbourhood 9/10/11 Part A 2024 Traffic Generation



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

Figure 21: Neighbourhood 9/10/11 Part A 2030 Traffic Generation

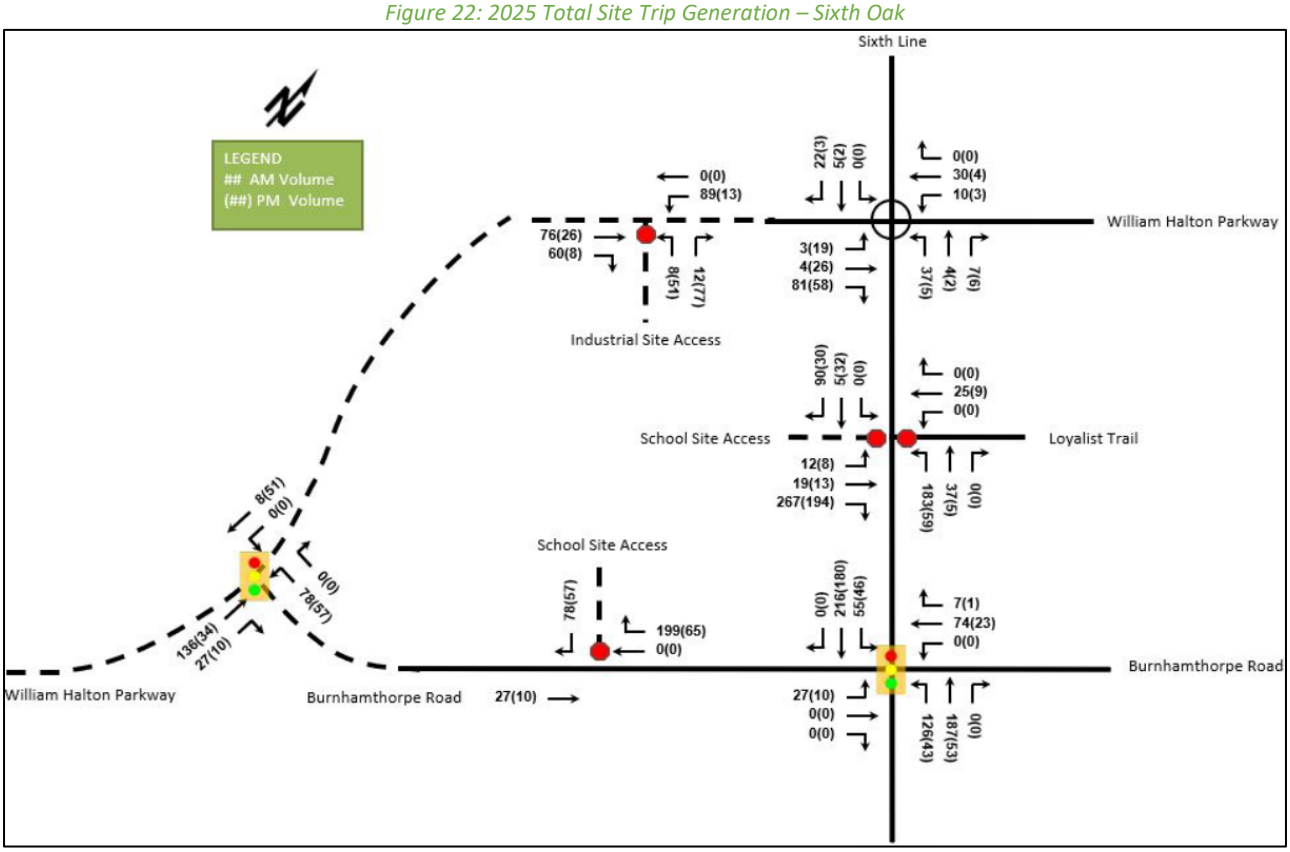


Source: Neighbourhood 9/10/11 Transportation Impact Study; CGH Transportation; 2020

4.1.5.4 Sixth Oak Inc. School and Employment Lands

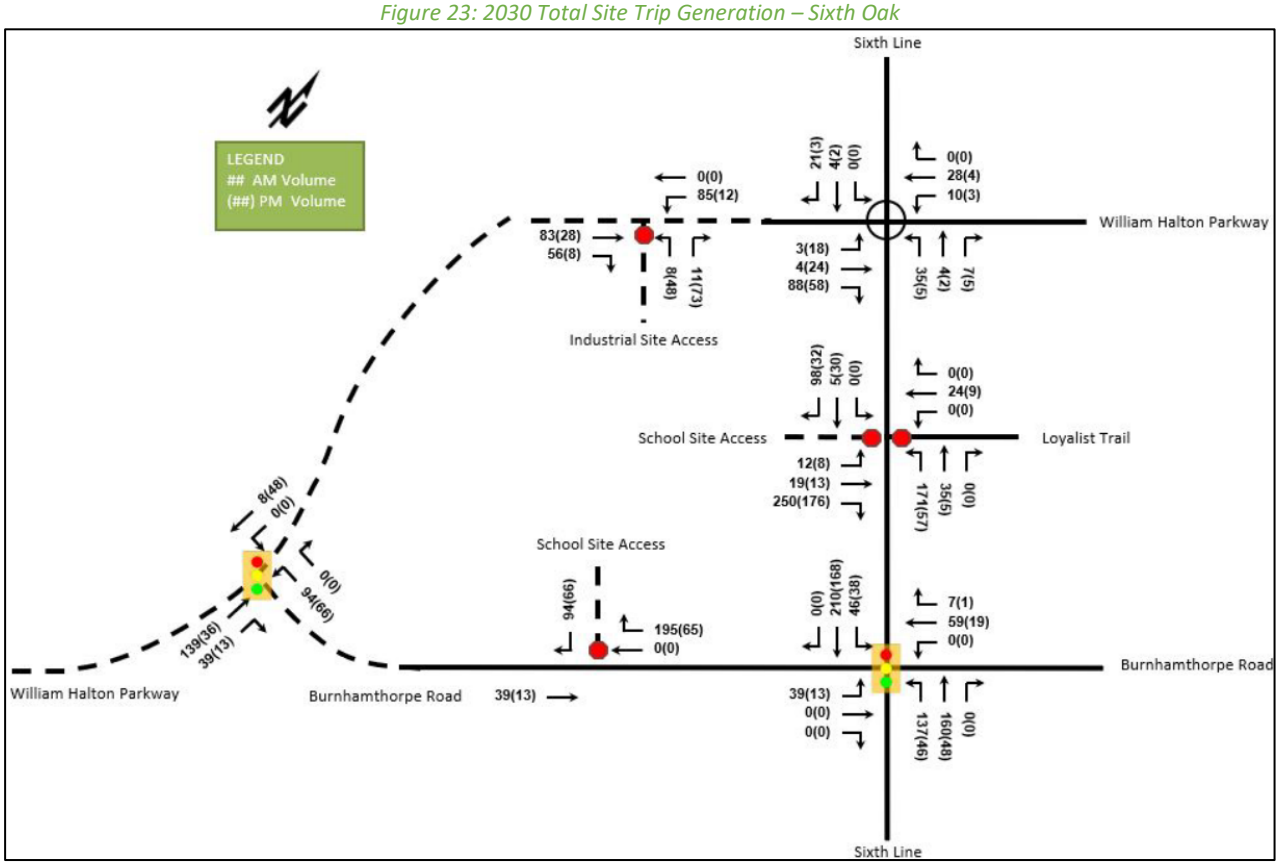
The future Sixth Oak development occupies the northwest corner at the intersection of Burnhamthorpe Road at Sixth Line, including the natural heritage area. The following information has been taken from the *Sixth Oak Inc. School and Employment Lands Transportation Impact Study (2022)*, prepared by CGH Transportation. The subject development will include a secondary school with a capacity of 1,200 pupils, an 8,000 square foot childcare facility, a 100,000 square foot office space, and a 281,600 square foot one-storey industrial building. The secondary school, the daycare, and the office building have a right-in/right-out access on Burnhamthorpe Road and a full-movement access on Sixth Line, and the industrial buildings have a full-movement access on William Halton Parkway. A full build-out horizon of 2025 is anticipated. The proposed development is anticipated to generate 547 AM and 511 PM peak hour two-way vehicle trips in the future 2025 analysis horizon considered in the TIS, and 3503 AM and 470 PM peak hour two-way vehicle trips in the 2030 future analysis horizon considered in the TIS. As such, the 2025 vehicle trip generation will be considered in the 2028 future total analysis, and the 2030 vehicle trip generation will be considered in the 2033 future total analysis. Figure 22 and Figure 23 show the 2025 and 2030 total site trip generation for Sixth Oak, respectively.

Figure 22: 2025 Total Site Trip Generation – Sixth Oak



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

Figure 23: 2030 Total Site Trip Generation – Sixth Oak

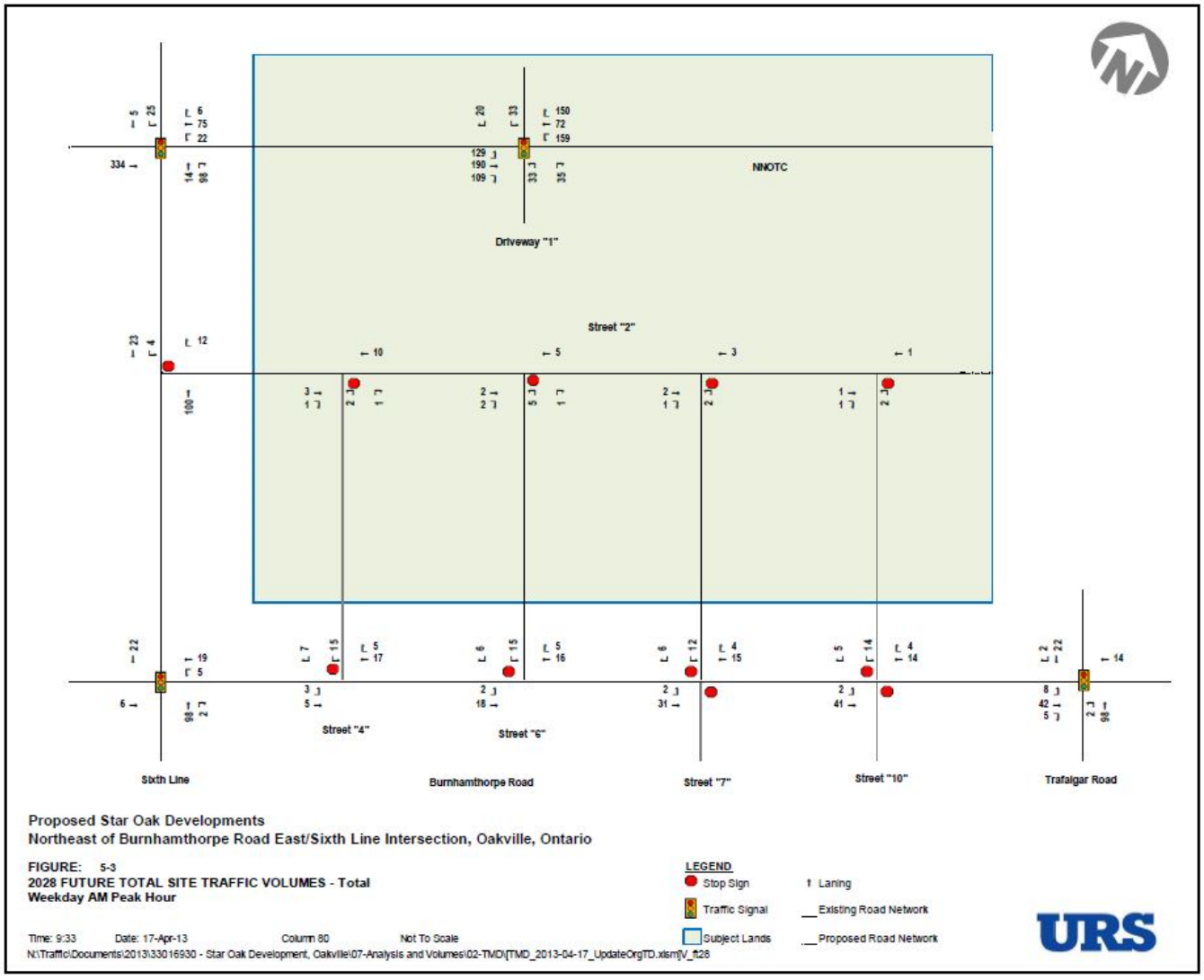


Source: Sixth Oak Inc. School and Employment Lands Transportation Impact Study; CGH; June 2022

4.1.5.5 Star Oak Development

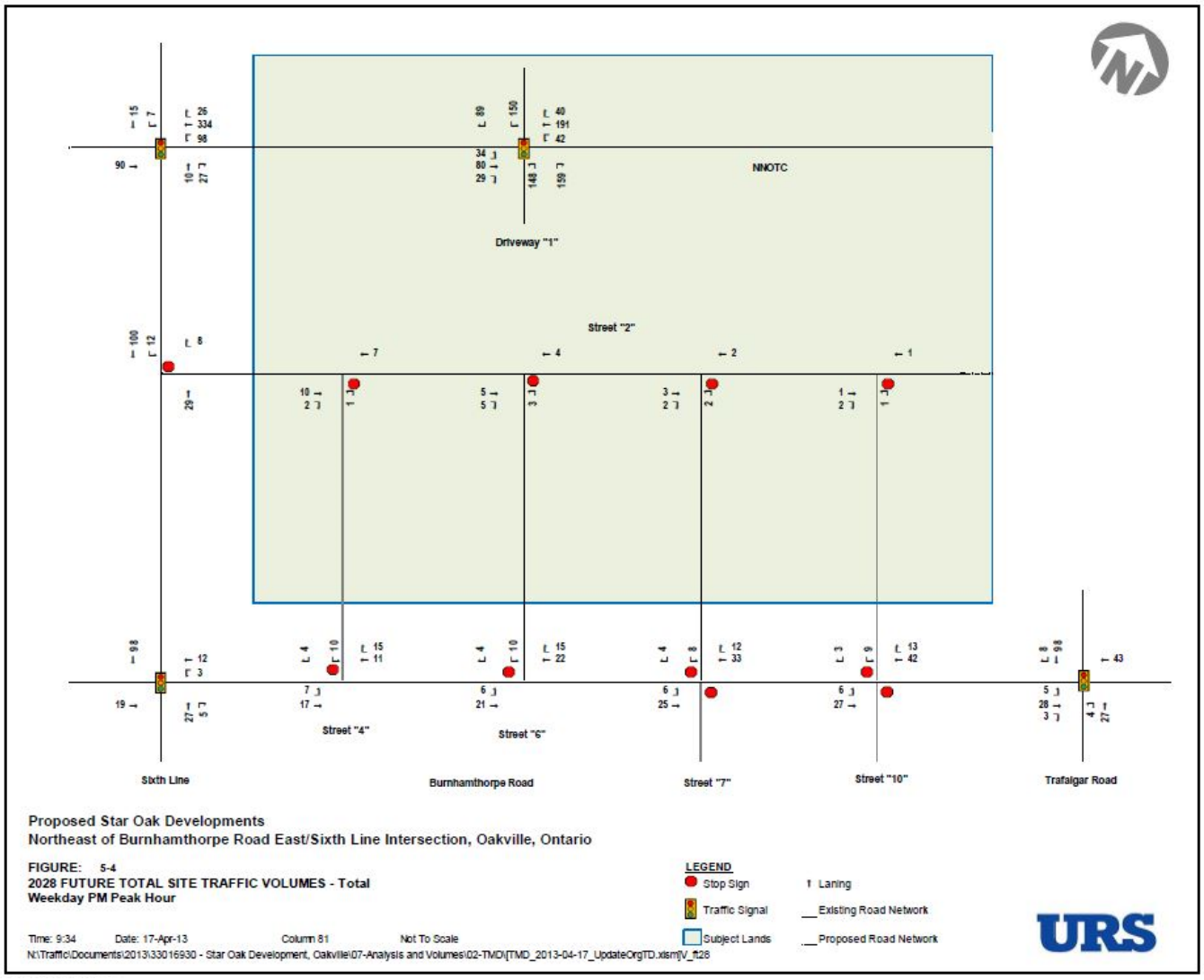
The Star Oak development is located at the northeast quadrant of Burnhamthorpe Road at Sixth Line. The following information has been taken from the *Traffic Impact Study Star Oak Developments Town of Oakville (2013)*, prepared by URS Canada. This development includes 217 residential units with a mix of detached single-family units, and townhouse type units and 154,000 square metres of employment uses. The construction will be completed in two phases. Phase I includes all the residential units and 10% of the employment buildings while Phase II consists of 90% of the employment development. Phase I has been completed, and Phase II will be completed in 2028. This development will connect to the road network via accesses on Sixth Line, Burnhamthorpe Road, and William Halton Parkway. The proposed development is anticipated to generate 951 AM and 985 PM peak hour two-way vehicle trips. The traffic generated by the Star Oak Development by 2028 is summarized in Figure 24 and Figure 25.

Figure 24: Star Oak 2028 AM Peak Hour Site Trip Generation



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

Figure 25: Star Oak 2028 PM Peak Hour Site Trip Generation



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

4.1.5.6 Total Background Development Trips

The total AM and PM peak hour trips generated by the background developments by the 2028 and 2033 horizons are summarized in Table 3 and Table 4, respectively.

Table 3: Background Developments Site Trips By 2028 Summary

Land Use	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Sherborne Lodge	59	146	205	174	119	293
Remington ENO	97	286	383	316	194	510
Neighbourhood 9,10,11	222	702	924	756	451	1207
Sixth Oak School and Employment	325	71	396	73	290	363
Star Oak	777	174	951	208	777	985
Total Trips	**1480**	**1379**	**2859**	**1527**	**1831**	**3358**

A total of 2859 AM and 3358 PM peak hour two-way vehicle trips will be generated by the five background developments included in this Study by the 2028 future analysis horizon.

Table 4: Background Developments Site Trips By 2038 Summary

Land Use	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Sherborne Lodge	54	135	189	160	109	269
Remington ENO	90	262	352	292	180	472
Neighbourhood 9,10,11	206	645	851	700	414	1114
Sixth Oak School and Employment	307	70	377	72	274	346
Star Oak	777	174	951	208	777	985
Total Trips	**1434**	**1286**	**2720**	**1432**	**1754**	**3186**

A total of 2720 AM and 3186 PM peak hour two-way vehicle trips will be generated by the five background developments included in this Study by the 2033 future analysis horizon.

4.1.6 Background Growth

A 2% per annum compound annual growth rate was applied to the 2023 turning movement counts to reflect the 2028 and 2033 future analysis horizons. This is consistent with the Transportation Impact Studies of nearby sites (Neighbourhood 9/10/11, Sherborne Lodge, and Remington Eno) prepared by CGH Transportation.

4.1.7 William Halton Parkway Extension Reassignment

To reflect the future extension of William Halton Parkway west of Neyagawa Boulevard, and the additional connectivity and capacity that this extension will provide to the Study Area, volume at the intersection of Burnhamthorpe Road (Future William Halton Parkway) and Neyagawa Boulevard has been reassigned. Northbound right-turning traffic has been partially reassigned to the eastbound through intersection movement, and westbound left-turning traffic has been partially reassigned to the westbound through intersection movement. This volume reassignment for the 2028 future analysis horizon is illustrated in Figure 26, and the 2033 future analysis horizon is illustrated in Figure 27.

Figure 26: 2028 William Halton Parkway Extension Reassignment Traffic Volumes

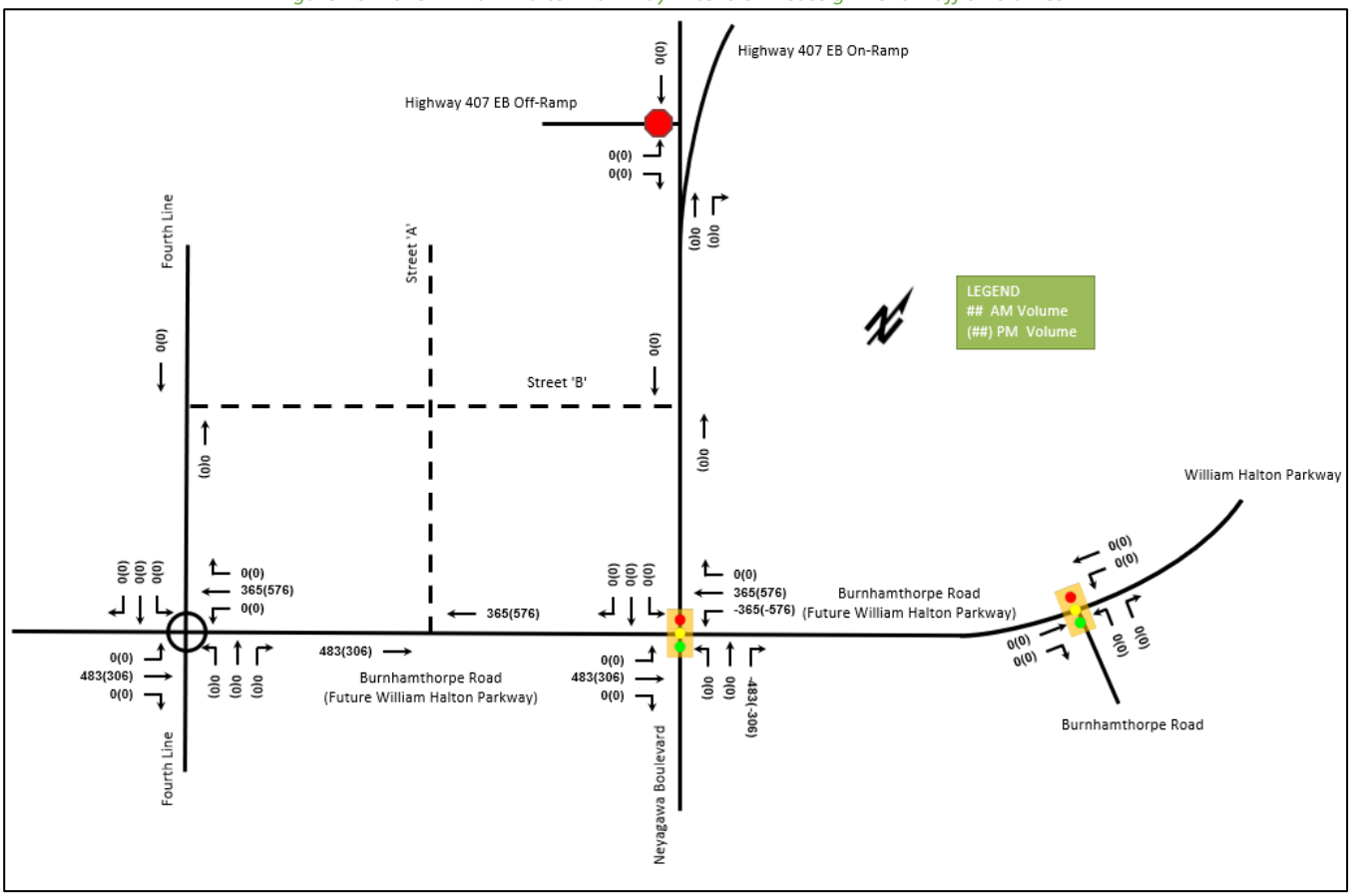
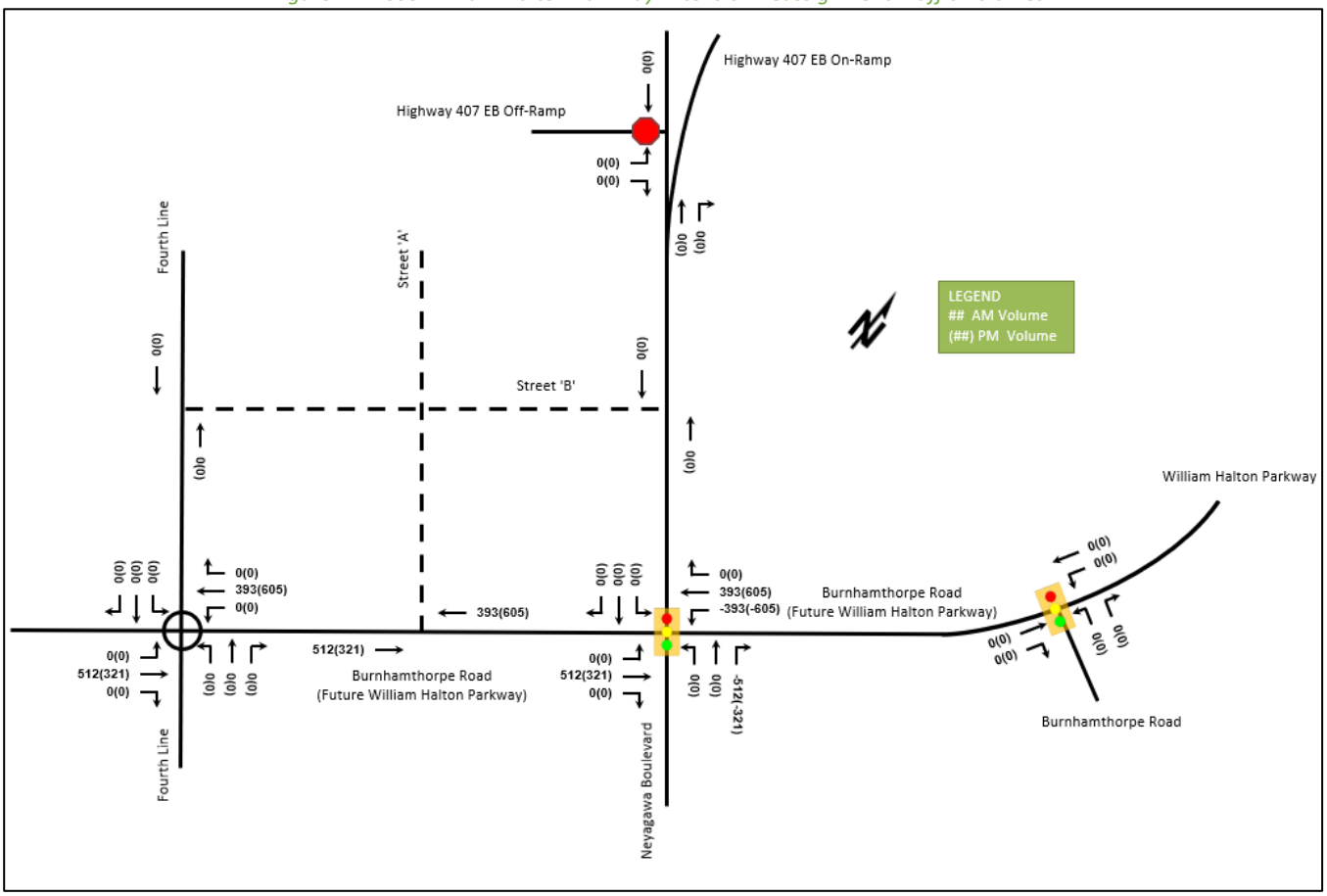


Figure 27: 2033 William Halton Parkway Extension Reassignment Traffic Volumes



4.1.8 William Halton Parkway EMME Projections

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

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

Since only the 2031 PM peak hour volumes are provided, the following assumptions were made:

- The AM peak hour volumes are the reverse for the eastbound and westbound directions. Additionally, on average the AM peak hour volumes are equal to 8% of daily traffic, where the PM peak hour volumes are equal to 10% of the daily traffic. Therefore, the PM peak hour volumes projected by Halton Region will be multiplied by a factor of 0.8 to determine the AM Peak hour volumes. As such, the 2031 AM peak hour volume west of Trafalgar will be 1040 eastbound and 640 westbound.
- The 2028 and 2033 AM and PM peak hour volumes are projected by applying the same compound annual growth rate as indicated in Section 4.1.6.

The projection used the following methodology:

- The 2028 and 2033 future background volumes were initially calculated by summing up the traffic resulting from compound annual growth, traffic from background developments, and traffic from reassignment shown in Section 4.1.7 as a result of the future William Halton Parkway extension.
- Comparisons were made between this sum and the Regional volumes on William Halton Parkway east of Burnhamthorpe Road, and the greater was used.
- Resulting volume adjustments were applied along Burnhamthorpe Road (Future William Halton Parkway) to the eastbound and westbound through movements.

The Region's modeler noted that the EMME Model's traffic zone is much larger than the subject site and they do not have information on the population and employment statistics considered in the EMME model. It is therefore not certain how many trips generated from the subject site are included in the model. A conservative approach is taken that 0 trips from the proposed development have been included in the EMME Model which provides the volume projections. The possibility of double-counting the site-generated traffic trips from the ARGO Neyagawa lands exists, as a portion of these trips may have been considered in the Region's study. This will result in a volume projection higher than what is likely to be realized along Burnhamthorpe Road (Future William Halton Parkway).

4.1.9 Future Background Traffic Volumes

Combining the background development traffic, the background growth rate, existing traffic volumes, volume reassignments, and the Region's EMME model data, the future background traffic volumes were projected. Figure 28 and Figure 29 illustrate the 2028 and 2033 future background traffic volumes, respectively.

Figure 28: 2028 Future Background Traffic Volumes

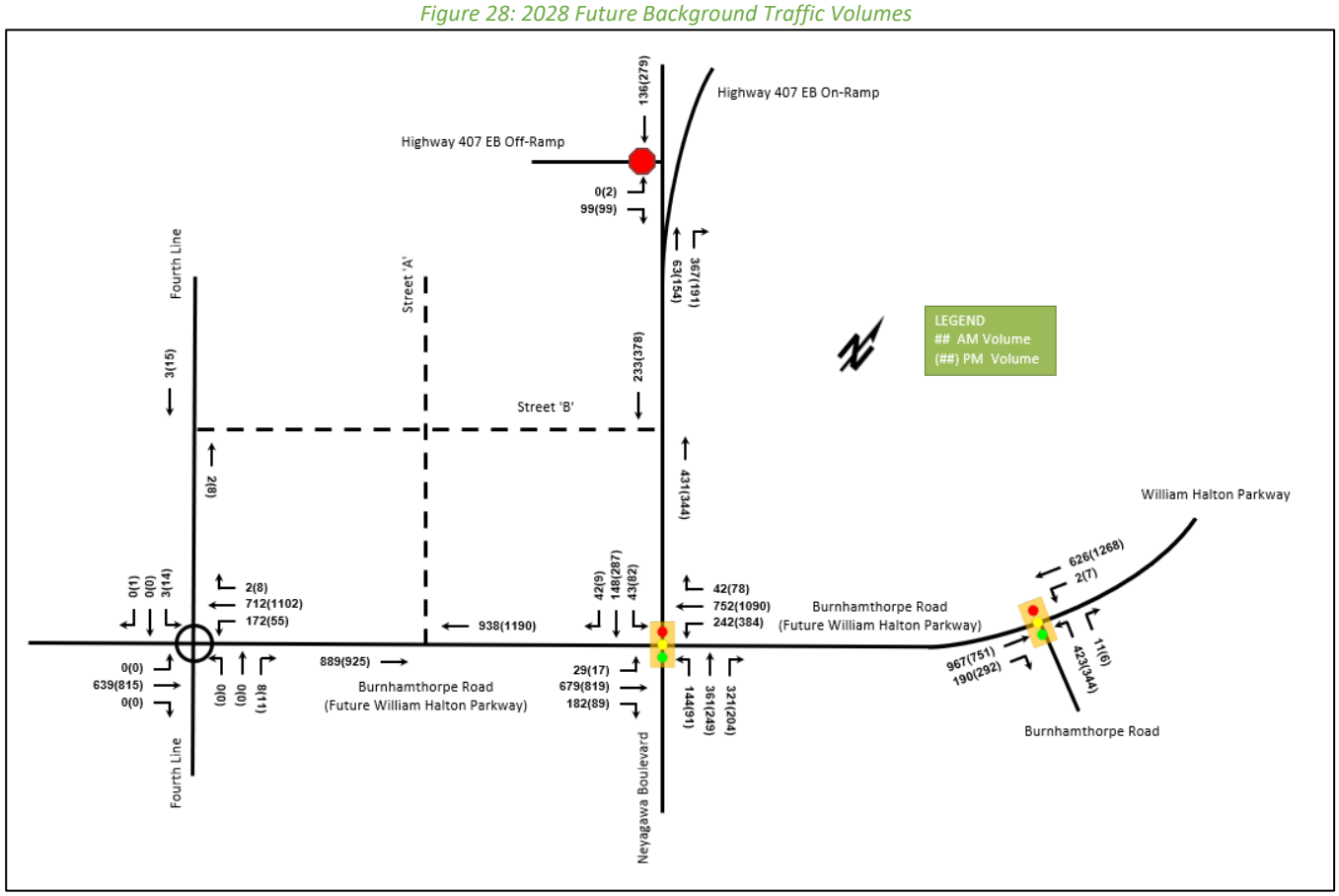
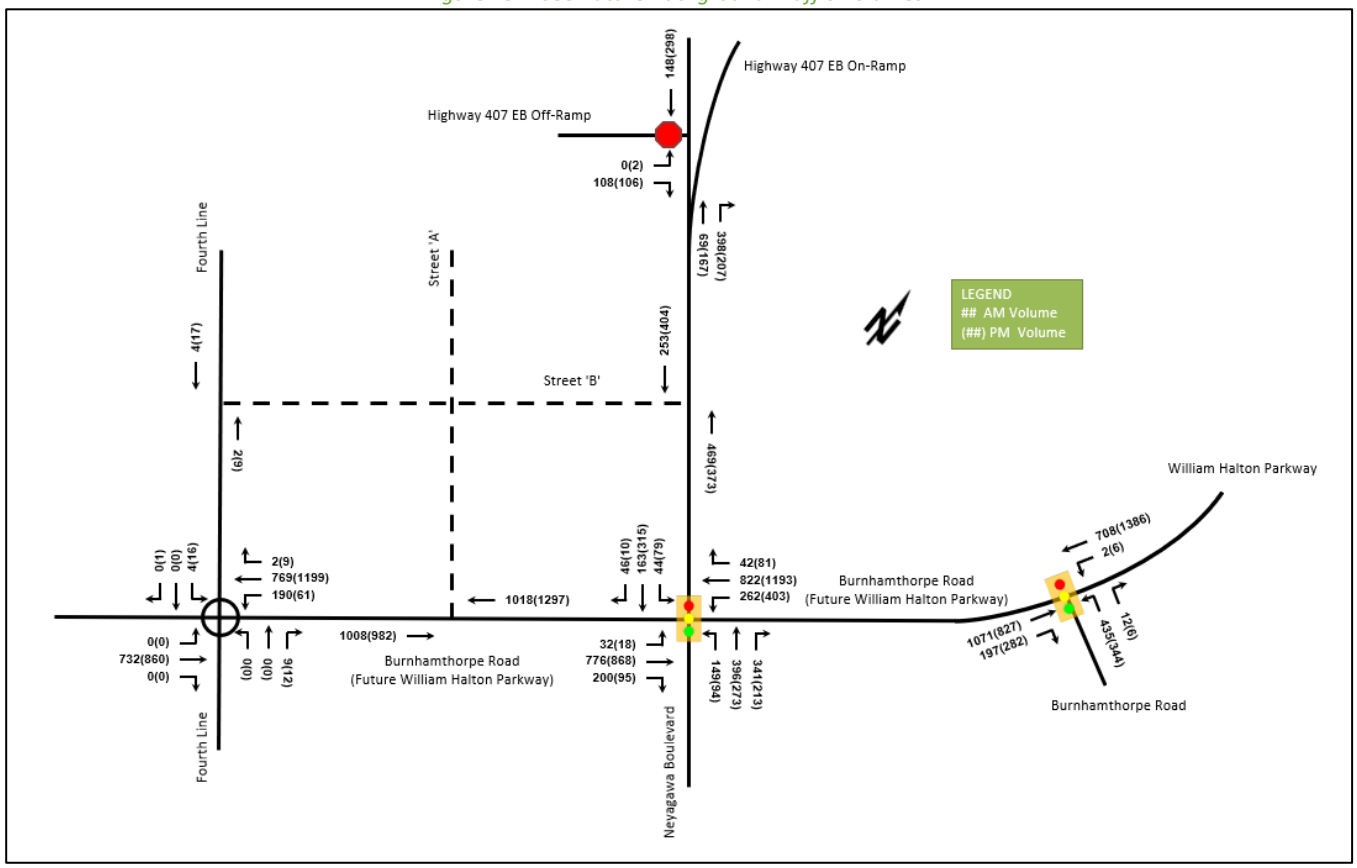


Figure 29: 2033 Future Background Traffic Volumes



5 Forecasting

5.1 Development-Generated Travel Demand

5.1.1 Trip Generation and Mode Shares

The ITE Trip Generation Manual 11th Edition has been reviewed to determine the appropriate trip generation rates and rate equations for each of the proposed land uses. The ITE vehicle trip generation rates and directional splits are summarized in Table 5. As previously indicated by Town staff, these rates can be assumed to represent person trip rates.

Table 5: ITE Trip Generation Person Trip Rates

Land Use	ITE Land Use Code	# of dwelling units / 1000 sq ft GFA	Peak Hour	Vehicle Trip Rate	Directional Split		Method
Single Family Attached	215	360	AM	0.50	In	25%	Fitted Curve
					Out	75%	
			PM	0.59	In	59%	Fitted Curve
					Out	41%	
Multifamily Housing (High-Rise)	222	643	AM	0.25	In	23%	Fitted Curve
					Out	77%	
			PM	0.30	In	61%	Fitted Curve
					Out	39%	
Strip Retail Plaza (<40k)	822	10.979	AM	2.36	In	60%	Weighted Average
					Out	40%	
			PM	7.58	In	50%	Fitted Curve
					Out	50%	

The Single Family Attached and Multifamily Housing (High-Rise) land use categories were used to estimate trips for the 36 0 townhouse units and 643 apartment units, respectively. The trip generation for the retail land uses were calculated using the Strip Retail Plaza (<40k) land use since the proposed GFA falls within this category. The total estimated gross floor area of the combined retail spaces is 1,020 square metres (10,979 square feet). It should be noted that unit counts, block sizes, and retail GFAs are preliminary for the purposes of the study and will subject to refinement at future site plan stages.

Using the above person trip rates, the total vehicle trip generation for the development is summarized in Table 6.

Table 6: Total Vehicle Trip Generation - ITE

Land Use	AM Peak Hour			PM Peak Hour		
	In	**Out**	**Total**	**In**	**Out**	**Total**
Single Family Attached	45	135	180	125	87	212
Multifamily Housing (High-Rise)	42	119	161	120	73	193
Strip Retail Plaza (<40k)	16	10	26	41	42	83
Total Trips	**103**	**264**	**367**	**286**	**202**	**488**

Internal capture rates from the ITE Trip Generation Handbook 3rd Edition have been assigned to the development for the retail components for mixed-use developments. The retail portion of this development is the smaller of the two land uses. Therefore, the residential land uses are treated as the anchor for this development and have not been reduced based on the multi-use capture rate. The smaller portion of the development, the retail portion, has been reduced to reflect residents of the site utilizing the on-site retail instead of leaving the site and/or as a pass-by trip on the way to an ultimate destination (i.e. work). The rates summarized in Table 7 represent the percentage of trips to/from the retail uses based on the residential component.

Table 7: Internal Capture Rates

Land Use	AM		PM	
	In	Out	In	Out
Residential to/from Shopping Centre	17%	14%	10%	26%

Table 8 below illustrates the total person trip generation by dwelling type.

Table 8: Total Person Trip Generation

Land Use	Units / GFA	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Single Family Attached	360 units	45	135	180	125	87	212
Multifamily Housing (High-Rise)	643 units	42	119	161	120	73	193
Strip Retail Plaza (<40k)	10,118.1 sq. ft	16	10	26	41	42	83
Strip Retail Plaza Internal Capture		*-3*	*-2*	*-5*	*-5*	*-11*	*-16*
Total Person Trips		**100**	**262**	**362**	**281**	**191**	**472**

Town of Oakville Transportation Master Plan Review identifies 2031 mode share targets for various scenarios. Scenario D has been considered for the subject development, as is consistent with other completed TISs in the area, and reflects 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, and therefore the 12% transit mode split as shown in Scenario D will be used. It is noted that the Regional 2026 and 2031 mode share targets have also been evaluated. As the Oakville Projection Scenario D is assumed to be more accurate in describing the mode share changes in the Town of Oakville rather than the entire Region, the Scenario D Oakville Projections have been used for both the 2028 and 2033 future horizon analysis. The mode share percentages during peak hours are summarized in Table 9.

Table 9: Mode Share Assumptions

Travel Mode	2026 Regional Projection	2031 Regional Projection	2031 Oakville Projection Scenario D	2028 Applied	2033 Applied
Auto Driver	77%	72%	76%	76%	76%
Transit	15%	20%	12%	12%	12%
Active Transportation	5%	5%	6%	6%	6%
TDM	3%	3%	6%	6%	6%
Total	100%	100%	100%	100%	100%

Under this assumption, the ARGO properties will generate the same two-way vehicle trips during the AM and PM peak hours in 2028 and 2033 future total analysis horizons. Using the above mode shares and person trip rates, the person trips by mode have been projected. The trip generation by mode is summarized in Table 10 below.

Table 10: Trip Generation by Mode

Travel Mode	Mode Share	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Auto Driver	76%	76	199	275	213	145	358
Transit	12%	12	31	43	34	24	58
Active Transportation	6%	6	16	22	17	11	28
TDM	6%	6	16	22	17	11	28
Total	**100%**	**100**	**262**	**362**	**281**	**191**	**472**

As shown above 275 AM peak hour two-way vehicle trips and 358 PM peak hour two-way vehicle trips are projected as a result of the proposed development.

It is noted that the site traffic generated is much lower than the total site traffic from background developments in the surrounding area considered in the study, as shown in Table 3 and Table 4 above. The site traffic is anticipated to have a relatively minor impact on the transportation network, compared to the background traffic.

5.1.2 Trip Distribution

To understand the travel patterns of the developments, the aggregated Transportation Tomorrow Survey (TTS) data for trips of all purposes in Oakville during AM peak has been used as a reference. The trips to/from the south and east are larger as a large portion of the trips are destined to the southern part of Oakville and Toronto. The percentages of trips to each direction are kept constant between the 2028 and 2033 future analysis horizons. Table 11 summarizes the distribution.

Table 11: 2016 TTS Oakville Trip Distribution

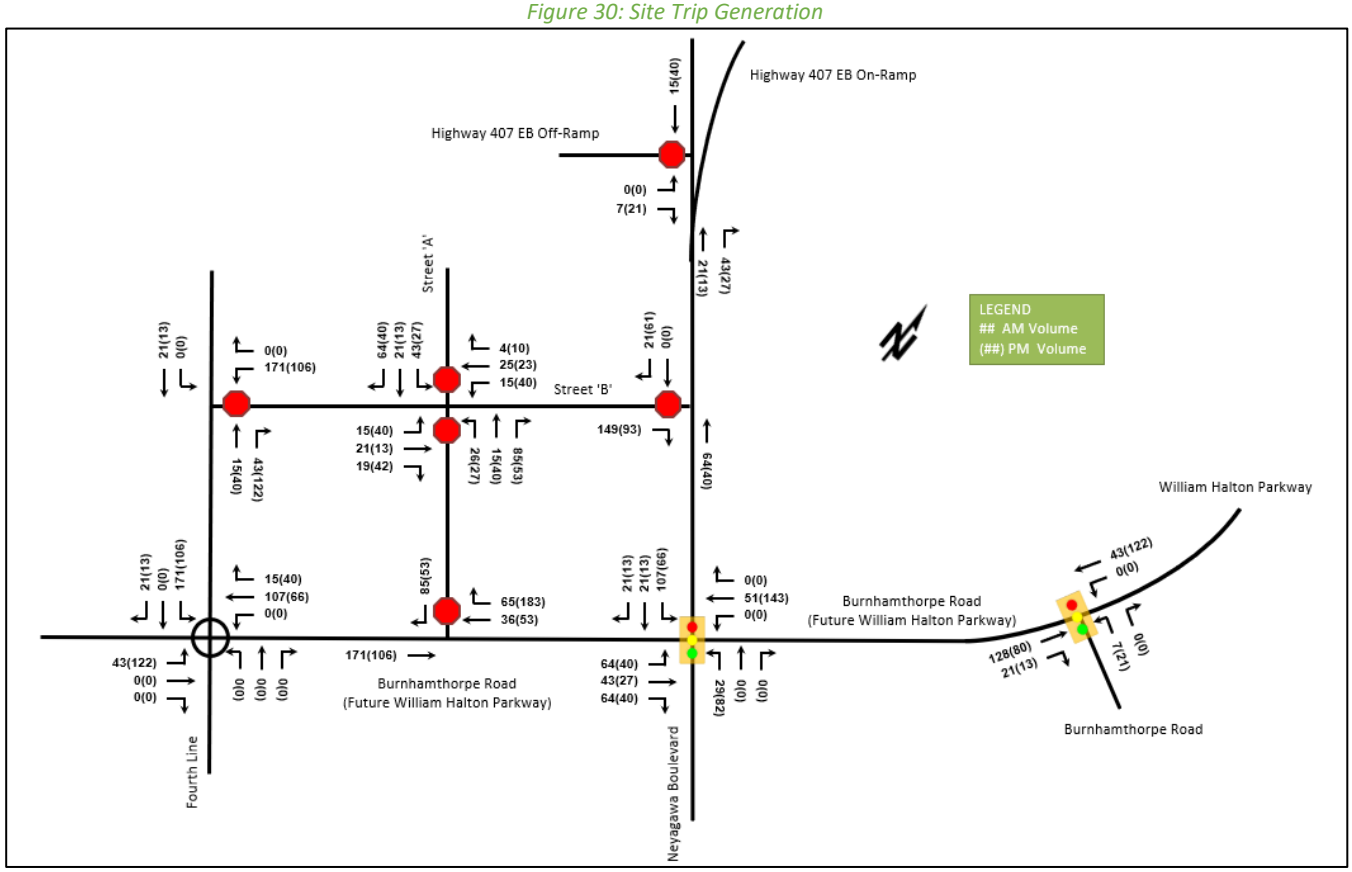
To/From	Percent of Trips
North	15%
South	40%
East	30%
West	15%
Total	100%

It is noted that the distribution presented above is consistent with the nearby Transportation Impact Study for ARGO Trafalgar prepared by CGH Transportation.

5.1.3 Trip Assignment

Using the distribution outlined above, turning movement splits, intersection and access turning restrictions, and access to major transportation infrastructure, the trips generated by the site have been assigned to the Study Area road network. The resulting site trip generation for the subject development in both the 2028 and 2033 future analysis horizons is shown in Figure 30.

Figure 30: Site Trip Generation



5.1.4 Future Total Travel Demands

The site generated vehicle traffic has been combined with the 2028 and 2033 future background traffic volumes to estimate the future total traffic volumes. Figure 31 and Figure 32 illustrate the 2028 and 2033 future total traffic volumes, respectively.

Figure 31: 2028 Future Total Traffic Volumes

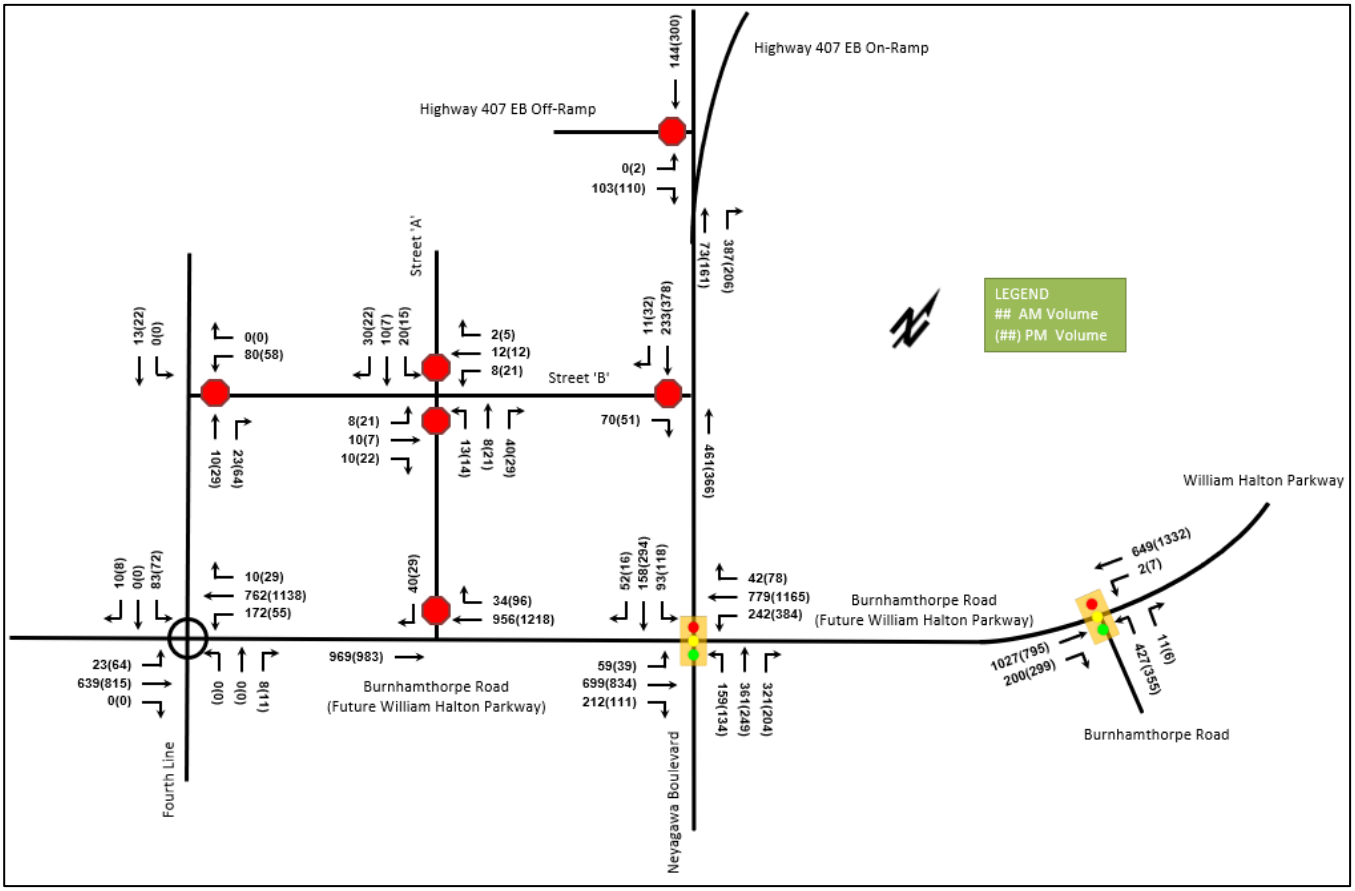
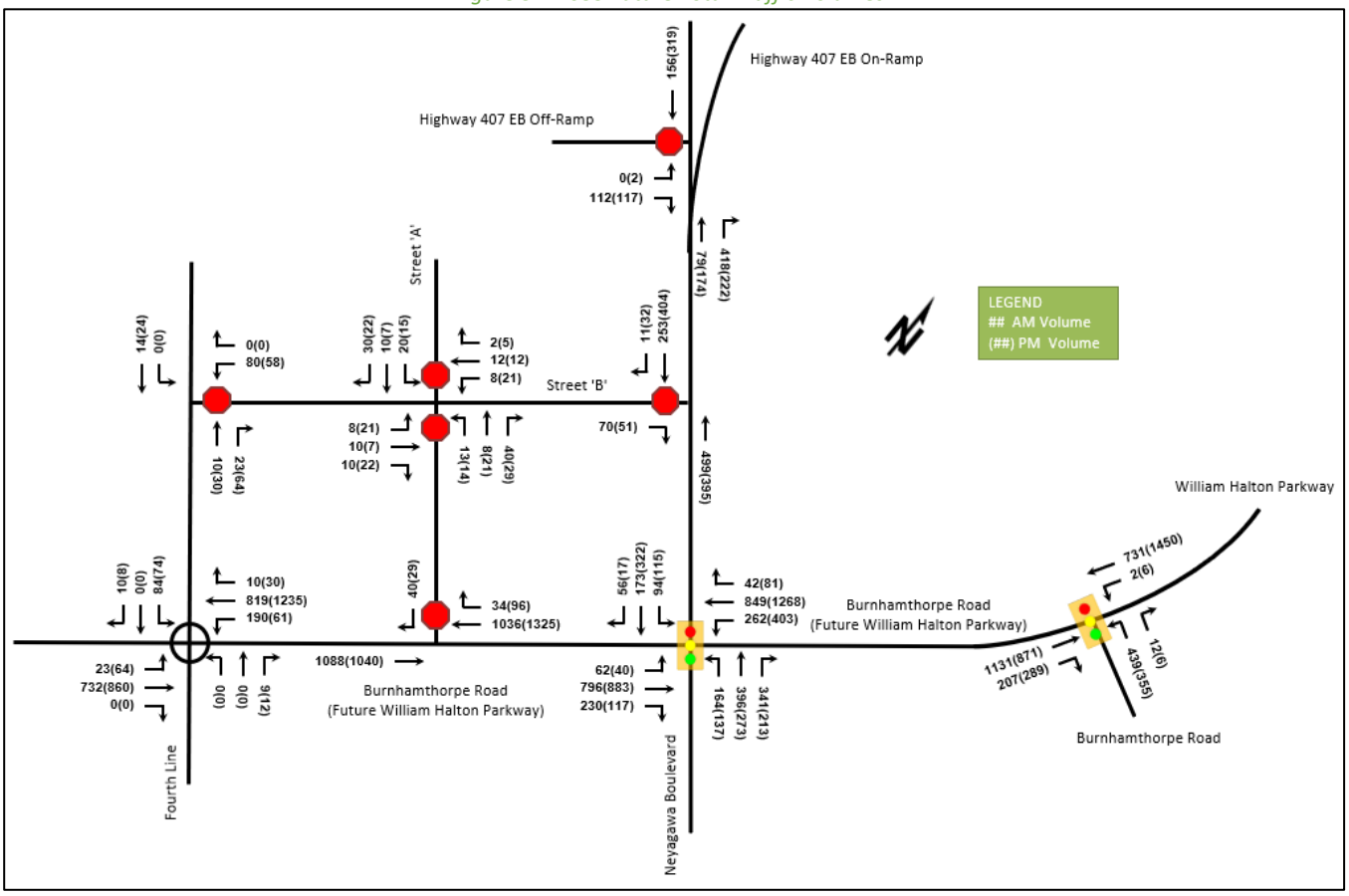


Figure 32: 2033 Future Total Traffic Volumes



6 Development Design

6.1 Development Roadway Cross-sections

Within the proposed development, a 19-metre connector roadway (Street 'B') runs in the east-west direction with a connection to Neyagawa Boulevard on the east end and a connection to Fourth Line on the west end. A 17-metre local roadway (Street 'A') runs in the north-south direction with a connection to Burnhamthorpe Road (Future William Halton Parkway) in the south, then runs in the east-west direction north of its intersection with Street 'A' and connects to Fourth Line. The surrounding condo roadway network within the development is made up of 10.4-metre, 9.4-metre, and 6.5-metre condo roads. It is to be noted that the condo network design is preliminary and subject to further refinement at future site plan stages.

Roadway cross-sections taken from the Town of Oakville Standard Drawings (2015) have been considered for the proposed development's internal road network under the jurisdiction of the Town of Oakville. The provided cross-sections for 19-metre connector/transit corridor roadways, and 17-metre local roadways have been used. The 19-metre connector roadway cross-section is shown in Figure 33 below, and the 17-metre local roadway cross-section is shown in Figure 34 below.

Figure 33: 19-metre Connector Roadway Cross-section

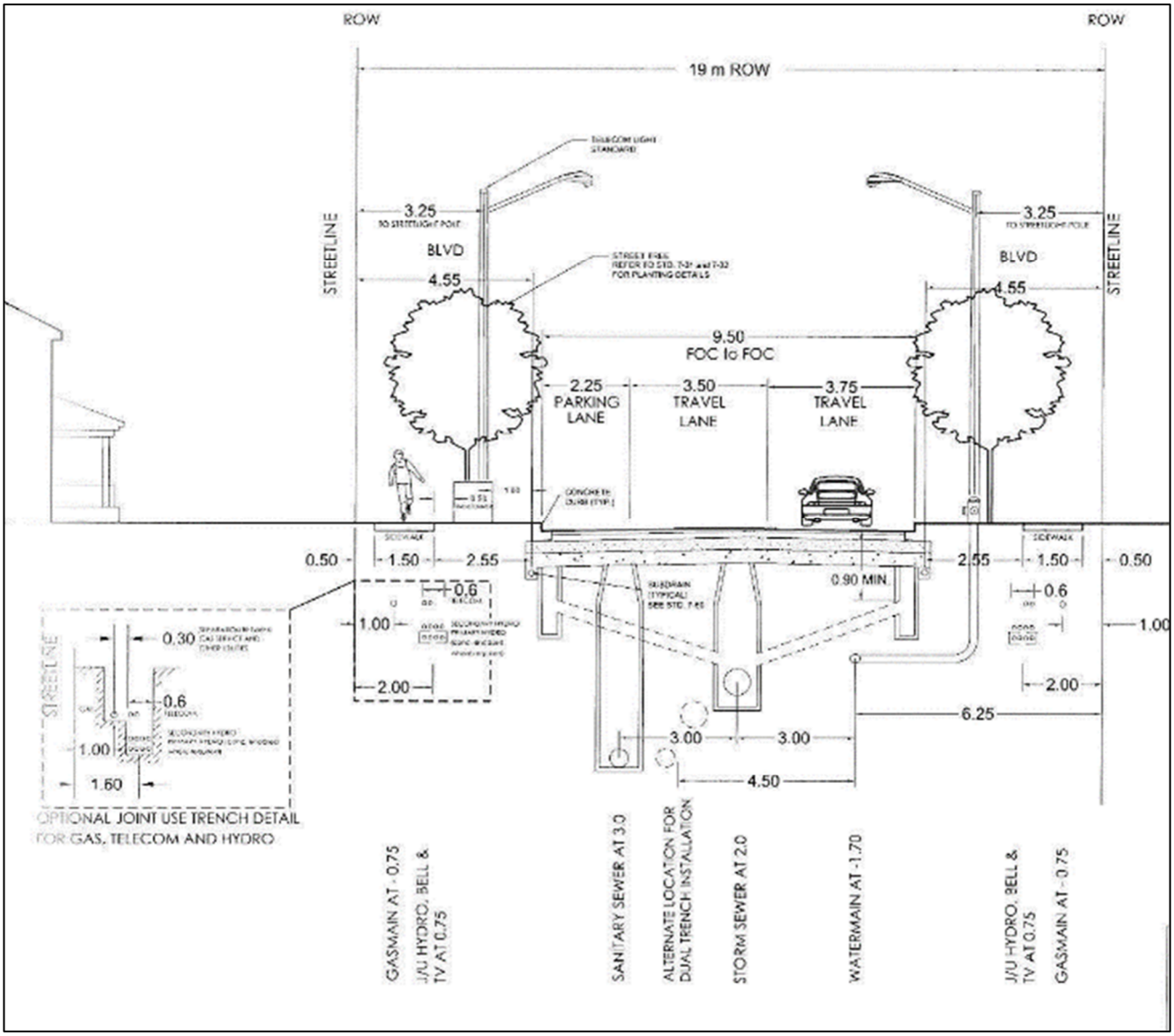
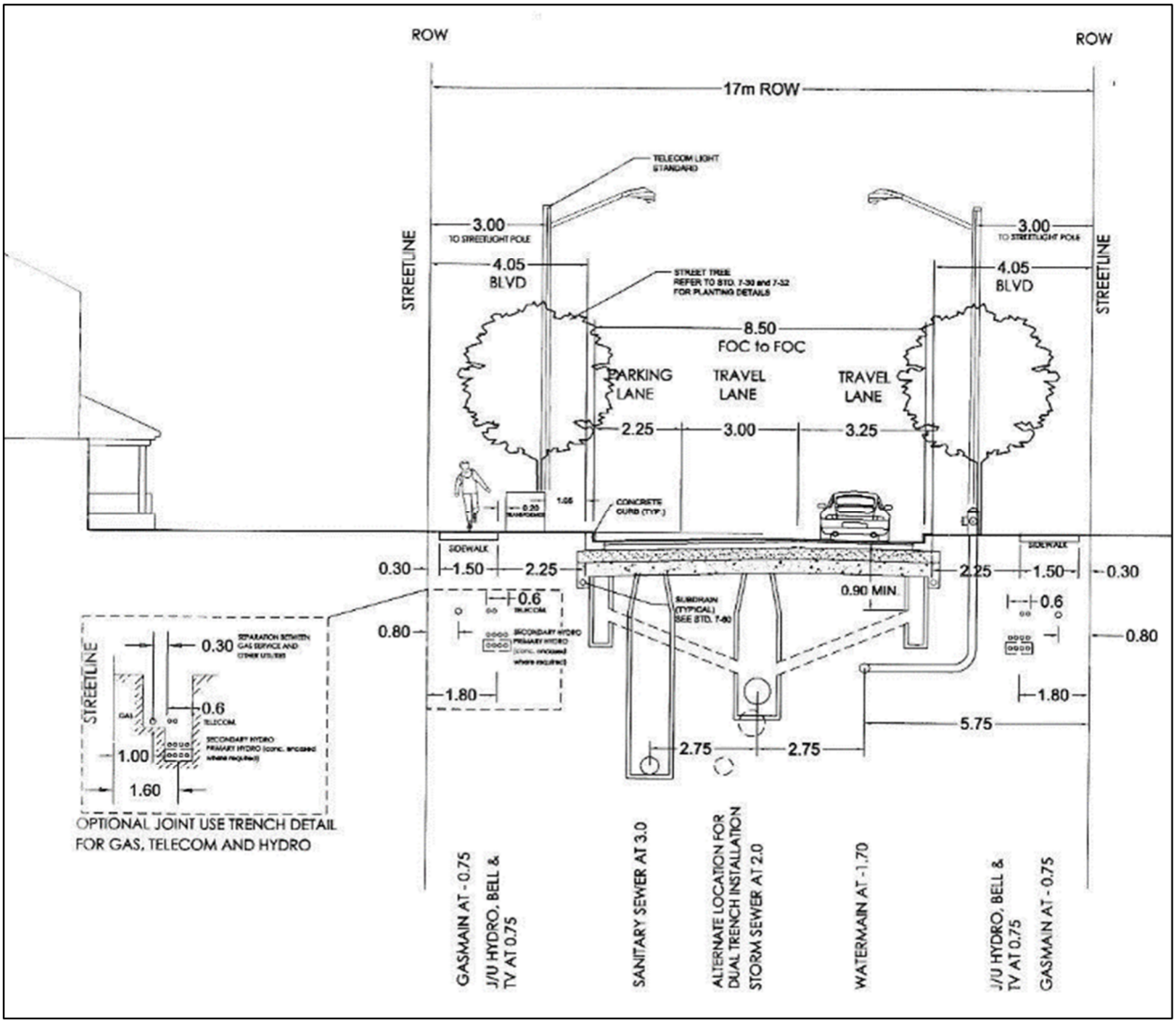


Figure 34: 17-metre Local Roadway Cross-section



As shown, sidewalks are proposed on both sides of the 19-metre connector and the 17-metre local roadways, and parking lanes are proposed on one side. The exact location of the parking lanes will be determined by driveway and fire hydrant locations.

Further details on the various roadway cross-sections can be found in Appendix E.

6.2 Site Circulation

Given the proposed development's context within the surrounding road network and Study Area, negligible cut-through traffic / infiltration is expected to occur within the road network. As the development is bordered by Neyagawa Boulevard, Burnhamthorpe Road (Future Wiliam Halton Parkway), and Fourth Line, drivers are more likely to travel along these roads with higher posted speed limits and fewer intersections, than to cut-through traffic or infiltration within the proposed development.

6.3 Parking Supply

The proposed development will have a total of 1248 vehicle parking spaces. It is to be noted that these parking totals are approximate and based on a preliminary conceptual design for each condo block. Parking totals are subject to refinement at future site plan stages.

Table 12 summarizes the required and provided parking for the proposed site as per the Town of North Oakville Zoning By-Law requirements.

Table 12: North Oakville Zoning By-Law Parking Requirements

Residential Land Use Category	Units/GFA	Parking Rate	Required Parking	Provided Parking	Difference
Apartment Dwelling *(More than 4 storeys)*	643 units	1.00 / unit	643	815	+3
Apartment Dwelling *(Visitor)*	643 units	0.20 / unit	129		
Retail	1020 m^2	1 / 26 m^2	40		
Townhouse Dwellings	360 units	1.00 / unit	360	433	+1
Townhouse Dwellings *(Visitor)*	360 units	0.20 / unit	72		
		Total	**1244**	**1248**	**+4**

As shown above, the North Oakville parking requirements are met in excess of four parking spaces.

Additionally, approximately 49 on-street parking spaces are proposed along the local and connector roadways throughout the subject development. The location of these spaces are illustrated in the Parking Plan shown in Appendix F. It is noted that the location and number of on-street parking spaces is subject to further refinement at the site plan application stage.

6.4 Access Analysis and Site Circulation

6.4.1 Access Configuration

All accesses consider the appropriate cross-sections found in Appendix E. Site Access #1 is located on Neyagawa Boulevard and will be a right-in / right-out access. Site Access #2 is located on Burnhamthorpe Road (Future William Halton Parkway) and will be a right-in / right-out access. Site Access #3 is proposed on Fourth Line and will be a full-movement access. Further intersection geometric configuration details are provided within Section 8.3 below.

6.4.2 Access Spacing

The access spacing for Site Access #1 and Site Access #2 has been reviewed using Halton Region's Access Management Guideline (January 2015). Both Access #1 onto Neyagawa Boulevard, and Access #2 onto William Halton Parkway are subject to the right-in/right-out access spacing requirement of 115 metres measured stop-bar to stop-bar.

Site Access #1 is located approximately 122 metres north of Neyagawa Boulevard, and 182 metres south of the Highway 407 Eastbound off-ramp. These measurements are from stop bar to stop bar.

Site Access #2 is located approximately 95 metres west of Neyagawa Boulevard, and 115 metres east of Fourth Line. These measurements are from stop bar to stop bar.

It is noted that while Site Access #1 adheres to the intersection spacing requirements within the Halton Region's guidelines, the spacing between Site Access #2 and Neyagawa Boulevard is less than the required 115 metres. It is noted that the location of Site Access #2 has been optimized to maximize the distance between both Neyagawa

Boulevard and Fourth Line, while considering the holdout property. The access is located approximately the same distance from Neyagawa Boulevard as the right-in / right-out access on the south side of Burnhamthorpe Road (Future William Halton Parkway) (King's Christian Collegiate) and is therefore also consistent with the access spacing approved for other accesses in the area. Further, if measured from centerline to centreline, the distance between Site Access #2 and Neyagawa Boulevard would be 135 metres, exceeding the required 115 metres.

Site Access #3 is located approximately 150 metres north of Burnhamthorpe Road (Future William Halton Parkway), measured stop-bar to stop-bar. As per the Town of Oakville guidelines, this intersection spacing has been compared to the required intersection spacing within the Transportation Association of Canada's Geometric Design Guide for Canadian Roads – Chapter 9. The required minimum spacing between adjacent intersections along a collector road is 60 metres. As such, Site Access #3 meets the minimum intersection spacing requirements.

6.4.3 Access Sight Distance

No significant vertical or horizontal curvatures are present on the boundary road network that are anticipated to impose limitations on the sight lines at the proposed accesses.

7 Transportation Demand Management

The proposed development includes mixed-use buildings containing approximately 1,003 residential units and approximately 1,020 square metres of ground-floor retail space. To support a mixed-use development with primarily residential land uses, the most effective Transportation Demand Management (TDM) measures are the access and usability of transit, cycling, and pedestrian facilities.

The placement of sidewalks within the proposed development have been implemented based on the Town of Oakville Standard Drawings (2015) and are reflective of the roadway cross-sections discussed in Section 6.1 above. As such, sidewalks will be provided on both sides of the connector and local roads within the development. Further details regarding these planned facilities can be seen in their proposed cross-section drawings in Appendix E. Additionally, a major trail system is proposed on the north side of the subject development lands between the Highway 407 eastbound off-ramp and the development site, which will provide pedestrian and cyclist connections to the subdivision. Direct connections to the trail will be explored through future site plan applications.

Outside of the subdivision, the pedestrian and cyclist facilities will connect to a broader and improved active transportation network provided by the Town and the Region as part of the William Halton Parkway extension project. By the 2028 horizon, the active transportation infrastructure will include:

- Bike lanes on both sides of Neyagawa Boulevard, south of Burnhamthorpe Road (Future William Halton Parkway)
- A multi-use trail on the west side of Neyagawa Boulevard north of Burnhamthorpe Road (Future William Halton Parkway)
- Bike lanes on both sides of Burnhamthorpe Road (Future William Halton Parkway)
- A sidewalk on one side of Burnhamthorpe Road (Future William Halton Parkway), and a multi-use trail on the other
- Bike lanes and sidewalks on both sides of Burnhamthorpe Road
- Neyagawa Boulevard north of Burnhamthorpe Road (Future William Halton Parkway) is noted as a potential Regional Bicycle Facility

Additionally, the potential for retail spaces within the mixed-use buildings provide the residents convenient options for shopping locations within the neighbourhood, thus reducing the traffic generated externally on arterial roads.

Within the Study Area, Neyagawa Boulevard is planned as a Secondary Transit Corridor, William Halton Parkway is planned as a Secondary Transit Corridor west of Neyagawa Boulevard, and as a Community Service Corridor east of it, and Burnhamthorpe Road is planned as a Community Service Corridor.

The corresponding pedestrian circulation / transit facility plan prepared by Korsiak is shown in Appendix G.

In addition to the planned transit facilities along Neyagawa Boulevard and Burnhamthorpe Road (Future William Halton Parkway), and William Halton Parkway, a local bus route will likely be required to provide service within the subject site. It is anticipated that the bus route will travel through the site along Street B and connect to Fourth Line and Neyagawa Boulevard. Bus stops at the intersection of Street A and Street B are anticipated. Neyagawa Boulevard is planned as a Secondary Transit Corridor, William Halton Parkway is planned as a Secondary Transit Corridor east of Neyagawa Boulevard, and as a Community Service Corridor west of it, and Burnhamthorpe Road is planned as a Community Service Corridor. It has been assumed that bus stops will be present on all four corners of the intersection of Burnhamthorpe Road (Future William Halton Parkway) and Neyagawa Boulevard. As a result, the entire development is within a 400-metre walking distance of transit facilities.

A transit plan illustrating this is shown in Appendix H.

8 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. At future intersections, a default PHF of 0.90 has been used. Peak Hour Factors can be seen in the collected traffic data shown in Appendix C.

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

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

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

LOS has been defined using the HCM definition for LOS at signalized intersections (Table 13) and unsignalized intersections (Table 14).

Table 13: 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 14: Level of Service Criteria for Unsignalized Intersections

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

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

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

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

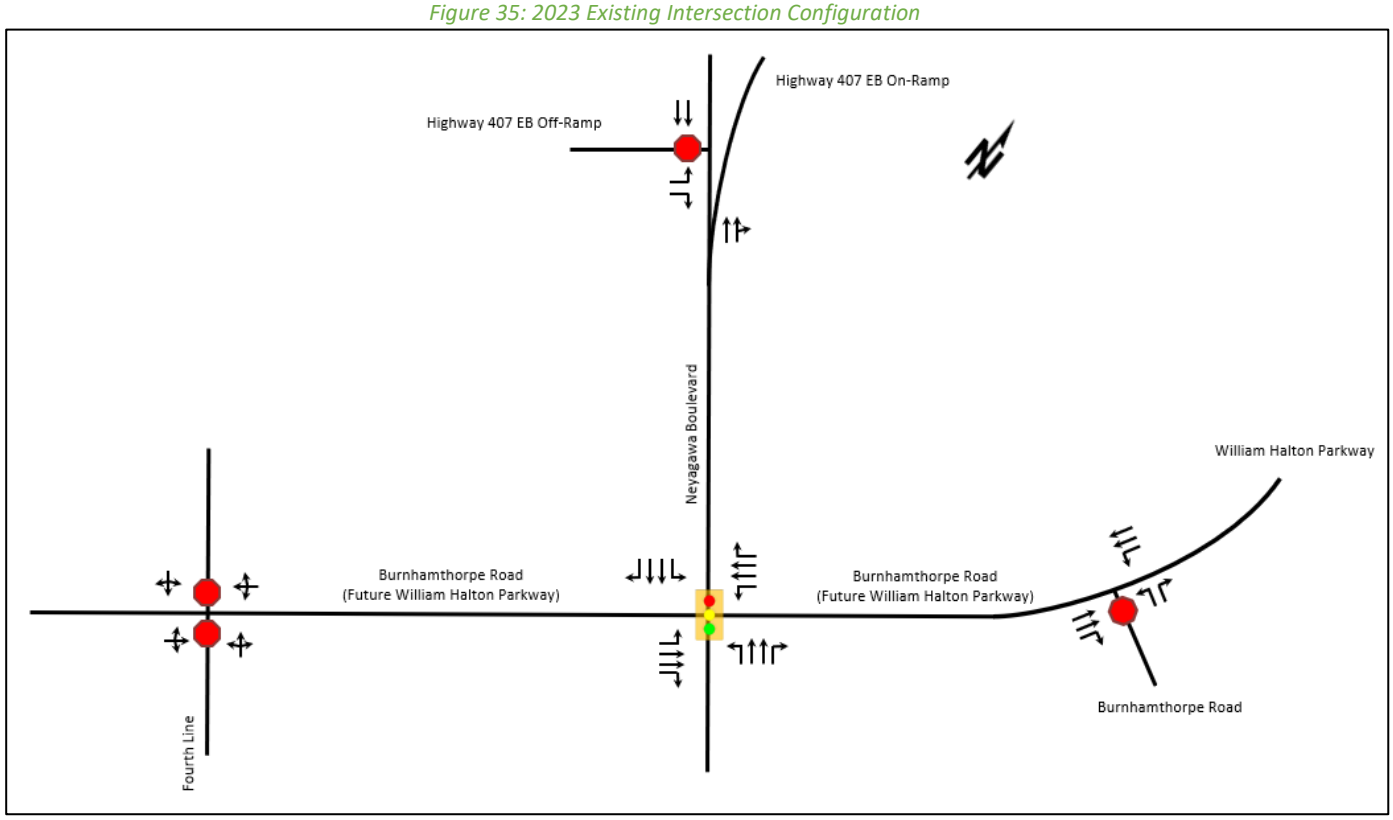
Mitigation measures will be considered at over capacity movements (v/c ratios equal to or greater than 1.00, 95th percentile queues that exceed provided storage lengths, and LOS F at unsignalized intersections) identified in future horizon analysis.

8.1 2023 Existing Conditions

8.1.1 2023 Existing Intersection Configuration

The existing configurations at the Study Area intersections are illustrated in Figure 35 as described in Section 3.2.

Figure 35: 2023 Existing Intersection Configuration



8.1.2 2023 Existing Conditions Operational Analysis

The existing intersection volumes have been analyzed to establish a baseline condition and determine the impact of the subject development as well as the surrounding background developments on the Study Area road network. The Study Area intersections have been designed based on aerial photos and turning lane storage lengths have been rounded to the closest five-metre. The analyzed intersection configurations are reflective of those illustrated in Figure 35 above.

Table 15 summarizes the operational analysis of the 2023 existing conditions, and Table 16 summarizes the 95th percentile queue analysis. Appendix I contains the 2023 Existing Conditions Synchro and Sidra worksheets.

Table 15: 2023 Existing Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del (s)	LOS	V/C	Del. (s)
Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway) *(Signalized)*	EBL	D	0.20	39	D	0.11	40
	EBT	D	0.18	38	D	0.07	40
	EBR	D	0.14	38	D	0.05	40
	WBL	**F**	**1.34**	**207**	**F**	**1.56**	**303**
	WBT	C	0.14	26	C	0.04	29
	WBR	C	0.01	25	C	0.02	28
	NBL	A	0.17	10	A	0.09	8
	NBT	B	0.22	13	B	0.13	11
	NBR	B	0.28	14	B	0.21	12
	SBL	B	0.03	14	A	0.03	10
	SBT	B	0.11	15	B	0.16	12
	SBR	B	0.03	15	B	0.01	11
	Overall	**E**	**0.68**	**61**	**F**	**0.63**	**103**
Signal Timing Update: Cycle Length Extension to 120 Seconds & Signal Timing Optimization							
Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway) *(Signalized)*	*EBL*	*D*	*0.22*	*48*	*D*	*0.12*	*49*
	EBT	*D*	*0.20*	*48*	*D*	*0.08*	*48*
	EBR	*D*	*0.14*	*47*	*D*	*0.05*	*48*
	WBL	***E***	***0.93***	***58***	***E***	***0.93***	***57***
	WBT	*C*	*0.11*	*25*	*C*	*0.03*	*25*
	WBR	*C*	*0.01*	*24*	*C*	*0.02*	*24*
	NBL	*B*	*0.19*	*15*	*B*	*0.10*	*14*
	NBT	*B*	*0.25*	*20*	*B*	*0.15*	*18*
	NBR	*C*	*0.28*	*21*	*B*	*0.21*	*19*
	SBL	*B*	*0.03*	*19*	*B*	*0.03*	*17*
	SBT	*C*	*0.12*	*22*	*C*	*0.19*	*20*
	SBR	*C*	*0.03*	*21*	*B*	*0.01*	*18*
	Overall	***C***	***0.58***	***33***	***C***	***33***	***0.53***
Fourth Line at Burnhamthorpe Road (Future William Halton Parkway) *(Unsignalized)*	EBL/T/R	A	0.00	0	A	0.00	0
	WBL/T/R	A	0.19	7	A	0.04	6
	NBL/T/R	A	0.01	9	A	0.01	8
	SBL/T/R	C	0.02	17	B	0.03	11
	Overall	**A**	**-**	**6**	**A**	**-**	**6**
Highway 407 at Neyagawa Boulevard *(Unsignalized)*	EBL	A	0.00	0	A	0.00	10
	EBR	A	0.09	9	A	0.09	9
	NBT	A	0.02	0	A	0.04	0
	SBT	A	0.03	0	A	0.07	0
	Overall	**A**	**-**	**3**	**A**	**-**	**2**
William Halton Parkway at Burnhamthorpe Road *(Unsignalized)*	EBT	A	0.13	0	A	0.09	0
	EBR	A	0.03	0	A	0.02	0
	WBL	A	0.00	0	A	0.00	0
	WBT	A	0.14	0	A	0.13	0
	NBL	C	0.36	22	B	0.14	14
	NBR	B	0.01	12	A	0.00	9
	Overall	**A**	**-**	**2**	**A**	**-**	**1**

Table 16: 2023 Existing Conditions Queue Lengths

Intersection	Mvmnt	Storage Dist (m)	AM Q (95th)	PM Q (95th)
Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway) *(Signalized)*	EBL	70	10	8
	EBT	-	10	5
	EBR	70	9	3
	WBL	85	76	**#157.2**
	WBT	-	11	5
	WBR	80	0	0
	NBL	80	19	11
	NBT	-	38	24
	NBR	70	8	14
	SBL	80	4	5
	SBT	-	17	28
	SBR	75	0	0
Signal Timing Update: Cycle Length Extension to 120 Seconds & Signal Timing Optimization				
Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway) *(Signalized)*	*EBL*	*70*	*12*	*8*
	EBT	*-*	*12*	*6*
	EBR	*70*	*9*	*5*
	WBL	*85*	*75*	***94***
	WBT	*-*	*11*	*5*
	WBR	*80*	*0*	*1*
	NBL	*80*	*25*	*17*
	NBT	*-*	*47*	*34*
	NBR	*70*	*8*	*18*
	SBL	*80*	*6*	*7*
	SBT	*-*	*22*	*40*
	SBR	*75*	*0*	*0*
Fourth Line at Burnhamthorpe Road (Future William Halton Parkway) *(Unsignalized)*	EBL/T/R	-	0	0
	WBL/T/R	-	5	1
	NBL/T/R	-	0	0
	SBL/T/R	-	0	1
Highway 407 at Neyagawa Boulevard *(Unsignalized)*	EBL	-	0	0
	EBR	-	2	2
	NBT	-	0	0
	SBT	-	0	0
William Halton Parkway at Burnhamthorpe Road *(Unsignalized)*	EBT	-	0	0
	EBR	30	0	0
	WBL	30	0	0
	WBT	-	0	0
	NBL	30	12	14
	NBR	-	0	9
Notes:	*# 95th percentile queue exceeds capacity*			

As shown above, the existing Study Area intersections operate well with no critical or over-capacity movements, with the exception of Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway). In both the AM and PM peak periods, the westbound left-turn movement operates with a v/c ratio greater than 1.00. In the PM peak period, the westbound left-turn 95th percentile queues are shown to exceed the available storage distance. These over-capacity movements are likely reflective of using the outdated 2016 Signal Timing Plan. As such, updated signal timing has been proposed to better represent the actual intersection operations of the intersection with signal timing that is likely closer to what is in the field. Adjustments to both the AM and PM signal timing include a cycle length extension to 120 seconds and signal timing split optimization. With these adjustments, the westbound left-turn lane is noted to still have v/c ratios equal to or greater than 0.85 in both the

AM and PM peak hours, however no over-capacity movements at the intersection are noted. The proposed adjustments to the signal timing will be carried forward to future analysis horizons.

8.2 Future Background Operational Analysis

8.2.1 Future Background Intersection Control

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

- Fourth Line at Burnhamthorpe Road (Future William Halton Parkway)
- Highway 407 EB Off-Ramp at Neyagawa Boulevard
- Burnhamthorpe Road West at William Halton Parkway

A summary of the traffic control signal warrant analysis for future background conditions can be found in Table 17. Traffic control warrant sheets have been included in Appendix J.

Table 17: Future Background Signalization Warrant Summary

Intersection	Horizon	Warranted?
Fourth Line at Burnhamthorpe Road (Future William Halton Parkway)	2028 FB	No
	2033 FB	
Highway 407 EB Off-Ramp at Neyagawa Boulevard	2028 FB	No
	2033 FB	
Burnhamthorpe Road West at William Halton Parkway	2028 FB	Yes
	2033 FB	

As indicated above, intersection signalization warrants are not met for the intersections of Fourth Line at Burnhamthorpe Road (Future William Halton Parkway) or the Highway 407 EB Off-Ramp at Neyagawa Boulevard in any future background analysis horizon. However, intersection signalization warrants are met at the intersection of Burnhamthorpe Road and William Halton Parkway in both future background analysis horizons. Therefore, all intersection methods of control in the future background analysis horizons will be consistent with those considered in the existing conditions analysis, with the exception of Burnhamthorpe Road at William Halton Parkway operating as a signalized intersection. This is consistent with the recommendations for the intersection of William Halton Parkway and Burnhamthorpe Road within the Burnhamthorpe Character Study & Municipal Class Environmental Assessment (2014).

Additionally, the intersection of Fourth Line and Burnhamthorpe Road (Future William Halton Parkway) has been considered as a four-legged roundabout in both future background analysis horizons as a result of the William Halton Parkway Extension works to be completed in 2024.

8.2.2 Future Background Intersection Design

All the improvement projects discussed in Section 4.1 above have been assumed to be completed before 2028 and therefore have been considered in both the 2028 and 2033 future background analysis horizons. These improvements include the extension and widening of Burnhamthorpe Road (Future William Halton Parkway) west of Neyagawa Boulevard to four lanes, the implementation of a roundabout at the intersection of Fourth Line and Burnhamthorpe (Future William Halton Parkway), and the signalization of the intersection of William Halton Parkway at Burnhamthorpe Road.

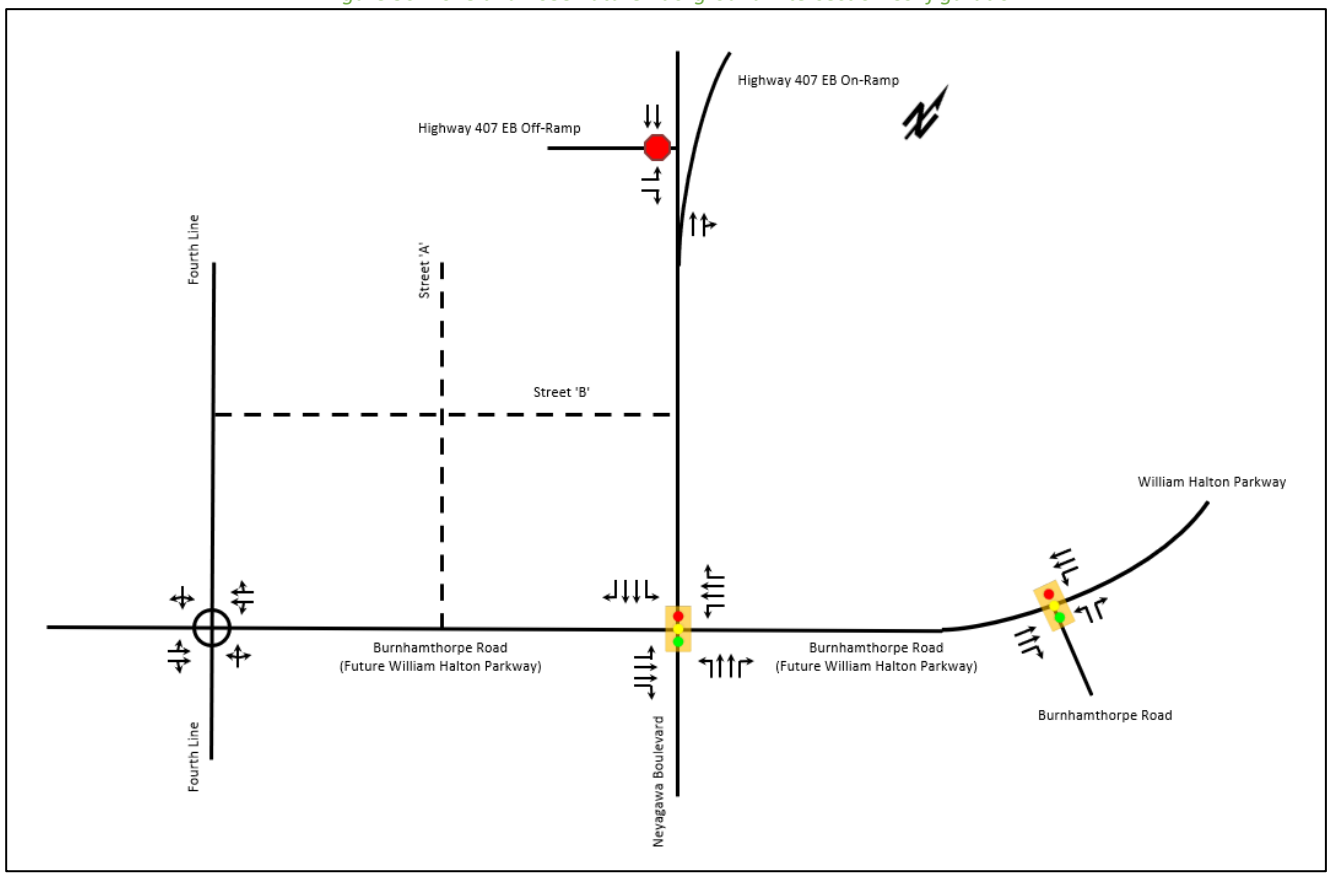
The intersection of Burnhamthorpe Road (Future William Halton Parkway) and Fourth Line has been modelled as a two-lane, four-legged roundabout with yield control on each approach. Both the east and west intersection legs

consist of a 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 / right-turn lane.

The intersection of Burnhamthorpe Road at William Halton Parkway has been modelled as a signalized intersection and is consistent with the existing intersection configuration. Amber Clearance, All Red Clearance, Walk, and Flash Don't Walk times were calculated using the methodology provided in OTM Book 12-Traffic Signals. A walk time of 7 seconds was assumed, and a pedestrian walking speed of 1.2 m/s was used. The minimum initial values for the Study Area intersections were taken from OTM Book 12.

The assumed 2028 and 2033 future intersection configurations prior to any recommended mitigation measures are illustrated in Figure 36.

Figure 36: 2028 and 2033 Future Background Intersection Configuration



8.2.3 2028 Future Background Conditions Operational Analysis

The 2028 future background conditions have been examined to determine the future traffic conditions without the addition of the proposed development. This will isolate the impact of the subject development on the traffic network.

Table 18 summarizes the operational analysis of 2028 future background conditions and the 95th percentile queue for each movement are shown in Table 19. 2028 future background Synchro and Sidra worksheets have been included in Appendix K.

Table 18: 2028 Future Background Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del (s)	LOS	V/C	Del. (s)
Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway) ***(Signalized)***	EBL	C	0.24	33	C	0.17	33
	EBT	**D**	**0.91**	**53**	**E**	**0.96**	**61**
	EBR	C	0.19	32	C	0.07	31
	WBL	**D**	**0.87**	**54**	**F**	**1.00**	**80**
	WBT	C	0.57	21	C	0.67	21
	WBR	B	0.04	15	B	0.06	13
	NBL	C	0.44	28	C	0.30	30
	NBT	C	0.44	35	D	0.31	36
	NBR	C	0.27	33	C	0.15	35
	SBL	C	0.19	28	C	0.26	29
	SBT	C	0.20	33	D	0.36	37
	SBR	C	0.04	31	C	0.01	33
	Overall	**D**	**0.72**	**36**	**D**	**0.77**	**41**
Mitigation Measures: Double WBL Lanes, EBL protected turn, cycle length extended to 120 seconds							
Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway) ***(Signalized)***	*EBL*	*E*	*0.62*	*75*	*E*	*0.50*	*67*
	EBT	*D*	*0.82*	*43*	*D*	*0.83*	*42*
	EBR	*C*	*0.16*	*29*	*C*	*0.07*	*28*
	WBL	*E*	*0.78*	*60*	*E*	*0.83*	*59*
	WBT	*C*	*0.70*	*31*	*C*	*0.77*	*29*
	WBR	*C*	*0.04*	*21*	*B*	*0.06*	*18*
	NBL	*C*	*0.41*	*25*	*C*	*0.29*	*28*
	NBT	*C*	*0.41*	*32*	*C*	*0.29*	*35*
	NBR	*C*	*0.38*	*33*	*C*	*0.15*	*33*
	SBL	*C*	*0.17*	*26*	*C*	*0.24*	*28*
	SBT	*C*	*0.18*	*31*	*D*	*0.34*	*36*
	SBR	*C*	*0.04*	*30*	*C*	*0.01*	*31*
	Overall	***D***	***0.64***	***36***	***D***	***0.62***	***37***
Fourth Line at Burnhamthorpe Road (Future William Halton Parkway) ***(Roundabout)***	EBL/T	C	0.77	23	A	0.51	10
	EBT/R	C	0.77	23	A	0.51	10
	WBL/T	C	0.75	16	B	0.66	13
	WBT/R	C	0.75	16	B	0.66	14
	NBL/T/R	B	0.06	12	A	0.03	8
	SBL/T/R	B	0.03	12	C	0.07	15
	Overall	**C**	**0.77**	**19**	**B**	**0.66**	**11**
Highway 407 at Neyagawa Boulevard ***(Unsignalized)***	EBL	A	0.00	0	B	0.00	10
	EBR	A	0.11	9	A	0.13	9
	NBT	A	0.02	0	A	0.05	0
	SBT	A	0.04	0	A	0.09	0
	Overall	**A**	**-**	**3**	**A**	**-**	**2**
William Halton Parkway at Burnhamthorpe Road ***(Signalized)***	EBT	B	0.64	15	A	0.38	9
	EBR	B	0.22	11	A	0.20	8
	WBL	A	0.01	9	A	0.02	6
	WBT	B	0.42	12	B	0.63	12
	NBL	C	0.83	31	C	0.77	34
	NBR	B	0.02	16	C	0.00	21
	Overall	**B**	**0.71**	**17**	**B**	**0.68**	**13**

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del (s)	LOS	V/C	Del. (s)
Mitigation Measures: NBL storage extended to 100m							
William Halton Parkway at Burnhamthorpe Road (Signalized)	*EBT*	*B*	*0.64*	*15*	*A*	*0.38*	*9*
	EBR	*B*	*0.22*	*11*	*A*	*0.20*	*8*
	WBL	*A*	*0.01*	*9*	*A*	*0.02*	*6*
	WBT	*B*	*0.42*	*12*	*B*	*0.63*	*12*
	NBL	*C*	*0.83*	*31*	*C*	*0.77*	*34*
	NBR	*B*	*0.02*	*16*	*C*	*0.00*	*21*
	Overall	***B***	***0.71***	***17***	***B***	***0.68***	***13***

Table 19: 2028 Future Background Conditions Queue Lengths

Intersection	Mvmnt	Storage Dist (m)	AM Q (95th)	PM Q (95th)
Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway) *(Signalized)*	EBL	70	12	10
	EBT	-	**88**	**#145**
	EBR	70	9	11
	WBL	85	**#86**	**#144**
	WBT	-	75	**123**
	WBR	80	2	7
	NBL	80	31	28
	NBT	-	44	39
	NBR	70	15	17
	SBL	80	11	25
	SBT	-	19	45
	SBR	75	0	0
Mitigation Measures: Double WBL Lanes, EBL protected turn, cycle length extended to 120 seconds				
Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway) *(Signalized)*	*EBL*	*70*	*17*	*12*
	EBT	*-*	***99***	***127***
	EBR	*70*	*9*	*5*
	WBL	*85*	*44*	*67*
	WBT	*-*	***97***	***153***
	WBR	*80*	*0*	*6*
	NBL	*80*	*38*	*27*
	NBT	*-*	*52*	*39*
	NBR	*70*	*25*	*16*
	SBL	*80*	*14*	*25*
	SBT	*-*	*23*	*44*
	SBR	*75*	*0*	*0*
Fourth Line at Burnhamthorpe Road (Future William Halton Parkway) *(Roundabout)*	EBL/T	-	95	23
	EBT/R	-	95	23
	WBL/T	-	78	50
	WBT/R	-	78	50
	NBL/T/R	-	1	<1
	SBL/T/R	-	<1	2
Highway 407 at Neyagawa Boulevard *(Unsignalized)*	EBL	-	0	<1
	EBR	-	3	3
	NBT	-	0	0
	SBT	-	0	0
William Halton Parkway at Burnhamthorpe Road (*Signalized)*	EBT	-	**98**	**52**
	EBR	30	21	11
	WBL	30	1	3
	WBT	-	**57**	**107**
	NBL	30	**89**	**77**
	NBR	-	3	3

Intersection	Mvmnt	Storage Dist (m)	AM Q (95th)	PM Q (95th)
Mitigation Measures: NBL storage extended to 100m				
William Halton Parkway at Burnhamthorpe Road (Signalized)	*EBT*	-	**98**	**52**
	EBR	*30*	21	11
	WBL	*30*	1	3
	WBT	-	**57**	**107**
	NBL	*100*	89	77
	NBR	-	3	3
Notes:	*# 95th percentile queue exceeds capacity*			

As shown above, the addition of background growth to reflect the 2028 horizon, traffic generated from surrounding developments, and the volume adjustments to reflect the extension of William Halton Parkway results in the Study Area intersections operating slightly worse than existing conditions, with additional critical and over-capacity movements.

At the intersection of Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway), the eastbound through and westbound left movements are expected to operate with a v/c ratio equal to or greater than 0.85 in the AM and PM peak period. Additionally, the westbound left movement operates with a 95th percentile queue that extends beyond the auxiliary left-turn storage lanes in both the AM and PM peak hours. The eastbound through lane in the AM and PM peak periods and the westbound through lane in the PM peak period is anticipated to extend beyond the adjacent turning lanes. These critical and over-capacity movements are expected given the high volumes anticipated at this intersection.

Mitigation measures have been applied as a result of the identified over-capacity westbound left-turn movement. A double westbound left-turn lane and a protected eastbound left-turn phase have been implemented. Additionally the cycle length in both the AM and PM peak periods has been extended to 120 seconds, and the signal timing splits have been optimized.

At the intersection of William Halton Parkway at Burnhamthorpe Road, the northbound left-turn movement 95th percentile queue is expected to exceed the provided storage distance in both the AM and PM peak periods. The eastbound through and westbound through movements are also expected to operate with 95th percentile queues that extend beyond adjacent auxiliary turn lanes in both the AM and PM peak periods. These critical movements are reflective of high overall eastbound and westbound volumes using William Halton Parkway upon the completion of its extension.

The extension of the northbound left-turn provided storage to 100 metres has been applied as a mitigation measure.

8.2.4 2033 Future Background Conditions Operational Analysis

The 2033 future background conditions have been examined to determine the future traffic conditions without the addition of the proposed development. This will isolate the impact of the subject development on the traffic network.

Table 20 summarizes the operational analysis of 2033 future background conditions and the 95th percentile queue for each movement are shown in Table 21. 2033 future background Synchro and Sidra worksheets have been included in Appendix L.

Additionally, it is noted that the recommended mitigation measures analyzed and identified in the 2028 future background analysis have been applied.

Table 20: 2033 Future Background Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del (s)	LOS	V/C	Del. (s)
Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway) ***(Signalized)***	EBL	E	0.52	61	E	0.53	70
	EBT	**D**	**0.91**	**49**	**D**	**0.86**	**43**
	EBR	C	0.22	29	C	0.07	27
	WBL	E	0.82	63	E	0.85	61
	WBT	C	0.76	32	C	0.82	30
	WBR	C	0.04	21	B	0.06	17
	NBL	C	0.45	28	C	0.32	30
	NBT	C	0.47	35	D	0.34	36
	NBR	D	0.46	36	C	0.16	35
	SBL	C	0.20	27	C	0.25	29
	SBT	C	0.21	32	D	0.39	37
	SBR	C	0.04	30	C	0.01	32
	Overall	**D**	**0.71**	**39**	**D**	**0.67**	**38**
Fourth Line at Burnhamthorpe Road (Future William Halton Parkway) ***(Roundabout)***	EBL/T	**E**	**0.93**	**41**	B	0.54	11
	EBT/R	**E**	**0.93**	**41**	B	0.54	11
	WBL/T	C	0.82	20	B	0.72	15
	WBT/R	C	0.82	20	C	0.72	16
	NBL/T/R	C	0.09	16	A	0.04	9
	SBL/T/R	B	0.04	14	C	0.09	17
	Overall	**D**	**0.93**	**29**	**B**	**0.72**	**13**
Highway 407 at Neyagawa Boulevard ***(Unsignalized)***	EBL	A	0.00	0	B	0.00	12
	EBR	A	0.13	9	A	0.14	10
	NBT	A	0.02	0	A	0.06	0
	SBT	A	0.05	0	A	0.10	0
	Overall	**A**	**-**	**3**	**A**	**-**	**2**
William Halton Parkway at Burnhamthorpe Road ***(Signalized)***	EBT	B	0.72	17	A	0.42	9
	EBR	B	0.23	11	A	0.20	8
	WBL	A	0.02	10	A	0.02	6
	WBT	B	0.48	13	B	0.69	13
	NBL	C	0.83	32	C	0.77	34
	NBR	B	0.02	16	C	0.00	21
	Overall	**B**	**0.76**	**18**	**B**	**0.72**	**14**

Table 21: 2033 Future Background Conditions Queue Lengths

Intersection	Mvmnt	Storage Dist (m)	AM Q (95th)	PM Q (95th)
Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway) ***(Signalized)***	EBL	70	18	13
	EBT	-	**116**	**137**
	EBR	70	14	6
	WBL	85	47	#71
	WBT	-	**109**	**176**
	WBR	80	0	7
	NBL	80	40	28
	NBT	-	57	42
	NBR	70	35	17
	SBL	80	14	24
	SBT	-	25	48
	SBR	75	0	0
Fourth Line at Burnhamthorpe Road (Future William Halton Parkway) ***(Roundabout)***	EBL/T	-	185	26
	EBT/R	-	185	26
	WBL/T	-	111	66
	WBT/R	-	111	65
	NBL/T/R	-	2	<1
	SBL/T/R	-	<1	2
Highway 407 at Neyagawa Boulevard ***(Unsignalized)***	EBL	-	0	<1
	EBR	-	3	4
	NBT	-	0	0
	SBT	-	0	0
William Halton Parkway at Burnhamthorpe Road ***(Signalized)***	EBT	-	**117**	**59**
	EBR	30	24	13
	WBL	30	2	2
	WBT	-	**68**	**124**
	NBL	100	93	77
	NBR	-	3	3
Notes:	*# 95th percentile queue exceeds capacity*			

As shown above, the addition of background growth to reflect the 2033 horizon, traffic generated from surrounding developments, and the volume adjustments to reflect the extension of William Halton Parkway results in the Study Area intersections operating slightly worse than the mitigated 2028 future background analysis, with additional critical movements.

At the intersection of Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway), the eastbound through is expected to operate with a v/c ratio equal to or greater than 0.85 in the AM and PM peak periods. Additionally, the eastbound through lane in the AM and PM peak periods and the westbound through lane in the PM peak period is anticipated to extend beyond the adjacent turning lanes. These critical and over-capacity movements are expected given the high volumes anticipated at this intersection.

8.3 Future Total Operational Analysis

8.3.1 Future Total Intersection Control

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

- Highway 407 EB Off-Ramp at Neyagawa Boulevard
- Street 'B' at Neyagawa Boulevard (Site Access #1)
- Street 'A' at Burnhamthorpe Road (Future William Halton Parkway) (Site Access #2)

- Street 'B' at Fourth Line (Site Access #3)
- Street 'A' at Street 'B'

A summary of the traffic control signal warrant analysis for future background conditions can be found in Table 22. Traffic control warrant sheets have been included in Appendix J.

Table 22: Future Total Signalization Warrant Summary

Intersection	Horizon	Warranted?
Highway 407 EB Off-Ramp at Neyagawa Boulevard	2028 FT	No
	2033 FT	
Street 'B' at Neyagawa Boulevard (Site Access #1)	2028 FT	No
	2033 FT	
Street 'A' at Burnhamthorpe Road (Future William Halton Parkway) (Site Access #2)	2028 FT	No
	2033 FT	
Street 'B' at Fourth Line (Site Access #3)	2028 FT	No
	2033 FT	
Street 'A' at Street 'B'	2028 FT	No
	2033 FT	

As indicated above, intersection signalization warrants are not met for the unsignalized intersections in any future total analysis horizon. Therefore, all intersection methods of control in the future total analysis horizons will be consistent with those considered in the future background conditions analysis unless otherwise required based on the operational analysis.

Additionally, all-way stop control was evaluated at the internal site intersection of Street 'A' and Street 'B' using the Ontario Traffic Manual Book 5 for all future total analysis horizons. The total vehicle volume on all intersection approaches does not exceed 200 for the highest hour recorded and the volume split does not satisfy the 70/30 volume split requirement. As such, all-way stop control is not warranted at the internal site intersection in any future total analysis horizons and the intersection will be analyzed as unsignalized intersection with stop-control on the local road (north and south legs). The all-way stop-control warrant can be seen in Appendix M.

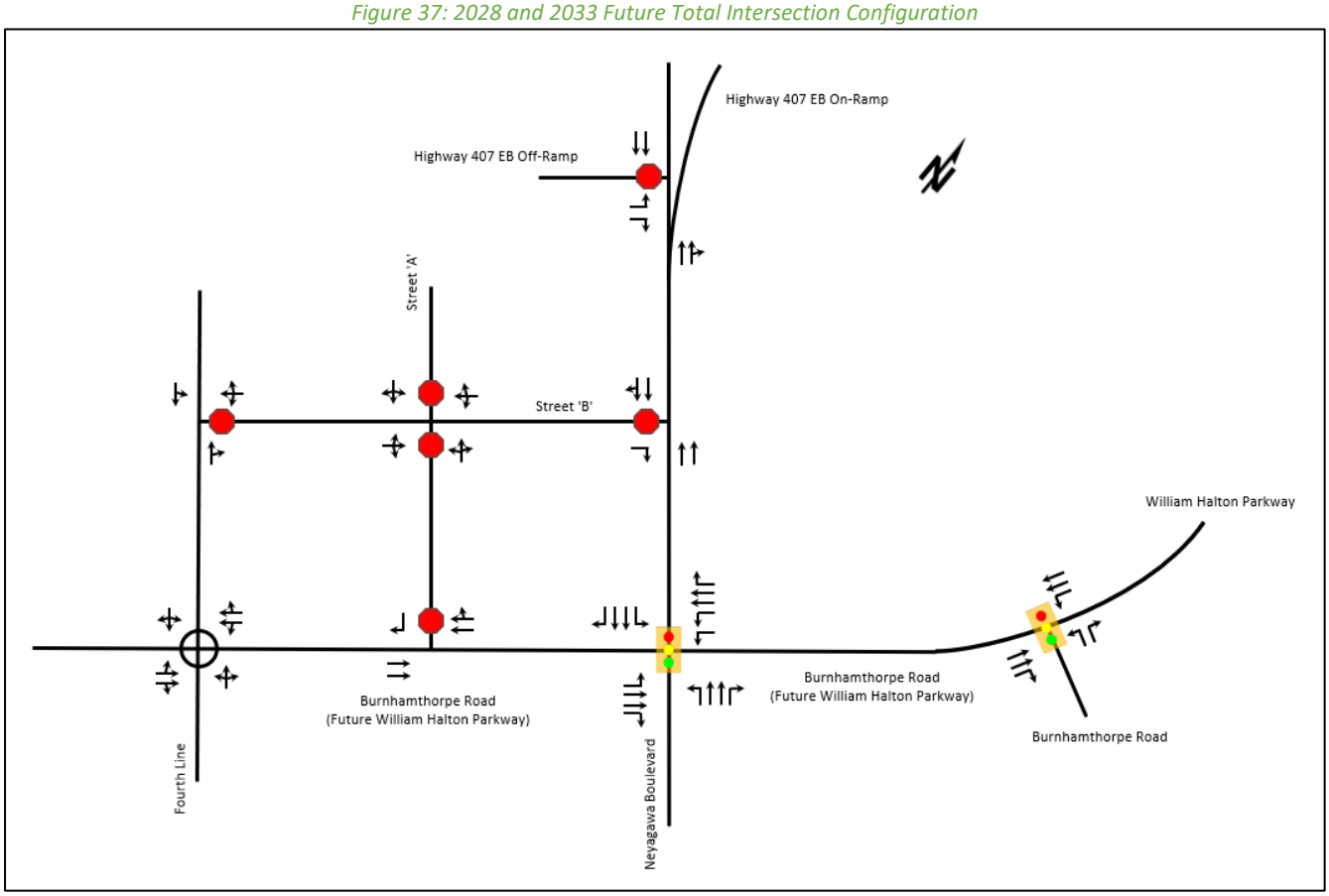
8.3.2 Future Total Intersection Configuration

Similarly to the intersection configurations considered in the future background analysis horizons, all the improvement projects discussed in Section 4.1 above have been assumed to be completed before 2028 and therefore have been considered in both the 2028 and 2033 future background analysis horizons. Additionally, the mitigation measures proposed for the 2028 future background horizon have been considered in both the 2028 and 2033 future total analysis.

The three access intersections and the internal roadway intersection configurations have been determined based on the planned roadway configuration of Neyagawa Boulevard, William Halton Parkway and Fourth Line, as well as the 19-metre Town of Oakville connector road cross-section and the 17-metre Town of Oakville local road cross-section as applicable. Auxiliary right-turn lanes into the subject development at the three site access intersections we considered using criteria presented in the Halton Region Access Guidelines. These guidelines indicate that a right-turn lane may be warranted at accesses that have sufficient volume of decelerating vehicles, have right turn volume at signalized intersections of 10% of the through traffic volume, or have constrained sight distance approaching the access. These conditions were not satisfied at any of the site access intersections. As such, axillary right-turn lanes into the site have not been considered.

The 2028 and 2033 future total intersection configuration is illustrated in Figure 37.

Figure 37: 2028 and 2033 Future Total Intersection Configuration



8.3.3 2028 Future Total Conditions Operational Analysis

The proposed development's trip generation has been added to the 2028 future background traffic volumes to project the impact of the new traffic on the Study Area road network.

Table 20 summarizes the operational analysis of 2028 future total conditions and Table 21 summarizes the 95th percentile queue for each movement. 2028 future total Synchro and Sidra worksheets have been included in Appendix N.

Table 23: 2028 Future Total Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del (s)	LOS	V/C	Del. (s)
Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway) ***(Signalized)***	EBL	F	0.75	82	E	0.57	65
	EBT	**D**	**0.87**	**47**	**D**	**0.90**	**48**
	EBR	C	0.20	30	C	0.09	28
	WBL	E	0.78	60	**E**	**0.85**	**60**
	WBT	D	0.78	36	**D**	**0.94**	**44**
	WBR	C	0.04	23	B	0.06	19
	NBL	C	0.45	26	C	0.46	30
	NBT	C	0.42	33	D	0.32	35
	NBR	C	0.43	35	C	0.16	33
	SBL	C	0.35	26	C	0.36	29
	SBT	C	0.19	31	D	0.38	36
	SBR	C	0.04	29	C	0.01	32
	Overall	**D**	**0.70**	**39**	**D**	**0.77**	**43**
Fourth Line at Burnhamthorpe Road (Future William Halton Parkway) ***(Roundabout)***	EBL/T	**F**	**0.98**	**57**	B	0.60	13
	EBT/R	**F**	**0.98**	**57**	B	0.60	13
	WBL/T	**C**	**0.85**	**24**	C	0.76	17
	WBT/R	**C**	**0.85**	**24**	C	0.76	17
	NBL/T/R	C	0.08	17	A	0.04	10
	SBL/T/R	F	0.83	72	C	0.38	23
	Overall	**E**	**0.98**	**39**	**B**	**0.76**	**16**
Highway 407 at Neyagawa Boulevard ***(Unsignalized)***	EBL	A	0.00	0	B	0.00	12
	EBR	A	0.12	9	B	0.16	10
	NBT	A	0.02	0	A	0.06	0
	SBT	A	0.05	0	A	0.11	0
	Overall	**A**	**-**	**3**	**A**	**-**	**2**
William Halton Parkway at Burnhamthorpe Road ***(Signalized)***	EBT	B	0.68	16	A	0.44	9
	EBR	B	0.23	11	A	0.21	8
	WBL	A	0.01	9	A	0.02	7
	WBT	B	0.44	13	B	0.73	14
	NBL	C	0.83	31	C	0.78	34
	NBR	B	0.02	16	C	0.00	21
	Overall	**B**	**0.74**	**18**	**B**	**0.70**	**14**
Street 'B' at Neyagawa Boulevard (Site Access #1) (Unsignalized)	EBR	A	0.09	10	B	0.08	10
	NBT	A	0.15	0	A	0.13	0
	SBT	A	0.10	0	A	0.18	0
	SBT/R	A	0.06	0	A	0.11	0
	Overall	**A**	**-**	**1**	**A**	**-**	**1**
Street 'A' at Burnhamthorpe Road (Future William Halton Parkway) (Site Access#2) (Unsignalized)	EBT	A	0.32	0	A	0.34	0
	WBT	A	0.42	0	A	0.58	0
	WBT/R	A	0.23	0	A	0.35	0
	SBR	A	0.05	10	B	0.05	11
	Overall	**A**	**-**	**<1**	**A**	**-**	**<1**
Street 'B' at Fourth Line (Site Access #3) (Unsignalized)	WBL/R	A	0.09	9	A	0.07	9
	NBT/R	A	0.02	0	A	0.06	0
	SBT/L	A	0.00	0	A	0.00	0
	Overall	**A**	**-**	**6**	**A**	**-**	**3**
Street 'A' at Street 'B' (Unsignalized)	EBL/T/R	A	0.01	2	A	0.01	3
	WBL/T/R	A	0.01	3	A	0.01	4
	NBL/T/R	A	0.07	9	A	0.08	10
	SBL/T/R	A	0.07	9	A	0.06	10
	Overall	**A**	**-**	**7**	**A**	**-**	**7**

Table 24: 2028 Future Total Conditions Queue Lengths

Intersection	Mvmnt	Storage Dist (m)	AM Q (95th)	PM Q (95th)
Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway) *(Signalized)*	EBL	70	#34	22
	EBT	-	**102**	**#140**
	EBR	70	10	11
	WBL	85	44	71
	WBT	-	**102**	**#206**
	WBR	80	0	7
	NBL	80	42	39
	NBT	-	52	42
	NBR	70	34	17
	SBL	80	26	33
	SBT	-	24	49
	SBR	75	0	0
Fourth Line at Burnhamthorpe Road (Future William Halton Parkway) *(Roundabout)*	EBT/L	-	195	32
	EBT/R	-	195	32
	WBT/L	-	117	65
	WBT/R	-	117	65
	NBL/T/R	-	2	<1
	SBL/T/R	-	32	10
Highway 407 at Neyagawa Boulevard *(Unsignalized)*	EBL	-	0	<1
	EBR	-	3	4
	NBT	-	0	0
	SBT	-	0	0
William Halton Parkway at Burnhamthorpe Road (*Signalized)*	EBT	-	**108**	**65**
	EBR	30	24	15
	WBL	30	2	2
	WBT	-	**60**	**137**
	NBL	100	90	80
	NBR	-	3	3
Street 'B' at Neyagawa Boulevard (Unsignalized)	EBR	-	2	2
	NBT	-	0	0
	SBT	-	0	0
	SBT/R	-	0	0
Street 'A' at Burnhamthorpe Road (Future William Halton Parkway) (Site Access#2) (Unsignalized)	EBT	-	0	0
	WBT	-	0	0
	WBT/R	-	0	0
	SBR	-	1	1
Street 'B' at Fourth Line (Site Access #3) (Unsignalized)	WBL/R	-	2	2
	NBT/R	-	0	0
	SBT/L	-	0	0
Street 'A' at Street 'B' (Unsignalized)	EBL/T/R	-	<1	<1
	WBL/T/R	-	<1	<1
	NBL/T/R	-	2	2
	SBL/T/R	-	2	1
Notes:	*# 95th percentile queue exceeds capacity*			

With the addition of the site generated traffic to the 2028 future background traffic, the Study Area intersections operate with some additional critical movements and in a similar manner to the 2028 future background analysis horizon.

At the intersection of Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway), the eastbound through movement is expected to operate with a v/c ratio equal to or greater than 0.85 in the AM peak period and the eastbound through, westbound left-turn, and westbound through movements are expected to

operate with a v/c ratio equal to or greater than 0.85 in the PM peak period. Additionally, the eastbound through and westbound through movements 95th percentile queues extend beyond the adjacent auxiliary turn lanes in both the AM and PM peak periods. This is expected given the high volumes anticipated at this intersection.

At the intersection of Fourth Line at Burnhamthorpe Road (Future William Halton Parkway), the shared eastbound left-turn / through, the shared eastbound through / right-turn, and the shared westbound left-turn /through and the shared westbound through / right-turn movements operate with v/c ratios equal to or greater than 0.85 in the AM peak period. The overall intersection is also expected to operate with a v/c ratio equal to or greater than 0.85 in the AM peak period. This is expected given the high westbound left-turn, westbound through and eastbound through volumes anticipated at this intersection. It is noted that a signalized intersection may be better suited to accommodate the imbalanced volumes at this intersection than a roundabout. As the roundabout is currently being constructed, a signalized intersection has not been considered as a viable alternative.

At the intersection of William Halton Parkway at Burnhamthorpe Road, the eastbound through and westbound through 95th percentile queues extend beyond the adjacent auxiliary turn lanes in the AM and PM peak periods.

Mitigation measures have not been implements as no-over capacity movements are noted.

8.3.4 2033 Future Total Conditions Operational Analysis

The proposed development's trip generation has been added to the 2033 future background traffic volumes to project the impact of the new traffic on the Study Area road network.

Table 25 summarizes the operational analysis of 2028 future total conditions and Table 26 summarizes the 95th percentile queue for each movement. 2033 future total Synchro and Sidra worksheets have been included in Appendix O.

Table 25: 2033 Future Total Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del (s)	LOS	V/C	Del. (s)
Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway) ***(Signalized)***	EBL	F	0.79	89	E	0.57	65
	EBT	**D**	**0.94**	**53**	**D**	**0.90**	**48**
	EBR	C	0.27	30	C	0.09	30
	WBL	E	0.82	63	**E**	**0.85**	**61**
	WBT	D	0.81	35	**D**	**0.94**	**44**
	WBR	C	0.04	22	B	0.06	19
	NBL	C	0.50	29	C	0.46	30
	NBT	D	0.48	35	D	0.32	35
	NBR	D	0.51	38	C	0.16	33
	SBL	C	0.40	28	C	0.36	29
	SBT	C	0.22	32	D	0.38	36
	SBR	C	0.05	30	C	0.01	32
	Overall	**D**	**0.73**	**42**	**D**	**0.75**	**43**
Fourth Line at Burnhamthorpe Road (Future William Halton Parkway) ***(Roundabout)***	EBT/L	**F**	**1.18**	**121**	B	0.64	14
	EBT/R	**F**	**1.18**	**121**	B	0.64	14
	WBT/L	**D**	**0.91**	**30**	C	0.82	22
	WBT/R	**D**	**0.91**	**30**	C	0.82	22
	NBL/T/R	C	0.08	16	B	0.05	11
	SBL/T/R	**F**	**1.11**	**163**	D	0.48	34
	Overall	**F**	**0.98**	**73**	**C**	**0.82**	**19**

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del (s)	LOS	V/C	Del. (s)
Highway 407 at Neyagawa Boulevard *(Unsignalized)*	EBL	A	0.00	0	B	0.00	12
	EBR	A	0.13	9	B	0.16	10
	NBT	A	0.03	0	A	0.06	0
	SBT	A	0.05	0	A	0.11	0
	Overall	**A**	-	**3**	**A**	-	**2**
William Halton Parkway at Burnhamthorpe Road *(Signalized)*	EBT	B	0.76	18	A	0.44	9
	EBR	B	0.25	12	A	0.21	8
	WBL	A	0.02	10	A	0.02	7
	WBT	B	0.40	14	B	0.73	14
	NBL	C	0.83	32	C	0.78	34
	NBR	B	0.02	16	C	0.00	21
	Overall	**B**	**0.79**	**19**	**B**	**0.74**	**14**
Street 'B' at Neyagawa Boulevard (Site Access #1) (Unsignalized)	EBR	A	0.09	10	B	0.08	10
	NBT	A	0.16	0	A	0.13	0
	SBT	A	0.11	0	A	0.18	0
	SBT/R	A	0.06	0	A	0.11	0
	Overall	**A**	-	**1**	**A**	-	**1**
Street 'A' at Burnhamthorpe Road (Future William Halton Parkway) (Site Access#2) (Unsignalized)	EBT	A	0.36	0	A	0.34	0
	WBT	A	0.45	0	A	0.58	0
	WBT/R	A	0.25	0	A	0.35	0
	SBR	A	0.06	10	B	0.05	11
	Overall	**A**	-	**<1**	**A**	-	**<1**
Street 'B' at Fourth Line (Site Access #3) (Unsignalized)	WBL/R	A	0.09	9	A	0.07	9
	NBT/R	A	0.02	0	A	0.06	0
	SBT/L	A	0.00	0	A	0.00	0
	Overall	**A**	-	**6**	**A**	-	**3**
Street 'A' at Street 'B' (Unsignalized)	EBL/T/R	A	0.01	2	A	0.01	3
	WBL/T/R	A	0.01	3	A	0.01	4
	NBL/T/R	A	0.07	9	A	0.08	10
	SBL/T/R	A	0.07	9	A	0.06	10
	Overall	**A**	-	**7**	**A**	-	**7**

Table 26: 2033 Future Total Conditions Queue Lengths

Intersection	Mvmnt	Storage Dist (m)	AM Q (95th)	PM Q (95th)
Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway) *(Signalized)*	EBL	70	#36	22
	EBT	-	**120**	**#140**
	EBR	70	16	11
	WBL	85	47	71
	WBT	-	**114**	**#206**
	WBR	80	0	7
	NBL	80	43	39
	NBT	-	57	42
	NBR	70	44	17
	SBL	80	26	33
	SBT	-	26	49
	SBR	75	0	0

Intersection	Mvmnt	Storage Dist (m)	AM Q (95th)	PM Q (95th)
Fourth Line at Burnhamthorpe Road (Future William Halton Parkway) ***(Roundabout)***	EBT/L	-	403	48
	EBT/R	-	403	48
	WBT/L	-	172	86
	WBT/R	-	172	86
	NBL/T/R	-	2	1
	SBL/T/R	-	85	2
Highway 407 at Neyagawa Boulevard ***(Unsignalized)***	EBL	-	0	<1
	EBR	-	4	4
	NBT	-	0	0
	SBT	-	0	0
William Halton Parkway at Burnhamthorpe Road ***(Signalized)***	EBT	-	**#130**	**65**
	EBR	30	27	15
	WBL	30	2	2
	WBT	-	**71**	**137**
	NBL	100	94	80
	NBR	-	3	3
Street 'B' at Neyagawa Boulevard (Unsignalized)	EBR	-	2	2
	NBT	-	0	0
	SBT	-	0	0
	SBT/R	-	0	0
Street 'A' at Burnhamthorpe Road (Future William Halton Parkway) (Site Access#2) (Unsignalized)	EBT	-	0	0
	WBT	-	0	0
	WBT/R	-	0	0
	SBR	-	1	1
Street 'B' at Fourth Line (Site Access #3) (Unsignalized)	WBL/R	-	2	2
	NBT/R	-	0	0
	SBT/L	-	0	0
Street 'A' at Street 'B' (Unsignalized)	EBL/T/R	-	<1	<1
	WBL/T/R	-	<1	<1
	NBL/T/R	-	2	2
	SBL/T/R	-	2	1
Notes:	*# 95th percentile queue exceeds capacity*			

With the addition of the site generated traffic to the 2033 future background traffic, the Study Area intersections operate with some additional critical and over-capacity movements.

At the intersection of Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway), the eastbound through movement is expected to operate with a v/c ratio equal to or greater than 0.85 in the AM peak period and the eastbound through, westbound left, and westbound through movements are expected to operate with a v/c ratio equal to or greater than 0.85 in the PM peak period. Additionally, the eastbound through and westbound through movements 95th percentile queues extend beyond the adjacent auxiliary turn lanes in both the AM and PM peak periods. This is expected given the high volumes anticipated at this intersection.

At the intersection of Fourth Line at Burnhamthorpe Road (Future William Halton Parkway), the shared eastbound left-turn / through, the shared eastbound through / right-turn, the shared westbound left-turn /through, the shared westbound through / right-turn, and the shared southbound left-turn / through / right-turn movements operate with v/c ratios equal to or greater than 0.85 in the AM peak period. It is noted that the shared eastbound left-turn / through, the shared eastbound through / right-turn, and the shared southbound left-turn / through / right-turn movements operate with v/c ratios equal to or greater than 1.00 and are considered over-capacity. The overall intersection is also expected to operate with a v/c ratio greater than 0.85 during the AM peak period. This is expected given the high east-west volumes anticipated at this intersection. Typical roundabout mitigation

measures such as adding an additional circulation lane or channelized right-turn lanes are not expected to improve operations sufficiently. As discussed in Section 8.3.4 above, it is noted that a signalized intersection may be better suited to accommodate the imbalanced volumes at this intersection than a roundabout. As the roundabout is currently being constructed, a signalized intersection has not been considered as a viable mitigation measure. As the 2028 future volumes analyzed at this intersection display critical, but no over-capacity movements, it can be assumed that any increase and future growth applied to the 2028 future total volumes at this intersection will have to be accommodated by non-auto modes. Additionally, as the 2028 future total operational analysis does not have any over-capacity movements identified at this intersection, the over-capacity movements noted in the 2033 future total analysis horizon can be attributed to background growth and are not reflective of the addition of site generated traffic to the road network.

At the intersection of William Halton Parkway at Burnhamthorpe Road, the eastbound through and westbound through movements 95th percentile queues extend beyond the adjacent auxiliary turn lanes in the AM and PM peak periods.

Mitigation measures have not been implemented at any Study Area intersections.

9 Recommendations

Some critical and over-capacity movements have been noted within the Study Area as a result of the high volumes expected in the Study Area and along William Halton Parkway specifically. Apart from the William Halton Parkway extension road improvement project, some mitigation measures have been proposed for the road network within the Study Area to address the operational issues.

In the 2028 future background horizon, the following network modifications have been proposed:

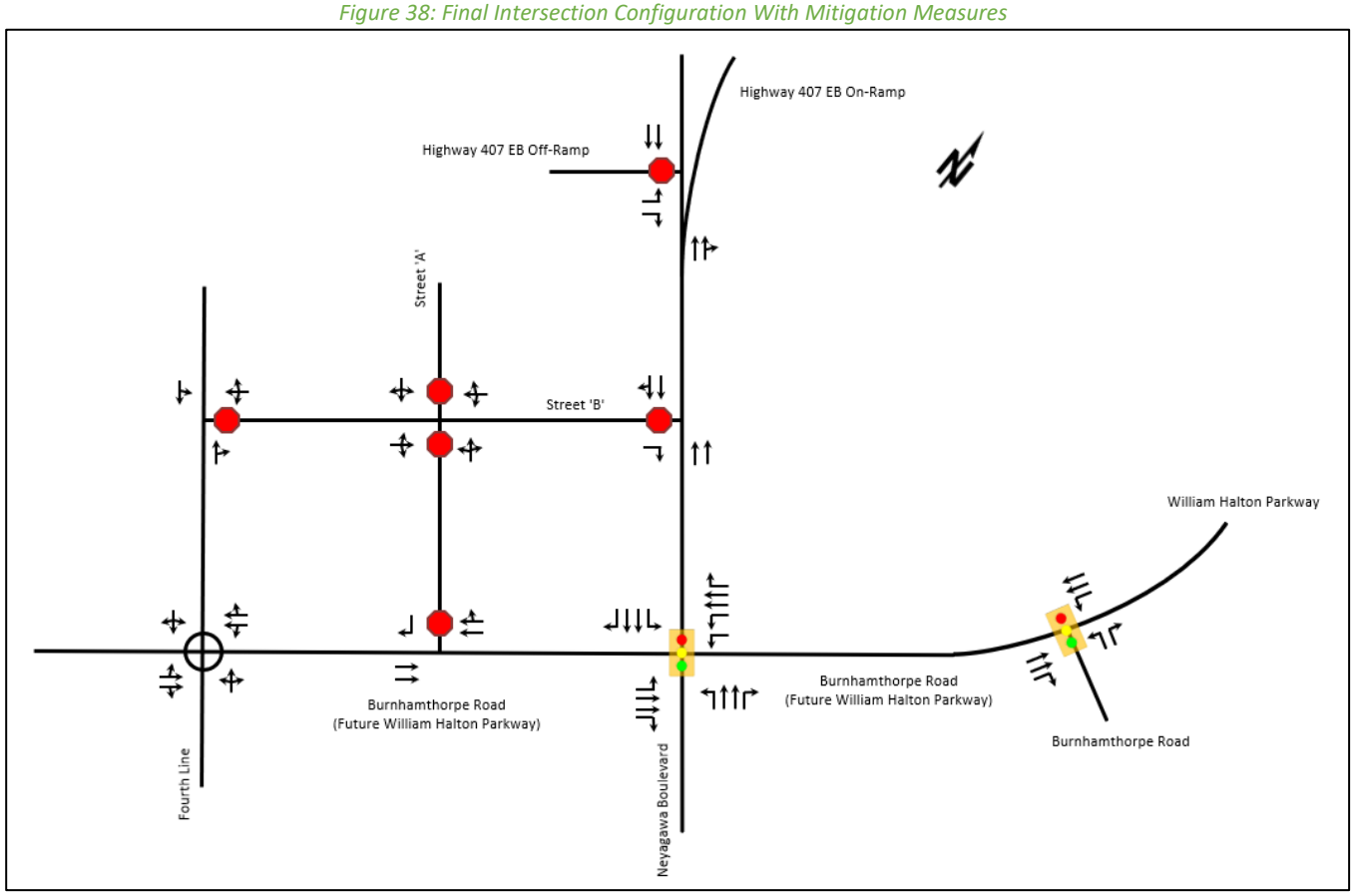
- A double westbound left-turn lane at the intersection of Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway).
- An eastbound left-turn protected phase at the intersection of Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway).
- Signal timing cycle length extension to 120 seconds as well as split optimization in both the AM and PM peak periods at the intersection of Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway).
- The extension of the northbound left-turn storage to 100 metres at the intersection of Willliam Halton Parkway and Burnhamthorpe Road.

No additional mitigation measures have been proposed in any other analysis horizons. It is however noted that in the 2033 future total analysis, over-capacity movements were noted at the intersection of Fourth Line and Burnhamthorpe Road (Future William Halton Parkway). No mitigation measures have been proposed as typical roundabout mitigation measures such as adding an additional circulation lane, or channelized right-turn lanes are not expected to improve operations. A signalized intersection may be better suited to accommodate the imbalanced volumes at this intersection than a roundabout. As the roundabout is currently being constructed, a signalized intersection has not been considered as a viable mitigation measure. As the 2028 future volumes analyzed at this intersection display critical but no over-capacity movements, it can be assumed that any increase and future growth applied to the 2028 future total volumes at this intersection will have to be accommodated by non-auto modes. Additionally, as the 2028 future total operational analysis does not have any over-capacity movements identified at this intersection, the over-capacity movements noted in the 2033 future total analysis

horizon can be attributed to background growth and are not reflective of the addition of site generated traffic to the road network.

Figure 38 illustrates the final intersection configuration in 2033 after all the recommended improvements have been incorporated into the road network.

Figure 38: Final Intersection Configuration With Mitigation Measures



It is recommended that the need for additional future improvements should be provided through better public transit and active transportation infrastructure which supports the increase in non-auto mode shares and possibly reduces the number of vehicles using the intersections.

10 Conclusions

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

a) The Block Concept Plan identifies a number of medium density blocks and a mixed-use block, each of which contain an internal condo road network. A conceptual plan, based on the Block Concept Plan and Draft Plan, has been prepared to inform this analysis and includes a mix of residential units and retail spaces. The current conceptual design contains 1,003 residential units including 643 apartment units and 360 townhouses, and 1,020 square metres of retail space. It should be noted that unit counts, block sizes, and retail GFAs are preliminary for the purposes of the study and will subject to refinement at future site plan stages.

b) The subject development is bounded by Highway 407 to the north, Neyagawa Boulevard to the east, Fourth Line to the west, and Burnhamthorpe Road (Future William Halton Parkway) to the south.
c) The proposed development will have one right-in / right-out access at Neyagawa Boulevard, one right-in / right-out access at Burnhamthorpe Road (Future William Halton Parkway), and a full-movement unsignalized access on Fourth Line.
d) Full build-out has been assumed to occur in 2028.
e) Nearby developments anticipated to be major trip generators have been included in the background traffic projections. These background developments are: Sherborne Lodge, Remington ENO, Landowner's Group Neighborhood 9/10/11, Sixth Oak School and Employment Lands, and Star Oak. The background developments are anticipated to generate a total of 2,859 AM and 3,358 PM peak hour two-way trips by 2028 and 2,720 AM and 3,186 PM peak hour two-way trips by 2033.
f) A 2% compound annual growth rate has been within the Study Area where applicable to grow the existing 2023 horizon to the 2028 and 2033 future analysis horizons.
g) To reflect the future extension of William Halton Parkway west of Neyagawa Boulevard, and the additional connectivity and capacity that this extension will provide to the Study Area, volume at the intersection of Burnhamthorpe Road (Future William Halton Parkway) and Neyagawa Boulevard has been reassigned. In both the 2028 and 2033 future analysis horizons, the northbound right-turning traffic has been partially reassigned to the eastbound through intersection movement, and westbound left-turning traffic has been partially reassigned to the westbound through intersection movement.
h) The Region's EMME Model projection of volumes along William Halton Parkway for 2031 PM peak hour have also been used to determine the 2028 and 2033 future background traffic volumes as well.
i) The planned road network improvements up to 2028 include the completion of the William Halton Parkway extension west of Neyagawa Boulevard which will widen the existing road from 2 to 4 lanes. The William Halton Parkway at Burnhamthorpe Road intersection will be signalized and the roundabout at Fourth Line and Burnhamthorpe Road (Future William Halton Parkway) constructed.
j) To estimate the impact of the subject development on the Study Area, a vehicle trip generation exercise has been undertaken for each land use. The trip generation of the residential units and retail buildings used the corresponding ITE rates. The mode shares have been determined using the percentages projected for 2031 under Scenario D which are considered by the Town for 2031 conditions. The 2033 horizon mode shares are beyond the timeline of this Transportation Master Plan and the same mode share as 2028 has been used in this study to develop a conservative analysis. Synergy effect is considered for the development due to its mixed-use nature. As a result, the subject development is anticipated to generate 275 AM and 358 PM peak hour external two-way auto trips combined during all future horizons.
k) Using the existing 2023 traffic volumes, an operational analysis of the 2023 existing conditions was undertaken. Critical movements were noted however no mitigation measures were recommended. Signal timing adjustments at the intersection of Burnhamthorpe Road (Future William Halton Parkway) at Neyagawa Boulevard were implemented to reflect the assumed signal timing in the field.
l) The 2028 future background traffic volumes were analysed. Critical and over-capacity movements were noted. To address over-capacity movements and 95th percentile queues extended beyond provided storage lengths, mitigation measures have been implemented in the form of:
    - A double westbound left-turn lane at the intersection of Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway).
    - An eastbound left-turn protected phase at the intersection of Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway).

- Signal timing cycle length extension to 120 seconds as well as split optimization in both the AM and PM peak periods at the intersection of Neyagawa Boulevard at Burnhamthorpe Road (Future William Halton Parkway).
- The extension of the northbound left-turn storage to 100 metres at the intersection of Willliam Halton Parkway and Burnhamthorpe Road.

m) The 2028 future total traffic volumes were analysed. Critical movements were noted, however no over-capacity movements were identified. As such, no mitigation measures were recommended.

n) The 2033 future background traffic volumes were analysed. Critical movements were noted, however no over-capacity movements were identified. As such, no mitigation measures were recommended.

o) The 2033 future total traffic volumes were analyzed. Critical movements were noted, and over-capacity movements were identified at the intersection of Fourth Line and Burnhamthorpe Road (Future Wiliam Halton Parkway); however no mitigation measures were recommended. As the 2028 future volumes analyzed at this intersection display critical but no over-capacity movements, it can be assumed that any increase and future growth applied to the 2028 future total volumes at this intersection will have to be accommodated by non-auto modes.

The ARGO Neyagawa development will have a minor impact on the Study Area road network with all the recommended network upgrades implemented. The subject site will provide a range of residential and mixed-use built forms that are transit supportive and accessible to the surrounding pedestrian and cycling network. It is therefore recommended that, from a transportation perspective, the proposed development application proceed.

Prepared By:

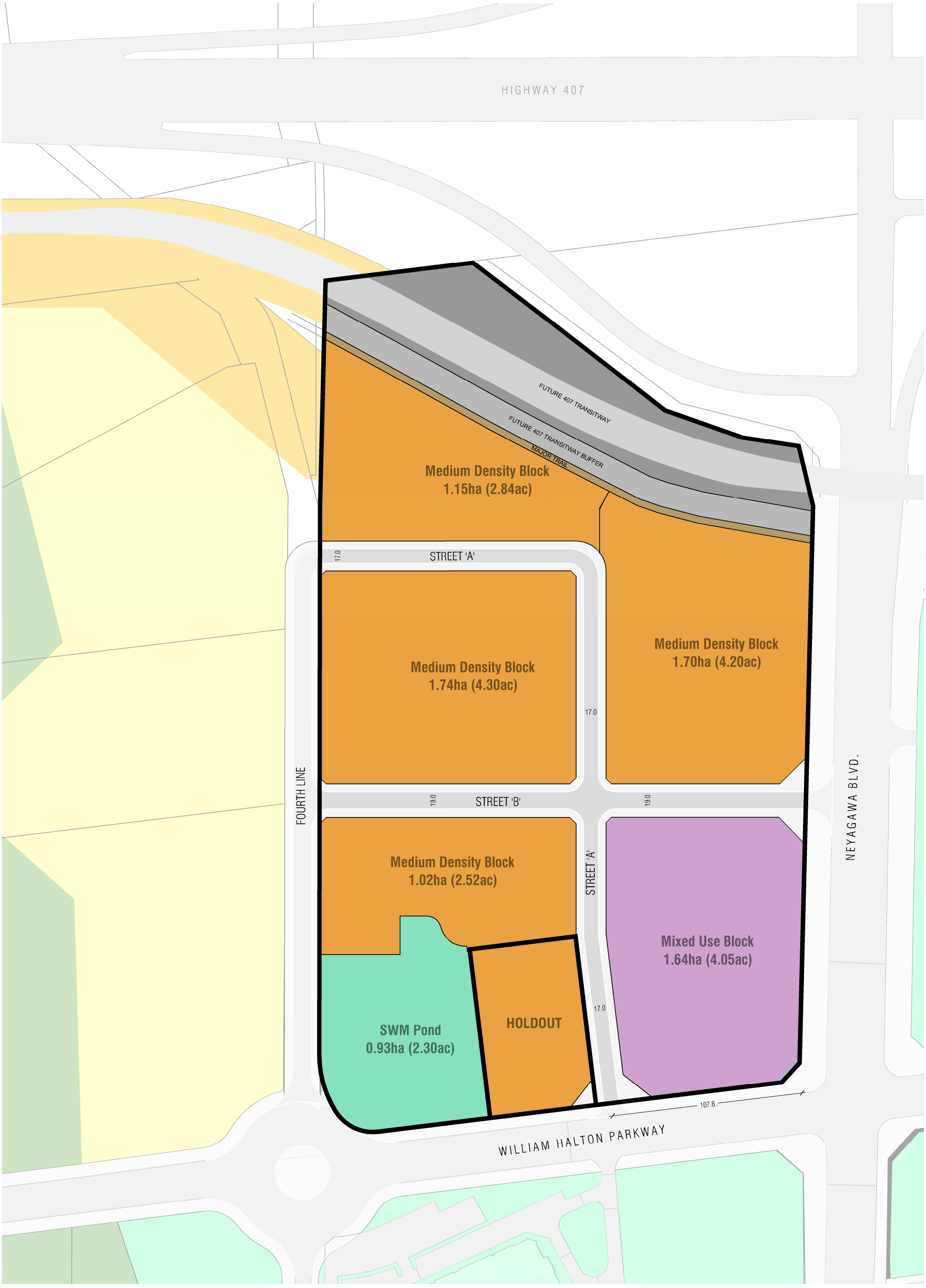
Robin Marinac, P. Eng.
437-242-5183
Robin.Marinac@CGHTransportation.com

Reviewed By:

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

Appendix A

Block Concept Plan



DRAFT

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

GERRARD DESIGN

ARGO NEYAGAWA | Oakville, Ontario

PRELIMINARY BLOCK CONCEPT PLAN

DEC 11, 2023
PROJECT 2142
SCALE 1:2000

CP-41

Appendix B

Scope Confirmation

Technical Memorandum

To:	Syed Rizvi – Town of Oakville Darren Loro– Halton Region	Date:	2023-11-07
Cc:	ARGO Neyagawa Corporation		
From:	Mark Crockford, P. Eng. Robin Marinac, P. Eng.	Project Number:	2023-043

Re: ARGO Neyagawa Oakville Transportation Impact Analysis – Terms of Reference

CGH has been retained to undertake a Transportation Impact Analysis in support of a Draft Plan of Subdivision/Zoning By-law/Official Plan Amendment application for the ARGO Neyagawa property in North Oakville. The subject development is bounded by Highway 407 to the north, Neyagawa Boulevard to the east, Fourth Line to the west, and Burnhamthorpe Road to the south. The proposed development will include mixed-use mid-rise condos consisting of 643 apartment units and 365 townhouse units. The preliminary concept plan is shown in Attachment 1.

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

Transportation Impact Study Requirements (TIS):

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

Study Area:

- An overview of the transportation system existing conditions will be documented (including transit, cycling, pedestrian, and automobile modes).
- A summary of existing transportation planning policies within the Study Area will be identified.
- An overview of the Study Area road network will be provided including the road classification and descriptions of:
    - Neyagawa Boulevard
    - Fourth Line
    - William Halton Parkway
    - Burnhamthorpe Road
    - Highway 407
- The following intersections will be included in the Transportation Impact Study:
    - Neyagawa Boulevard at Burnhamthorpe Road East (Existing)
    - Fourth Line at Burnhamthorpe Road (Existing)
    - Highway 407 Eastbound Off-ramp at Neyagawa Boulevard (Existing)
    - William Halton Parkway at Burnhamthorpe Road East (Existing)
    - Collector road intersection at Neyagawa Boulevard (Future)
    - Collector road intersection at William Halton Parkway (Future)
    - Collector road intersection at Fourth Line (Future)
    - Collector and local road intersection within site (Future)

Analysis Assumptions:

- Horizon years: 2023, 2028 (Buildout), 2033 (+5 years).
- AM and PM peak hours will be analyzed.

Existing Study Area Multimodal Conditions:

- Turning Movement Count data for all Study Area intersections will be collected to determine existing 2023 volumes.
- **Signal Timing Plans will be requested from Halton Region's and the Town of Oakville's traffic signal operations division. These include:**
    - Neyagawa Boulevard at Burnhamthorpe Road East
    - William Halton Parkway at Burnhamthorpe Road East

Planned Transportation Improvements:

- South of the development, the William Halton Parkway extension from Trafalgar Road to Third Line is under construction and will be completed by 2024. It will replace the regional arterial status that is currently held by Burnhamthorpe Road. The Region of Halton has indicated the following volume projections along William Halton Parkway:
    - 2031 PM peak hour volume west of Trafalgar: 2100 (800 east and 1300 west)
- On average, the AM peak hour volumes are equal to 8% of daily traffic, where the PM peak hour volumes are equal to 10% of the daily traffic. Therefore, the PM peak hour volumes projected by Halton Region will be multiplied by a factor of 0.8 to determine the AM Peak hour volumes. Additionally, the PM peak hour volumes direction will be changed to represent the higher traffic flow towards east in the AM peak hour. The resulting AM peak hour volume projections along the William Halton Parkway are listed below:
    - 2031 AM peak hour volume west of Trafalgar: 1680 (1040 east and 640 west)

Background Growth:

- The following background developments will be considered in the study:
    - Sherborne Lodge Development
    - Remington Eno Development
    - Neighbourhood 9,10,11 Development
    - Sixth Oak Inc. School and Employment Lands
    - Star Oak Development
- A background CAGR of 2.0% will be implemented to determine 2028 and 2033 future background volumes where applicable.

Development Site Trip Distribution and Assignment:

- Trip generation: ITE Trip Generation Manual 11th Edition
    - Total person trip generation of the proposed development will be determined using ITE 11th Edition vehicle trip generation. The ITE vehicle trip generation will be treated as the total person trip generation, as majority of ITE studies were collected across United States in 1980s, 1990s, 2000s, the 2010s, and the 2020s. Thus, majority of the ITE data is representative of car-centric environments, where vehicle trips represent total person trips generated by a development. This methodology is consistent with ARGO Trafalgar TIS prepared by CGH in 2023.
    - The projected mode shares will be multiplied by total person trip generation to determine projected trips by each mode, including auto mode.
- Mode Share:
    - Halton's 2011 Transportation Master Plan utilizes a transit mode split of 10% for 2021, 15% for 2026 and 20% for 2031. Transit mode splits will be adjusted from the 2011 TMP assumptions to reasonable

percentages based on current year (2023), 2028, and 2033, planned and proposed mode splits based on existing facilities and service in the area to date (planned and/or proposed). Reasonable assumptions and rationale will be outlined clearly in the Study.

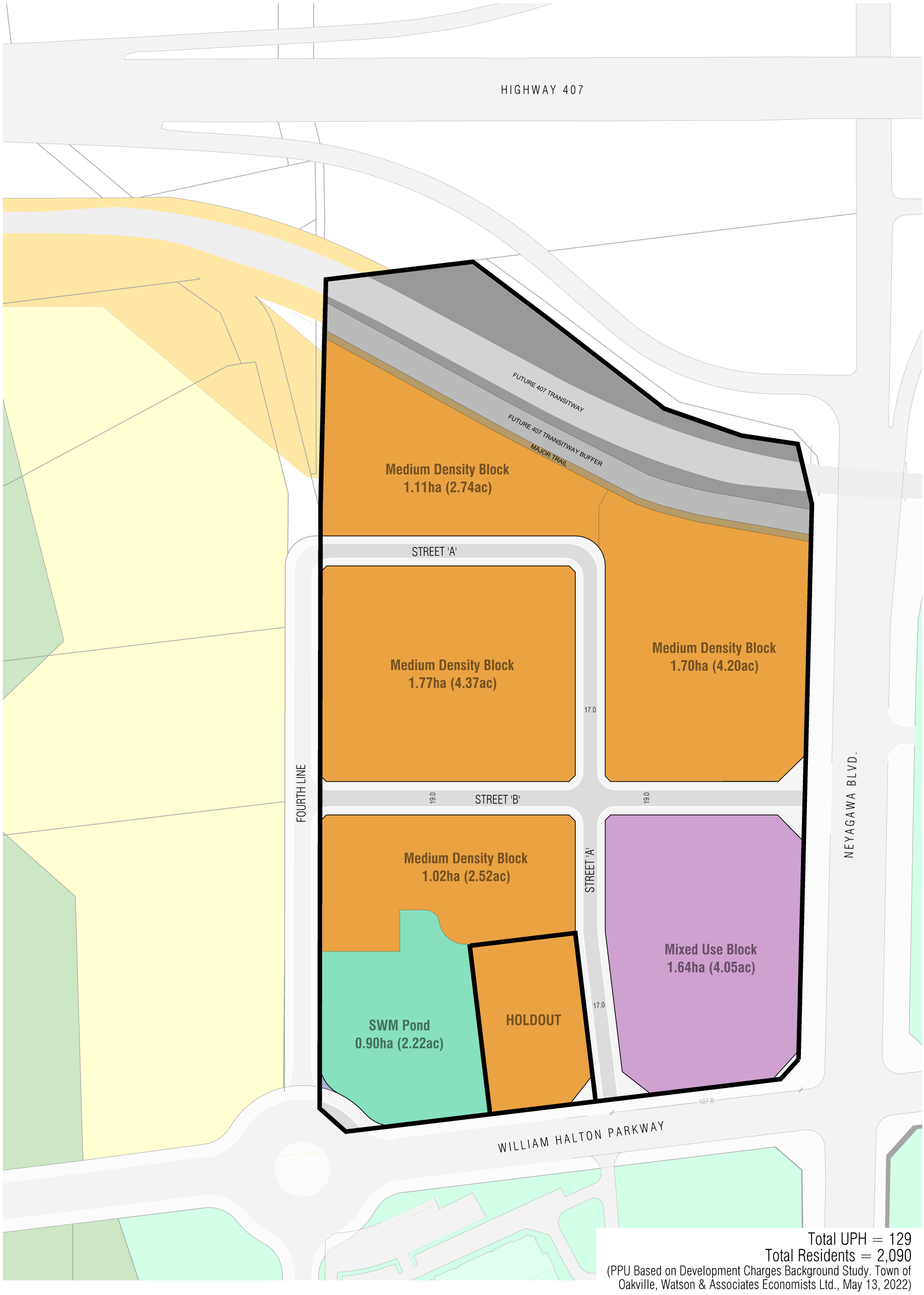
- Trip distribution and assignment: Transportation Tomorrow Survey (TTS), existing traffic routing patterns and access to major transportation infrastructure.

Site Access:

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

The TIS report will include:

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



Total UPH = 129
Total Residents = 2,090
(PPU Based on Development Charges Background Study. Town of Oakville, Watson & Associates Economists Ltd., May 13, 2022)

DRAFT

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

GERRARD DESIGN

ARGO NEYAGAWA | Oakville, Ontario

PRELIMINARY BLOCK CONCEPT PLAN

NOV 6, 2023
PROJECT 2142
SCALE 1:2000

CP-39

Robin Marinac

From: Khan, Ayesha <Ayesha.Khan@halton.ca>
Sent: November 10, 2023 3:12 PM
To: Robin Marinac
Subject: RE: ARGO Neyagawa - Terms of Reference Submission

Hello Robin,

Thank you for circulating the terms of reference for our review, please see our comments below:

Development Proposal
Mixed-use mid-rise condos consisting of 643 apartment units and 365 townhouse units.

Study Area

- Neyagawa Boulevard at Burnhamthorpe Road East (Existing)
- Fourth Line at Burnhamthorpe Road (Existing)
- Highway 407 Eastbound Off-ramp at Neyagawa Boulevard (Existing)
- William Halton Parkway at Burnhamthorpe Road East (Existing)
- Collector road intersection at Neyagawa Boulevard (Future)
- Collector road intersection at William Halton Parkway (Future)
- Collector road intersection at Fourth Line (Future)
- Collector and local road intersection within site (Future)

The above is acceptable.

Horizon Year

- 2023, 2028 (Buildout), 2033 (+5 years).
- AM and PM peak hours will be analyzed

The above is acceptable.

Planned Improvements/Mode Share/Trip Gen. methodology – acceptable.

Background Developments
Town staff will approve all background developments to consider as part of the study.

Access, TIS Guidelines:
The Study must be in accordance to Halton Region's Transportation Impact Study Guidelines (2015).

Access to a Regional road must comply with the Region's By-law No. 32-17, a By-law to prohibit, restrict and regulate access to the Regional road system and the Region's Access Management Guideline (2015). The Region has established minimum spacing requirements with the primary intent of prioritizing mobility and safety along Regional arterial corridors, as accesses (even right-in/right-out accesses) are considered to be a conflict point for traffic along a corridor.

Traffic Data
Traffic data requests (traffic signal timing, turning movement counts) can be obtained from Halton's Road Operations group via request through accesshalton@halton.ca

All plan and study submission should only be directed to the Planners on the file for Halton Region and the Town of Oakville.

The above is also subject to the review and approval by the Town of Oakville.

Thanks,
Ayesha

Ayesha Khan
Transportation Planning Coordination PM1
Infrastructure Planning & Policy
Public Works
Halton Region
905-825-6000, ext. | 1-866-442-5866

From: Robin Marinac <robin.marinac@cghtransportation.com>
Sent: Tuesday, November 7, 2023 6:35 PM
To: Syed Rizvi <syed.rizvi@oakville.ca>; Loro, Darren <Darren.Loro@halton.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Jade Huangfu <jade.huangfu@cghtransportation.com>
Subject: ARGO Neyagawa - Terms of Reference Submission

Hi Syed and Darren,

Please see the attached Terms of Reference Scoping Document for the ARGO Neyagawa site on the northwest corner of Willam Halton Parkway/Burnhamthorpe Road and Neyagawa. Please let me know if you have any questions or comments as part of your review.

Kind regards,
Robin Marinac

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

Appendix C

Turning Movement Count Data

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Project #23-363 - CGH Transportation

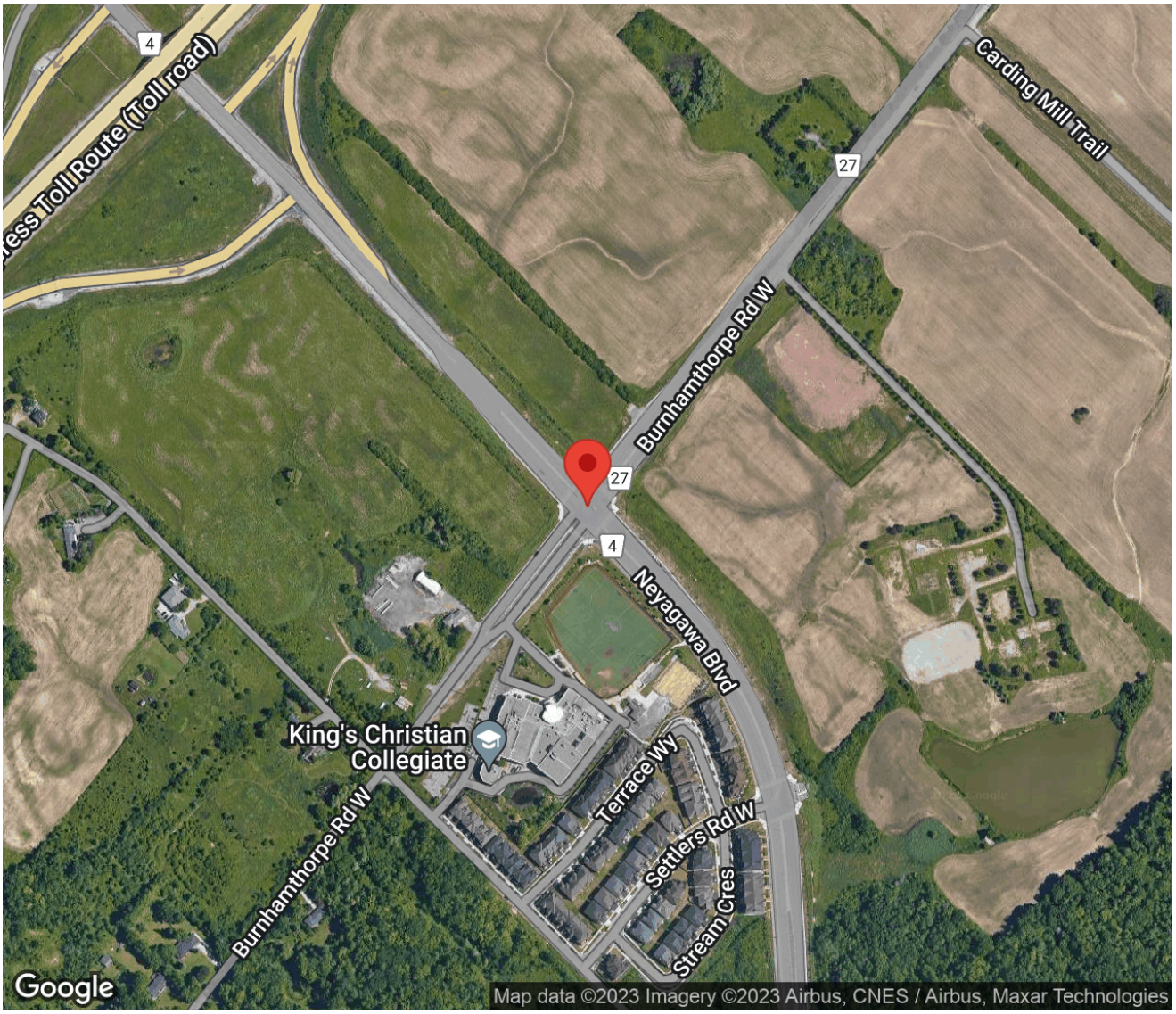
Intersection Count Report

Intersection:	Neyagawa Blvd & Burnhamthorpe Rd W - William Halton Pkwy
Municipality:	Oakville
Count Date:	Tuesday, Nov 07, 2023
Site Code:	2336300001
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-10:00, 16:00-19:00
Weather:	Clear
Comments:	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Map

Intersection:	Neyagawa Blvd & Burnhamthorpe Rd W - William Halton Pkwy
Site Code:	2336300001
Municipality:	Oakville
Count Date:	Nov 07, 2023



Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Neyagawa Blvd & Burnhamthorpe Rd W - William Halton Pkwy
Site Code:	2336300001
Municipality:	Oakville
Count Date:	Nov 07, 2023

Neyagawa Blvd - 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	24	105	7	0	136	0	12	236	329	1	578	0	714
08:00 - 09:00	8	124	38	0	170	0	83	308	319	0	710	1	880
09:00 - 10:00	13	93	3	0	109	0	17	166	168	0	351	1	460
BREAK													
16:00 - 17:00	8	212	5	0	225	0	29	188	268	0	485	2	710
17:00 - 18:00	15	259	12	1	287	0	45	200	273	0	518	0	805
18:00 - 19:00	9	155	3	0	167	0	65	105	209	0	379	0	546
GRAND TOTAL	**77**	**948**	**68**	**1**	**1094**	**0**	**251**	**1203**	**1566**	**1**	**3021**	**4**	**4115**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Neyagawa Blvd & Burnhamthorpe Rd W - William Halton Pkwy
Site Code:	2336300001
Municipality:	Oakville
Count Date:	Nov 07, 2023

William Halton Pkwy - 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	256	10	5	0	271	0	5	5	15	0	25	0	296
08:00 - 09:00	373	110	8	1	492	0	22	67	169	0	258	0	750
09:00 - 10:00	188	18	9	0	215	0	5	15	30	1	51	0	266
BREAK													
16:00 - 17:00	400	31	27	0	458	0	11	23	47	0	81	1	539
17:00 - 18:00	432	38	24	2	496	0	11	24	66	1	102	0	598
18:00 - 19:00	218	46	7	2	273	0	3	29	59	2	93	0	366
GRAND TOTAL	**1867**	**253**	**80**	**5**	**2205**	**0**	**57**	**163**	**386**	**4**	**610**	**1**	**2815**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Neyagawa Blvd & Burnhamthorpe Rd W - William Halton Pkwy
Site Code: 2336300001
Municipality: Oakville
Count Date: Nov 07, 2023

North Approach - Neyagawa Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	5	18	0	0	23	2	0	0	0	2	0	0	0	0	0	0
07:15	3	23	4	0	30	0	1	0	0	1	0	0	0	0	0	0
07:30	7	25	1	0	33	1	5	0	0	6	0	0	0	0	0	0
07:45	6	31	2	0	39	0	2	0	0	2	0	0	0	0	0	0
08:00	2	35	5	0	42	0	2	0	0	2	0	0	0	0	0	0
08:15	3	34	10	0	47	0	0	0	0	0	0	0	0	0	0	0
08:30	0	26	21	0	47	0	1	0	0	1	0	0	0	0	0	0
08:45	3	25	2	0	30	0	1	0	0	1	0	0	0	0	0	0
09:00	4	25	1	0	30	0	3	0	0	3	0	0	0	0	0	0
09:15	2	18	0	0	20	0	0	0	0	0	0	0	0	0	0	0
09:30	5	22	2	0	29	0	0	0	0	0	0	0	0	0	0	0
09:45	1	24	0	0	25	1	1	0	0	2	0	0	0	0	0	0
SUBTOTAL	41	306	48	0	395	4	16	0	0	20	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Neyagawa Blvd & Burnhamthorpe Rd W - William Halton Pkwy
Site Code: 2336300001
Municipality: Oakville
Count Date: Nov 07, 2023

North Approach - Neyagawa Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	
16:00	2	58	2	0	62	0	0	0	0	0	0	0	0	0	0	0
16:15	1	43	1	0	45	1	0	0	0	1	0	0	0	0	0	0
16:30	1	53	0	0	54	0	1	0	0	1	0	0	0	0	0	0
16:45	3	57	2	0	62	0	0	0	0	0	0	0	0	0	0	0
17:00	2	69	1	1	73	0	0	0	0	0	0	0	0	0	0	0
17:15	3	66	4	0	73	0	0	0	0	0	0	0	0	0	0	0
17:30	6	59	1	0	66	0	1	0	0	1	0	0	0	0	0	0
17:45	4	64	6	0	74	0	0	0	0	0	0	0	0	0	0	0
18:00	3	44	2	0	49	1	0	0	0	1	0	0	0	0	0	0
18:15	2	40	0	0	42	0	0	0	0	0	0	0	0	0	0	0
18:30	2	52	1	0	55	0	0	0	0	0	0	0	0	0	0	0
18:45	1	19	0	0	20	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	30	624	20	1	675	2	2	0	0	4	0	0	0	0	0	0
GRAND TOTAL	71	930	68	1	1070	6	18	0	0	24	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Neyagawa Blvd & Burnhamthorpe Rd W - William Halton Pkwy
Site Code: 2336300001
Municipality: Oakville
Count Date: Nov 07, 2023

South Approach - Neyagawa Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	1	35	67	0	103	1	0	1	0	2	0	0	0	0	0	0
07:15	0	63	85	0	148	0	1	0	0	1	0	0	0	0	0	0
07:30	4	69	91	1	165	1	2	1	0	4	0	0	0	0	0	0
07:45	5	66	84	0	155	0	0	0	0	0	0	0	0	0	0	0
08:00	15	91	97	0	203	0	0	0	0	0	0	0	0	0	0	1
08:15	17	71	79	0	167	3	1	1	0	5	0	0	0	0	0	0
08:30	41	84	79	0	204	3	0	1	0	4	0	0	0	0	0	0
08:45	4	61	61	0	126	0	0	1	0	1	0	0	0	0	0	0
09:00	2	62	45	0	109	0	1	0	0	1	0	0	0	0	0	0
09:15	5	48	38	0	91	0	1	5	0	6	0	0	0	0	0	0
09:30	4	24	42	0	70	1	3	1	0	5	0	0	0	0	0	0
09:45	5	27	36	0	68	0	0	1	0	1	0	0	0	0	0	1
SUBTOTAL	103	701	804	1	1609	9	9	12	0	30	0	0	0	0	0	2

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Neyagawa Blvd & Burnhamthorpe Rd W - William Halton Pkwy
Site Code: 2336300001
Municipality: Oakville
Count Date: Nov 07, 2023

South Approach - Neyagawa Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	4	49	64	0	117	0	0	2	0	2	0	0	0	0	0	0
16:15	3	42	66	0	111	0	2	4	0	6	0	0	0	0	0	0
16:30	7	50	60	0	117	1	2	1	0	4	0	0	0	0	0	0
16:45	14	43	70	0	127	0	0	1	0	1	0	0	0	0	0	2
17:00	13	69	72	0	154	0	2	1	0	3	0	0	0	0	0	0
17:15	12	48	69	0	129	1	0	0	0	1	0	0	0	0	0	0
17:30	9	52	71	0	132	0	1	0	0	1	0	0	0	0	0	0
17:45	10	26	60	0	96	0	2	0	0	2	0	0	0	0	0	0
18:00	5	39	57	0	101	0	1	0	0	1	0	0	0	0	0	0
18:15	14	28	61	0	103	1	0	1	0	2	0	0	0	0	0	0
18:30	15	22	42	0	79	1	0	1	0	2	0	0	0	0	0	0
18:45	29	15	47	0	91	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	135	483	739	0	1357	4	10	11	0	25	0	0	0	0	0	2
GRAND TOTAL	**238**	**1184**	**1543**	**1**	**2966**	**13**	**19**	**23**	**0**	**55**	**0**	**0**	**0**	**0**	**0**	**4**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Neyagawa Blvd & Burnhamthorpe Rd W - William Halton Pkwy
Site Code: 2336300001
Municipality: Oakville
Count Date: Nov 07, 2023

East Approach - William Halton Pkwy

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	
07:00	39	0	0	0	39	2	0	0	0	2	0	0	0	0	0	0
07:15	49	2	1	0	52	0	0	0	0	0	0	0	0	0	0	0
07:30	63	1	3	0	67	0	1	0	0	1	0	0	0	0	0	0
07:45	95	6	1	0	102	8	0	0	0	8	0	0	0	0	0	0
08:00	73	15	5	0	93	9	3	0	0	12	1	0	0	0	1	0
08:15	77	34	0	0	111	7	3	0	0	10	0	0	0	0	0	0
08:30	89	44	2	1	136	6	0	0	0	6	0	0	0	0	0	0
08:45	99	10	1	0	110	12	1	0	0	13	0	0	0	0	0	0
09:00	45	5	2	0	52	1	0	0	0	1	0	0	0	0	0	0
09:15	43	4	2	0	49	2	0	0	0	2	0	0	0	0	0	0
09:30	51	4	2	0	57	2	1	0	0	3	0	0	0	0	0	0
09:45	43	4	2	0	49	1	0	1	0	2	0	0	0	0	0	0
SUBTOTAL	766	129	21	1	917	50	9	1	0	60	1	0	0	0	1	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Neyagawa Blvd & Burnhamthorpe Rd W - William Halton Pkwy
Site Code: 2336300001
Municipality: Oakville
Count Date: Nov 07, 2023

East Approach - William Halton Pkwy

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	
16:00	94	9	8	0	111	2	0	0	0	2	0	0	0	0	0	0
16:15	88	5	5	0	98	1	0	0	0	1	0	0	0	0	0	0
16:30	108	6	3	0	117	0	0	2	0	2	0	0	0	0	0	0
16:45	105	11	9	0	125	2	0	0	0	2	0	0	0	0	0	0
17:00	112	8	5	1	126	1	0	0	0	1	0	0	0	0	0	0
17:15	112	6	6	0	124	1	0	1	0	2	0	0	0	0	0	0
17:30	99	8	8	0	115	1	0	0	0	1	0	0	0	0	0	0
17:45	105	16	4	1	126	1	0	0	0	1	0	0	0	0	0	0
18:00	60	7	2	0	69	1	0	0	0	1	0	0	0	0	0	0
18:15	60	15	4	2	81	0	0	0	0	0	0	0	0	0	0	0
18:30	62	9	0	0	71	0	0	0	0	0	0	0	0	0	0	0
18:45	35	15	1	0	51	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	1040	115	55	4	1214	10	0	3	0	13	0	0	0	0	0	0
GRAND TOTAL	1806	244	76	5	2131	60	9	4	0	73	1	0	0	0	1	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Neyagawa Blvd & Burnhamthorpe Rd W - William Halton Pkwy
Site Code: 2336300001
Municipality: Oakville
Count Date: Nov 07, 2023

West Approach - Burnhamthorpe Rd W

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
07:00	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
07:15	1	2	4	0	7	0	0	2	0	2	0	0	0	0	0	0
07:30	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0
07:45	4	2	6	0	12	0	0	1	0	1	0	0	0	0	0	0
08:00	2	2	16	0	20	0	1	0	0	1	0	0	0	0	0	0
08:15	7	18	46	0	71	0	3	7	0	10	0	0	0	0	0	0
08:30	13	37	80	0	130	0	1	4	0	5	0	0	0	0	0	0
08:45	0	5	14	0	19	0	0	2	0	2	0	0	0	0	0	0
09:00	2	5	9	1	17	0	1	1	0	2	0	0	0	0	0	0
09:15	1	4	2	0	7	0	0	0	0	0	0	0	0	0	0	0
09:30	2	4	11	0	17	0	0	0	0	0	0	0	0	0	0	0
09:45	0	1	7	0	8	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	32	81	196	1	310	0	6	18	0	24	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Neyagawa Blvd & Burnhamthorpe Rd W - William Halton Pkwy
Site Code: 2336300001
Municipality: Oakville
Count Date: Nov 07, 2023

West Approach - Burnhamthorpe Rd W

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	6	9	11	0	26	0	0	0	0	0	0	0	0	0	0	0
16:15	0	5	7	0	12	0	0	2	0	2	0	0	0	0	0	1
16:30	2	7	14	0	23	0	0	0	0	0	0	0	0	0	0	0
16:45	3	2	13	0	18	0	0	0	0	0	0	0	0	0	0	0
17:00	9	12	29	0	50	0	0	0	0	0	0	0	0	0	0	0
17:15	1	4	13	0	18	0	0	0	0	0	0	0	0	0	0	0
17:30	1	5	11	1	18	0	1	0	0	1	0	0	0	0	0	0
17:45	0	2	13	0	15	0	0	0	0	0	0	0	0	0	0	0
18:00	1	4	3	0	8	0	0	0	0	0	0	0	0	0	0	0
18:15	0	6	12	0	18	0	1	0	0	1	0	0	0	0	0	0
18:30	1	14	14	1	30	0	0	0	0	0	0	0	0	0	0	0
18:45	1	4	30	1	36	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	25	74	170	3	272	0	2	2	0	4	0	0	0	0	0	1
GRAND TOTAL	**57**	**155**	**366**	**4**	**582**	**0**	**8**	**20**	**0**	**28**	**0**	**0**	**0**	**0**	**0**	**1**

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: Neyagawa Blvd & Burnhamthorpe Rd W - William Halton Pkwy
Site Code: 2336300001
Count Date: Nov 07, 2023

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Neyagawa Blvd runs N/S

North Approach

	Out	In	Total
Cars	175	346	521
Trucks	5	1	6
Bicycles	0	0	0
	180	**347**	**527**

Neyagawa Blvd

Bicycles	0	0	0	0
Trucks	0	5	0	0
Cars	38	126	11	0
Totals	**38**	**131**	**11**	**0**

Peds: 0

East Approach

	Out	In	Total
Cars	442	410	852
Trucks	36	7	43
Bicycles	1	0	1
	479	**417**	**896**

Burnhamthorpe Rd W

Bicycles	Trucks	Cars	Totals	
0	0	0	**0**	
0	0	26	**26**	
0	5	59	**64**	
0	12	148	**160**	

Peds: 0

Peds: 0

William Halton Pkwy

	Totals	Cars	Trucks	Bicycles
	1	1	0	0
	8	8	0	0
	105	99	6	0
	365	334	30	1

Peds: 1

West Approach

	Out	In	Total
Cars	233	215	448
Trucks	17	12	29
Bicycles	0	0	0
	250	**227**	**477**

Totals	**84**	**313**	**341**	**0**
Cars	78	312	339	0
Trucks	6	1	2	0
Bicycles	0	0	0	0

Neyagawa Blvd

South Approach

	Out	In	Total
Cars	729	608	1337
Trucks	9	47	56
Bicycles	0	1	1
	738	**656**	**1394**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Neyagawa Blvd & Burnhamthorpe Rd W - William Halton Pkwy
Site Code: 2336300001
Count Date: Nov 07, 2023
Period: 07:00 - 10:00

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

Start Time	North Approach Neyagawa Blvd						South Approach Neyagawa Blvd						East Approach William Halton Pkwy						West Approach Burnhamthorpe Rd W						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
07:45	6	33	2	0	0	41	5	66	84	0	0	155	103	6	1	0	0	110	4	2	7	0	0	13	319
08:00	2	37	5	0	0	44	15	91	97	0	1	203	83	18	5	0	0	106	2	3	16	0	0	21	374
08:15	3	34	10	0	0	47	20	72	80	0	0	172	84	37	0	0	0	121	7	21	53	0	0	81	421
08:30	0	27	21	0	0	48	44	84	80	0	0	208	95	44	2	1	0	142	13	38	84	0	0	135	533
Grand Total	**11**	**131**	**38**	**0**	**0**	**180**	**84**	**313**	**341**	**0**	**1**	**738**	**365**	**105**	**8**	**1**	**0**	**479**	**26**	**64**	**160**	**0**	**0**	**250**	**1647**
Approach %	6.1	72.8	21.1	0		-	11.4	42.4	46.2	0		-	76.2	21.9	1.7	0.2		-	10.4	25.6	64	0		-	
Totals %	0.7	8	2.3	0		10.9	5.1	19	20.7	0		44.8	22.2	6.4	0.5	0.1		29.1	1.6	3.9	9.7	0		15.2	
PHF	**0.46**	**0.89**	**0.45**	**0**		**0.94**	**0.48**	**0.86**	**0.88**	**0**		**0.89**	**0.89**	**0.6**	**0.4**	**0.25**		**0.84**	**0.5**	**0.42**	**0.48**	**0**		**0.46**	**0.77**
Cars	11	126	38	0		175	78	312	339	0		729	334	99	8	1		442	26	59	148	0		233	1579
% Cars	100	96.2	100	0		97.2	92.9	99.7	99.4	0		98.8	91.5	94.3	100	100		92.3	100	92.2	92.5	0		93.2	95.9
Trucks	0	5	0	0		5	6	1	2	0		9	30	6	0	0		36	0	5	12	0		17	67
% Trucks	0	3.8	0	0		2.8	7.1	0.3	0.6	0		1.2	8.2	5.7	0	0		7.5	0	7.8	7.5	0		6.8	4.1
Bicycles	0	0	0	0		0	0	0	0	0		0	1	0	0	0		1	0	0	0	0		0	1
% Bicycles	0	0	0	0		0	0	0	0	0		0	0.3	0	0	0		0.2	0	0	0	0		0	0.1
Peds					0	-					1	-					0	-					0	-	1
% Peds					0	-					100	-					0	-					0	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	16:00:00	From:	16:45:00
To:	19:00:00	To:	17:45:00

Intersection: Neyagawa Blvd & Burnhamthorpe Rd W - William Halton Pkwy
Site Code: 2336300001
Count Date: Nov 07, 2023

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Neyagawa Blvd runs N/S

North Approach

	Out	In	Total
Cars	274	255	529
Trucks	1	4	5
Bicycles	0	0	0
	275	**259**	**534**

Neyagawa Blvd

Bicycles	0	0	0	0
Trucks	0	1	0	0
Cars	8	251	14	1
Totals	**8**	**252**	**14**	**1**

Peds: 0

East Approach

	Out	In	Total
Cars	490	320	810
Trucks	6	3	9
Bicycles	0	0	0
	496	**323**	**819**

Burnhamthorpe Rd W

Bicycles	Trucks	Cars	Totals	
0	0	1	**1**	
0	0	14	**14**	
0	1	23	**24**	
0	0	66	**66**	

Peds: 0

Peds: 0

William Halton Pkwy

Totals	Cars	Trucks	Bicycles
1	1	0	0
29	28	1	0
33	33	0	0
433	428	5	0

Peds: 2

West Approach

	Out	In	Total
Cars	104	90	194
Trucks	1	1	2
Bicycles	0	0	0
	105	**91**	**196**

Totals	**49**	**215**	**284**	**0**
Cars	48	212	282	0
Trucks	1	3	2	0
Bicycles	0	0	0	0

Neyagawa Blvd

South Approach

	Out	In	Total
Cars	542	745	1287
Trucks	6	6	12
Bicycles	0	0	0
	548	**751**	**1299**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Neyagawa Blvd & Burnhamthorpe Rd W - William Halton Pkwy
Site Code: 2336300001
Count Date: Nov 07, 2023
Period: 16:00 - 19:00

Peak Hour Data (16:45 - 17:45)

Start Time	North Approach Neyagawa Blvd						South Approach Neyagawa Blvd						East Approach William Halton Pkwy						West Approach Burnhamthorpe Rd W						Total Vehicles
	↰	↑	↱	↶	Peds	Total	↰	↑	↱	↶	Peds	Total	↰	↑	↱	↶	Peds	Total	↰	↑	↱	↶	Peds	Total	
16:45	3	57	2	0	0	62	14	43	71	0	2	128	107	11	9	0	0	127	3	2	13	0	0	18	335
17:00	2	69	1	1	0	73	13	71	73	0	0	157	113	8	5	1	0	127	9	12	29	0	0	50	407
17:15	3	66	4	0	0	73	13	48	69	0	0	130	113	6	7	0	0	126	1	4	13	0	0	18	347
17:30	6	60	1	0	0	67	9	53	71	0	0	133	100	8	8	0	0	116	1	6	11	1	0	19	335
Grand Total	**14**	**252**	**8**	**1**	**0**	**275**	**49**	**215**	**284**	**0**	**2**	**548**	**433**	**33**	**29**	**1**	**0**	**496**	**14**	**24**	**66**	**1**	**0**	**105**	**1424**
Approach %	5.1	91.6	2.9	0.4		-	8.9	39.2	51.8	0		-	87.3	6.7	5.8	0.2		-	13.3	22.9	62.9	1		-	
Totals %	1	17.7	0.6	0.1		19.3	3.4	15.1	19.9	0		38.5	30.4	2.3	2	0.1		34.8	1	1.7	4.6	0.1		7.4	
PHF	**0.58**	**0.91**	**0.5**	**0.25**		**0.94**	**0.88**	**0.76**	**0.97**	**0**		**0.87**	**0.96**	**0.75**	**0.81**	**0.25**		**0.98**	**0.39**	**0.5**	**0.57**	**0.25**		**0.53**	**0.87**
Cars	14	251	8	1		274	48	212	282	0		542	428	33	28	1		490	14	23	66	1		104	1410
% Cars	100	99.6	100	100		99.6	98	98.6	99.3	0		98.9	98.8	100	96.6	100		98.8	100	95.8	100	100		99	99
Trucks	0	1	0	0		1	1	3	2	0		6	5	0	1	0		6	0	1	0	0		1	14
% Trucks	0	0.4	0	0		0.4	2	1.4	0.7	0		1.1	1.2	0	3.4	0		1.2	0	4.2	0	0		1	1
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					0	-					2	-					0	-					0	-	2
% Peds					0	-					100	-					0	-					0	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Project #23-363 - CGH Transportation

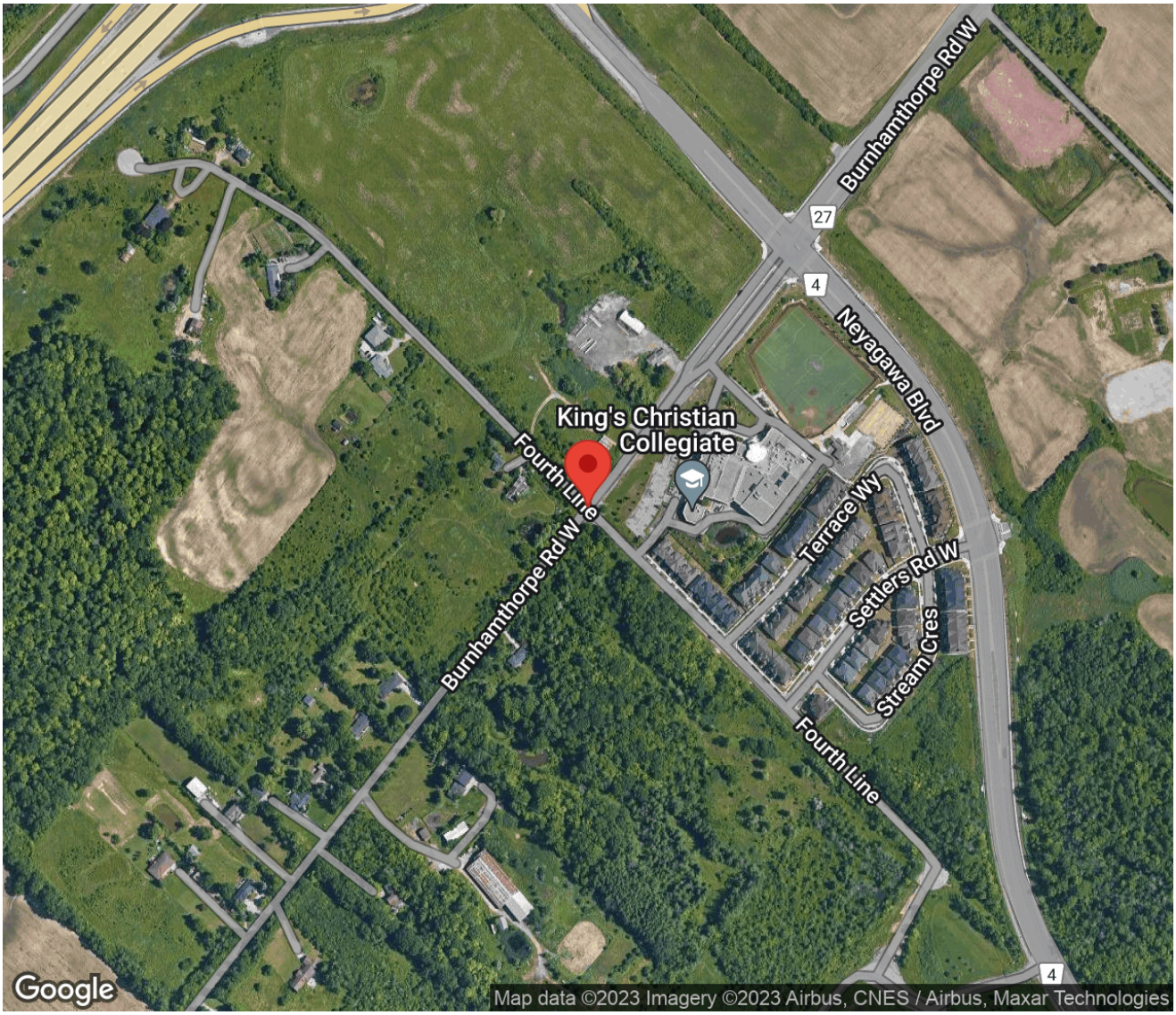
Intersection Count Report

Intersection:	Fourth Line & Burnhamthorpe Rd W
Municipality:	Oakville
Count Date:	Tuesday, Nov 07, 2023
Site Code:	2336300002
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-10:00, 16:00-19:00
Weather:	Clear
Comments:	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Map

Intersection:	Fourth Line & Burnhamthorpe Rd W
Site Code:	2336300002
Municipality:	Oakville
Count Date:	Nov 07, 2023



Ontario Traffic Inc.
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Traffic Count Summary

Intersection: Fourth Line & Burnhamthorpe Rd W
Site Code: 2336300002
Municipality: Oakville
Count Date: Nov 07, 2023

Fourth 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	2	0	0	0	2	0	0	0	8	0	8	0	10
08:00 - 09:00	3	0	0	0	3	0	0	0	10	0	10	0	13
09:00 - 10:00	3	1	0	0	4	0	0	0	7	0	7	0	11
BREAK													
16:00 - 17:00	1	1	0	0	2	0	0	0	8	0	8	3	10
17:00 - 18:00	13	0	2	0	15	0	0	0	10	1	11	4	26
18:00 - 19:00	4	0	0	0	4	0	0	0	9	0	9	0	13
GRAND TOTAL	**26**	**2**	**2**	**0**	**30**	**0**	**0**	**0**	**52**	**1**	**53**	**7**	**83**

Ontario Traffic Inc.
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Traffic Count Summary

Intersection: Fourth Line & Burnhamthorpe Rd W
Site Code: 2336300002
Municipality: Oakville
Count Date: Nov 07, 2023

Burnhamthorpe Rd W - 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	9	22	3	0	34	0	0	19	0	0	19	0	53
08:00 - 09:00	161	20	2	0	183	0	0	19	0	0	19	2	202
09:00 - 10:00	14	22	2	0	38	0	0	25	0	0	25	0	63
BREAK													
16:00 - 17:00	44	11	5	2	62	2	0	16	0	0	16	2	78
17:00 - 18:00	42	10	4	1	57	2	0	4	0	0	4	5	61
18:00 - 19:00	43	2	5	1	51	0	3	10	0	0	13	0	64
GRAND TOTAL	**313**	**87**	**21**	**4**	**425**	**4**	**3**	**93**	**0**	**0**	**96**	**9**	**521**

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Fourth Line & Burnhamthorpe Rd W
Site Code: 2336300002
Municipality: Oakville
Count Date: Nov 07, 2023

North Approach - Fourth Line

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
07:45	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
08:00	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
08:45	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
09:00	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
09:15	2	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0
09:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	8	1	0	0	9	0	0	0	0	0	0	0	0	0	0	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Fourth Line & Burnhamthorpe Rd W
Site Code: 2336300002
Municipality: Oakville
Count Date: Nov 07, 2023

North Approach - Fourth Line

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	
16:00	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
17:00	1	0	0	0	1	2	0	1	0	3	0	0	0	0	0	0
17:15	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0
17:30	1	0	0	0	1	5	0	0	0	5	0	0	0	0	0	0
17:45	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0
18:00	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
18:15	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
18:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:45	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	8	1	1	0	10	10	0	1	0	11	0	0	0	0	0	0
GRAND TOTAL	16	2	1	0	19	10	0	1	0	11	0	0	0	0	0	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Fourth Line & Burnhamthorpe Rd W
Site Code: 2336300002
Municipality: Oakville
Count Date: Nov 07, 2023

South Approach - Fourth Line

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	4	0	4	0	0	1	0	1	0	0	0	0	0	0
08:45	0	0	2	0	2	0	0	2	0	2	0	0	0	0	0	0
09:00	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0
09:15	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
09:30	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
09:45	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	21	0	21	0	0	4	0	4	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Fourth Line & Burnhamthorpe Rd W
Site Code: 2336300002
Municipality: Oakville
Count Date: Nov 07, 2023

South Approach - Fourth Line

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
16:15	0	0	1	0	1	0	0	2	0	2	0	0	0	0	0	1
16:30	0	0	3	0	3	0	0	1	0	1	0	0	0	0	0	0
16:45	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	1
17:30	0	0	7	0	7	0	0	0	0	0	0	0	0	0	0	2
17:45	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	1
18:00	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
18:15	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0
18:30	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0
18:45	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	24	1	25	0	0	3	0	3	0	0	0	0	0	7
GRAND TOTAL	0	0	45	1	46	0	0	7	0	7	0	0	0	0	0	7

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Fourth Line & Burnhamthorpe Rd W
Site Code: 2336300002
Municipality: Oakville
Count Date: Nov 07, 2023

East Approach - Burnhamthorpe Rd W

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
07:00	0	2	0	0	2	0	2	0	0	2	0	0	0	0	0	0
07:15	0	0	2	0	2	1	2	0	0	3	0	0	0	0	0	0
07:30	3	2	0	0	5	1	4	0	0	5	0	0	0	0	0	0
07:45	4	7	1	0	12	0	3	0	0	3	0	0	0	0	0	0
08:00	18	2	0	0	20	1	4	0	0	5	0	0	0	0	0	0
08:15	46	1	0	0	47	8	1	0	0	9	0	0	0	0	0	0
08:30	78	4	1	0	83	1	1	0	0	2	0	0	0	0	0	0
08:45	9	5	1	0	15	0	2	0	0	2	0	0	0	0	0	0
09:00	1	4	0	0	5	0	1	0	0	1	0	0	0	0	0	0
09:15	2	1	2	0	5	0	2	0	0	2	0	0	0	0	0	0
09:30	2	8	0	0	10	0	1	0	0	1	0	0	0	0	0	0
09:45	9	1	0	0	10	0	4	0	0	4	0	0	0	0	0	0
SUBTOTAL	172	37	7	0	216	12	27	0	0	39	0	0	0	0	0	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Fourth Line & Burnhamthorpe Rd W
Site Code: 2336300002
Municipality: Oakville
Count Date: Nov 07, 2023

East Approach - Burnhamthorpe Rd W

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	
16:00	11	3	1	0	15	0	0	0	0	0	0	0	0	0	0	0
16:15	7	3	0	1	11	0	0	1	0	1	0	0	0	0	0	0
16:30	10	2	0	0	12	1	0	0	0	1	0	0	0	0	0	0
16:45	14	3	1	1	19	1	0	2	0	3	0	0	0	0	0	2
17:00	10	2	0	0	12	0	1	0	0	1	0	0	0	0	0	2
17:15	18	3	1	0	22	0	0	2	0	2	0	0	0	0	0	0
17:30	5	0	0	1	6	0	1	1	0	2	0	0	0	0	0	0
17:45	9	1	0	0	10	0	2	0	0	2	0	0	0	0	0	0
18:00	9	1	2	0	12	1	1	0	0	2	0	0	0	0	0	0
18:15	15	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0
18:30	14	0	2	0	16	0	0	0	0	0	0	0	0	0	0	0
18:45	4	0	1	1	6	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	126	18	8	4	156	3	5	6	0	14	0	0	0	0	0	4
GRAND TOTAL	**298**	**55**	**15**	**4**	**372**	**15**	**32**	**6**	**0**	**53**	**0**	**0**	**0**	**0**	**0**	**4**

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Fourth Line & Burnhamthorpe Rd W
Site Code: 2336300002
Municipality: Oakville
Count Date: Nov 07, 2023

West Approach - Burnhamthorpe Rd W

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
07:00	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
07:30	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	0
07:45	0	7	0	0	7	0	1	0	0	1	0	0	0	0	0	0
08:00	0	2	0	0	2	0	4	0	0	4	0	0	0	0	0	0
08:15	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0
08:30	0	6	0	0	6	0	2	0	0	2	0	0	0	0	0	1
08:45	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	1
09:00	0	3	0	0	3	0	2	0	0	2	0	0	0	0	0	0
09:15	0	5	0	0	5	0	3	0	0	3	0	0	0	0	0	0
09:30	0	5	0	0	5	0	1	0	0	1	0	0	0	0	0	0
09:45	0	2	0	0	2	0	4	0	0	4	0	0	0	0	0	0
SUBTOTAL	0	41	0	0	41	0	22	0	0	22	0	0	0	0	0	2

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Fourth Line & Burnhamthorpe Rd W
Site Code: 2336300002
Municipality: Oakville
Count Date: Nov 07, 2023

West Approach - Burnhamthorpe Rd W

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	
16:00	0	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0
16:15	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	1
16:30	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0
16:45	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	1
17:00	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
17:15	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
17:45	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	1
18:00	1	4	0	0	5	0	0	0	0	0	0	0	0	0	0	0
18:15	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0
18:30	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0
18:45	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	3	29	0	0	32	0	1	0	0	1	0	0	0	0	0	7
GRAND TOTAL	3	70	0	0	73	0	23	0	0	23	0	0	0	0	0	9

Peak Hour Diagram

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

One Hour Peak
From: 07:45:00
To: 08:45:00

Intersection: Fourth Line & Burnhamthorpe Rd W
Site Code: 2336300002
Count Date: Nov 07, 2023

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Burnhamthorpe Rd W runs E/W

North Approach

	Out	In	Total
Cars	3	2	5
Trucks	0	0	0
Bicycles	0	0	0
	3	**2**	**5**

Fourth Line

Bicycles	0	0	0	0
Trucks	0	0	0	0
Cars	0	0	3	0
Totals	**0**	**0**	**3**	**0**

Peds: 0

East Approach

	Out	In	Total
Cars	162	23	185
Trucks	19	11	30
Bicycles	0	0	0
	181	**34**	**215**

Burnhamthorpe Rd W

Bicycles	Trucks	Cars	Totals	
0	0	0	**0**	
0	0	0	**0**	
0	9	15	**24**	
0	0	0	**0**	

Peds: 1

Peds: 0

Burnhamthorpe Rd W

	Totals	Cars	Trucks	Bicycles
	0	0	0	0
	2	2	0	0
	23	14	9	0
	156	146	10	0

Peds: 0

West Approach

	Out	In	Total
Cars	15	14	29
Trucks	9	9	18
Bicycles	0	0	0
	24	**23**	**47**

Fourth Line

Totals	**0**	**0**	**7**	**0**
Cars	0	0	5	0
Trucks	0	0	2	0
Bicycles	0	0	0	0

South Approach

	Out	In	Total
Cars	5	146	151
Trucks	2	10	12
Bicycles	0	0	0
	7	**156**	**163**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
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Peak Hour Summary

Intersection: Fourth Line & Burnhamthorpe Rd W
Site Code: 2336300002
Count Date: Nov 07, 2023
Period: 07:00 - 10:00

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

Start Time	North Approach Fourth Line						South Approach Fourth Line						East Approach Burnhamthorpe Rd W						West Approach Burnhamthorpe Rd W						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
07:45	1	0	0	0	0	1	0	0	1	0	0	1	4	10	1	0	0	15	0	8	0	0	0	8	25
08:00	1	0	0	0	0	1	0	0	0	0	0	0	19	6	0	0	0	25	0	6	0	0	0	6	32
08:15	0	0	0	0	0	0	0	0	1	0	0	1	54	2	0	0	0	56	0	2	0	0	0	2	59
08:30	1	0	0	0	0	1	0	0	5	0	0	5	79	5	1	0	0	85	0	8	0	0	1	8	99
Grand Total	**3**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**7**	**0**	**0**	**7**	**156**	**23**	**2**	**0**	**0**	**181**	**0**	**24**	**0**	**0**	**1**	**24**	**215**
Approach %	100	0	0	0		-	0	0	100	0		-	86.2	12.7	1.1	0		-	0	100	0	0		-	
Totals %	1.4	0	0	0		1.4	0	0	3.3	0		3.3	72.6	10.7	0.9	0		84.2	0	11.2	0	0		11.2	
PHF	**0.75**	**0**	**0**	**0**		**0.75**	**0**	**0**	**0.35**	**0**		**0.35**	**0.49**	**0.58**	**0.5**	**0**		**0.53**	**0**	**0.75**	**0**	**0**		**0.75**	**0.54**
Cars	3	0	0	0		3	0	0	5	0		5	146	14	2	0		162	0	15	0	0		15	185
% Cars	100	0	0	0		100	0	0	71.4	0		71.4	93.6	60.9	100	0		89.5	0	62.5	0	0		62.5	86
Trucks	0	0	0	0		0	0	0	2	0		2	10	9	0	0		19	0	9	0	0		9	30
% Trucks	0	0	0	0		0	0	0	28.6	0		28.6	6.4	39.1	0	0		10.5	0	37.5	0	0		37.5	14
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	-					1	-	1
% Peds					0	-					0	-					0	-					100	-	

Peak Hour Diagram

Specified Period
From: 16:00:00
To: 19:00:00

One Hour Peak
From: 16:45:00
To: 17:45:00

Intersection: Fourth Line & Burnhamthorpe Rd W
Site Code: 2336300002
Count Date: Nov 07, 2023

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Burnhamthorpe Rd W runs E/W

North Approach

	Out	In	Total
Cars	3	2	5
Trucks	11	5	16
Bicycles	0	0	0
	14	**7**	**21**

Fourth Line

Bicycles	0	0	0	0
Trucks	1	0	10	0
Cars	0	0	3	0
Totals	**1**	**0**	**13**	**0**

East Approach

	Out	In	Total
Cars	59	20	79
Trucks	8	10	18
Bicycles	0	0	0
	67	**30**	**97**

Peds: 0

Burnhamthorpe Rd W

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	0	0	**0**
0	0	5	**5**
0	0	0	**0**

Peds: 5

Peds: 4

Burnhamthorpe Rd W

Totals	Cars	Trucks	Bicycles
2	2	0	0
7	2	5	0
10	8	2	0
48	47	1	0

Peds: 3

West Approach

	Out	In	Total
Cars	5	8	13
Trucks	0	3	3
Bicycles	0	0	0
	5	**11**	**16**

Fourth Line

Totals	**0**	**0**	**10**	**0**
Cars	0	0	10	0
Trucks	0	0	0	0
Bicycles	0	0	0	0

South Approach

	Out	In	Total
Cars	10	47	57
Trucks	0	1	1
Bicycles	0	0	0
	10	**48**	**58**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Fourth Line & Burnhamthorpe Rd W
Site Code: 2336300002
Count Date: Nov 07, 2023
Period: 16:00 - 19:00

Peak Hour Data (16:45 - 17:45)

Start Time	North Approach Fourth Line						South Approach Fourth Line						East Approach Burnhamthorpe Rd W						West Approach Burnhamthorpe Rd W						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:45	1	0	0	0	0	1	0	0	1	0	0	1	15	3	3	1	2	22	0	3	0	0	1	3	27
17:00	3	0	1	0	0	4	0	0	0	0	0	0	10	3	0	0	2	13	0	1	0	0	1	1	18
17:15	3	0	0	0	0	3	0	0	2	0	1	2	18	3	3	0	0	24	0	1	0	0	0	1	30
17:30	6	0	0	0	0	6	0	0	7	0	2	7	5	1	1	1	0	8	0	0	0	0	3	0	21
Grand Total	**13**	**0**	**1**	**0**	**0**	**14**	**0**	**0**	**10**	**0**	**3**	**10**	**48**	**10**	**7**	**2**	**4**	**67**	**0**	**5**	**0**	**0**	**5**	**5**	**96**
Approach %	92.9	0	7.1	0		-	0	0	100	0		-	71.6	14.9	10.4	3		-	0	100	0	0		-	
Totals %	13.5	0	1	0		14.6	0	0	10.4	0		10.4	50	10.4	7.3	2.1		69.8	0	5.2	0	0		5.2	
PHF	**0.54**	**0**	**0.25**	**0**		**0.58**	**0**	**0**	**0.36**	**0**		**0.36**	**0.67**	**0.83**	**0.58**	**0.5**		**0.7**	**0**	**0.42**	**0**	**0**		**0.42**	**0.8**
Cars	3	0	0	0		3	0	0	10	0		10	47	8	2	2		59	0	5	0	0		5	77
% Cars	23.1	0	0	0		21.4	0	0	100	0		100	97.9	80	28.6	100		88.1	0	100	0	0		100	80.2
Trucks	10	0	1	0		11	0	0	0	0		0	1	2	5	0		8	0	0	0	0		0	19
% Trucks	76.9	0	100	0		78.6	0	0	0	0		0	2.1	20	71.4	0		11.9	0	0	0	0		0	19.8
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					0	-					3	-					4	-					5	-	12
% Peds					0	-					25	-					33.3	-					41.7	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Project #23-363 - CGH Transportation

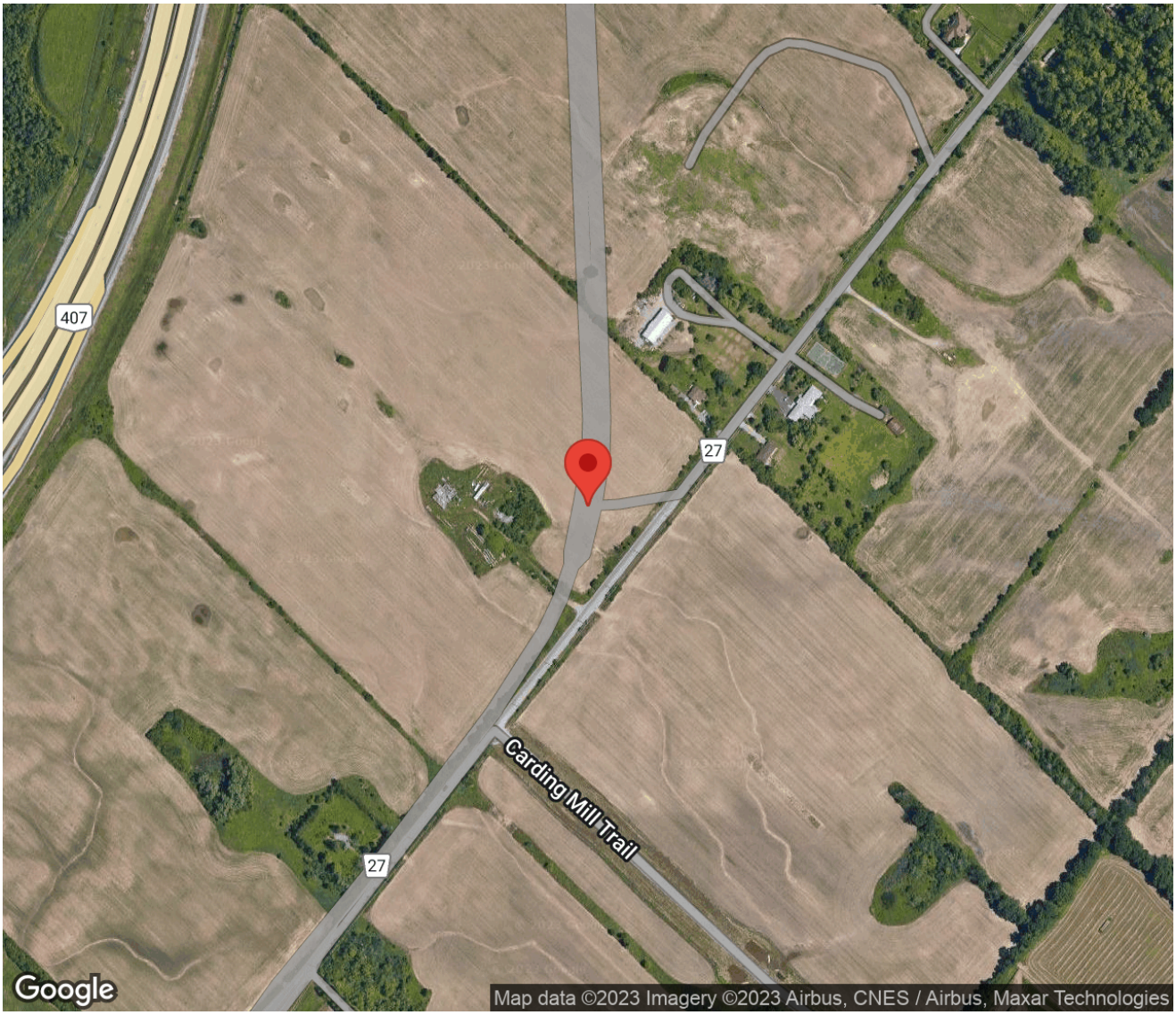
Intersection Count Report

Intersection:	William Halton Pkwy & Burnhamthorpe Rd
Municipality:	Oakville
Count Date:	Tuesday, Nov 07, 2023
Site Code:	2336300003
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-10:00, 16:00-19:00
Weather:	Clear
Comments:	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Map

Intersection:	William Halton Pkwy & Burnhamthorpe Rd
Site Code:	2336300003
Municipality:	Oakville
Count Date:	Nov 07, 2023



Ontario Traffic Inc.
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Traffic Count Summary

Intersection: William Halton Pkwy & Burnhamthorpe Rd
Site Code: 2336300003
Municipality: Oakville
Count Date: Nov 07, 2023

Burnhamthorpe Rd - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	0	0	0	0	0	0	26	0	1	0	27	0	27
08:00 - 09:00	0	0	0	0	0	0	103	0	3	0	106	0	106
09:00 - 10:00	0	0	0	0	0	0	37	0	0	0	37	0	37
BREAK													
16:00 - 17:00	0	0	0	0	0	0	66	0	2	0	68	0	68
17:00 - 18:00	0	0	0	0	0	0	69	0	2	0	71	0	71
18:00 - 19:00	0	0	0	0	0	0	49	0	0	0	49	0	49
GRAND TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**350**	**0**	**8**	**0**	**358**	**0**	**358**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	William Halton Pkwy & Burnhamthorpe Rd
Site Code:	2336300003
Municipality:	Oakville
Count Date:	Nov 07, 2023

William Halton Pkwy - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	0	263	0	0	263	0	0	329	27	0	356	0	619
08:00 - 09:00	1	422	0	1	424	0	0	364	48	0	412	0	836
09:00 - 10:00	2	209	0	1	212	0	0	197	29	0	226	0	438
BREAK													
16:00 - 17:00	1	412	0	0	413	0	0	283	26	0	309	0	722
17:00 - 18:00	0	419	0	0	419	0	0	289	28	0	317	0	736
18:00 - 19:00	0	228	0	0	228	0	0	223	24	0	247	0	475
GRAND TOTAL	**4**	**1953**	**0**	**2**	**1959**	**0**	**0**	**1685**	**182**	**0**	**1867**	**0**	**3826**

Ontario Traffic Inc.
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Traffic Count Data

Intersection: William Halton Pkwy & Burnhamthorpe Rd
Site Code: 2336300003
Municipality: Oakville
Count Date: Nov 07, 2023

South Approach - Burnhamthorpe Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
07:15	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0
07:30	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
07:45	13	0	0	0	13	6	0	0	0	6	0	0	0	0	0	0
08:00	18	0	0	0	18	9	0	1	0	10	0	0	0	0	0	0
08:15	19	0	0	0	19	5	0	1	0	6	0	0	0	0	0	0
08:30	28	0	0	0	28	6	0	1	0	7	0	0	0	0	0	0
08:45	13	0	0	0	13	5	0	0	0	5	0	0	0	0	0	0
09:00	7	0	0	0	7	3	0	0	0	3	0	0	0	0	0	0
09:15	9	0	0	0	9	2	0	0	0	2	0	0	0	0	0	0
09:30	8	0	0	0	8	1	0	0	0	1	0	0	0	0	0	0
09:45	5	0	0	0	5	2	0	0	0	2	0	0	0	0	0	0
SUBTOTAL	127	0	1	0	128	39	0	3	0	42	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: William Halton Pkwy & Burnhamthorpe Rd
Site Code: 2336300003
Municipality: Oakville
Count Date: Nov 07, 2023

South Approach - Burnhamthorpe Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	17	0	1	0	18	1	0	0	0	1	0	0	0	0	0	0
16:15	14	0	1	0	15	3	0	0	0	3	0	0	0	0	0	0
16:30	14	0	0	0	14	1	0	0	0	1	0	0	0	0	0	0
16:45	15	0	0	0	15	1	0	0	0	1	0	0	0	0	0	0
17:00	20	0	1	0	21	0	0	0	0	0	0	0	0	0	0	0
17:15	15	0	1	0	16	0	0	0	0	0	0	0	0	0	0	0
17:30	15	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0
17:45	18	0	0	0	18	1	0	0	0	1	0	0	0	0	0	0
18:00	11	0	0	0	11	1	0	0	0	1	0	0	0	0	0	0
18:15	19	0	0	0	19	0	0	0	0	0	0	0	0	0	0	0
18:30	13	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0
18:45	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	176	0	4	0	180	8	0	0	0	8	0	0	0	0	0	0
GRAND TOTAL	**303**	**0**	**5**	**0**	**308**	**47**	**0**	**3**	**0**	**50**	**0**	**0**	**0**	**0**	**0**	**0**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: William Halton Pkwy & Burnhamthorpe Rd
Site Code: 2336300003
Municipality: Oakville
Count Date: Nov 07, 2023

East Approach - William Halton Pkwy

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	0	39	0	0	39	0	3	0	0	3	0	0	0	0	0	0
07:15	0	52	0	0	52	0	0	0	0	0	0	0	0	0	0	0
07:30	0	70	0	0	70	0	1	0	0	1	0	0	0	0	0	0
07:45	0	90	0	0	90	0	8	0	0	8	0	0	0	0	0	0
08:00	0	83	0	0	83	0	7	0	0	7	0	1	0	0	1	0
08:15	0	101	0	0	101	0	8	0	0	8	0	0	0	0	0	0
08:30	0	109	0	0	109	0	7	0	0	7	0	0	0	0	0	0
08:45	1	95	0	0	96	0	10	0	1	11	0	1	0	0	1	0
09:00	0	43	0	0	43	0	5	0	0	5	0	0	0	0	0	0
09:15	2	41	0	1	44	0	6	0	0	6	0	0	0	0	0	0
09:30	0	60	0	0	60	0	9	0	0	9	0	0	0	0	0	0
09:45	0	37	0	0	37	0	8	0	0	8	0	0	0	0	0	0
SUBTOTAL	3	820	0	1	824	0	72	0	1	73	0	2	0	0	2	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: William Halton Pkwy & Burnhamthorpe Rd
Site Code: 2336300003
Municipality: Oakville
Count Date: Nov 07, 2023

East Approach - William Halton Pkwy

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	1	96	0	0	97	0	4	0	0	4	0	0	0	0	0	0
16:15	0	85	0	0	85	0	5	0	0	5	0	0	0	0	0	0
16:30	0	110	0	0	110	0	2	0	0	2	0	0	0	0	0	0
16:45	0	109	0	0	109	0	1	0	0	1	0	0	0	0	0	0
17:00	0	104	0	0	104	0	1	0	0	1	0	0	0	0	0	0
17:15	0	107	0	0	107	0	1	0	0	1	0	0	0	0	0	0
17:30	0	99	0	0	99	0	0	0	0	0	0	0	0	0	0	0
17:45	0	107	0	0	107	0	0	0	0	0	0	0	0	0	0	0
18:00	0	60	0	0	60	0	1	0	0	1	0	0	0	0	0	0
18:15	0	60	0	0	60	0	0	0	0	0	0	0	0	0	0	0
18:30	0	56	0	0	56	0	0	0	0	0	0	0	0	0	0	0
18:45	0	51	0	0	51	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	1	1044	0	0	1045	0	15	0	0	15	0	0	0	0	0	0
GRAND TOTAL	4	1864	0	1	1869	0	87	0	1	88	0	2	0	0	2	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: William Halton Pkwy & Burnhamthorpe Rd
Site Code: 2336300003
Municipality: Oakville
Count Date: Nov 07, 2023

West Approach - William Halton Pkwy

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	
07:00	0	61	4	0	65	0	2	0	0	2	0	0	0	0	0	0
07:15	0	84	8	0	92	0	0	0	0	0	0	0	0	0	0	0
07:30	0	90	8	0	98	0	2	1	0	3	0	0	0	0	0	0
07:45	0	87	5	0	92	0	3	1	0	4	0	0	0	0	0	0
08:00	0	92	7	0	99	0	3	1	0	4	0	0	0	0	0	0
08:15	0	90	8	0	98	0	9	2	0	11	0	0	0	0	0	0
08:30	0	104	13	0	117	0	5	1	0	6	0	0	0	0	0	0
08:45	0	58	14	0	72	0	3	2	0	5	0	0	0	0	0	0
09:00	0	47	7	0	54	0	9	1	0	10	0	0	0	0	0	0
09:15	0	37	5	0	42	0	7	1	0	8	0	0	0	0	0	0
09:30	0	44	9	0	53	0	4	2	0	6	0	0	0	0	0	0
09:45	0	38	1	0	39	0	11	3	0	14	0	0	0	0	0	0
SUBTOTAL	0	832	89	0	921	0	58	15	0	73	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: William Halton Pkwy & Burnhamthorpe Rd
Site Code: 2336300003
Municipality: Oakville
Count Date: Nov 07, 2023

West Approach - William Halton Pkwy

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	0	69	4	0	73	0	4	0	0	4	0	0	0	0	0	0
16:15	0	66	8	0	74	0	11	1	0	12	0	0	0	0	0	0
16:30	0	63	5	0	68	0	5	0	0	5	0	0	0	0	0	0
16:45	0	61	8	0	69	0	4	0	0	4	0	0	0	0	0	0
17:00	0	80	8	0	88	0	0	0	0	0	0	0	0	0	0	0
17:15	0	72	5	0	77	0	0	0	0	0	0	0	0	0	0	0
17:30	0	78	6	0	84	0	1	0	0	1	0	0	0	0	0	0
17:45	0	58	9	0	67	0	0	0	0	0	0	0	0	0	0	0
18:00	0	57	8	0	65	0	0	1	0	1	0	0	0	0	0	0
18:15	0	59	4	0	63	0	2	0	0	2	0	0	0	0	0	0
18:30	0	58	6	0	64	0	1	0	0	1	0	0	0	0	0	0
18:45	0	46	5	0	51	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	767	76	0	843	0	28	2	0	30	0	0	0	0	0	0
GRAND TOTAL	0	1599	165	0	1764	0	86	17	0	103	0	0	0	0	0	0

Peak Hour Diagram

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

One Hour Peak
From: 07:45:00
To: 08:45:00

Intersection: William Halton Pkwy & Burnhamthorpe Rd
Site Code: 2336300003
Count Date: Nov 07, 2023

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: William Halton Pkwy runs E/W

East Approach

	Out	In	Total
Cars	383	373	756
Trucks	30	23	53
Bicycles	1	0	1
	414	**396**	**810**

William Halton Pkwy

			Totals
0	0	0	**0**
0	20	373	**393**
0	5	33	**38**

Peds: 0

Peds: 0

Peds: 0

N
W
E
S

William Halton Pkwy

Totals			
0	0	0	0
414	383	30	1
0	0	0	0

West Approach

	Out	In	Total
Cars	406	461	867
Trucks	25	56	81
Bicycles	0	1	1
	431	**518**	**949**

Totals	104	3	0
Cars	78	0	0
Trucks	26	3	0
Bicycles	0	0	0

Burnhamthorpe Rd

South Approach

	Out	In	Total
Cars	78	33	111
Trucks	29	5	34
Bicycles	0	0	0
	107	**38**	**145**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: William Halton Pkwy & Burnhamthorpe Rd
Site Code: 2336300003
Count Date: Nov 07, 2023
Period: 07:00 - 10:00

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

Start Time	North Approach						South Approach Burnhamthorpe Rd						East Approach William Halton Pkwy						West Approach William Halton Pkwy						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
07:45					0		19		0	0	0	19	0	98		0	0	98		90	6	0	0	96	213
08:00					0		27		1	0	0	28	0	91		0	0	91		95	8	0	0	103	222
08:15					0		24		1	0	0	25	0	109		0	0	109		99	10	0	0	109	243
08:30					0		34		1	0	0	35	0	116		0	0	116		109	14	0	0	123	274
Grand Total					**0**	**0**	**104**		**3**	**0**	**0**	**107**	**0**	**414**		**0**	**0**	**414**		**393**	**38**	**0**	**0**	**431**	**952**
Approach %						-	97.2		2.8	0		-	0	100		0		-		91.2	8.8	0		-	
Totals %						0	10.9		0.3	0		11.2	0	43.5		0		43.5		41.3	4	0		45.3	
PHF						**0**	**0.76**		**0.75**	**0**		**0.76**	**0**	**0.89**		**0**		**0.89**		**0.9**	**0.68**	**0**		**0.88**	**0.87**
Cars						0	78		0	0		78	0	383		0		383		373	33	0		406	867
% Cars						0	75		0	0		72.9	0	92.5		0		92.5		94.9	86.8	0		94.2	91.1
Trucks						0	26		3	0		29	0	30		0		30		20	5	0		25	84
% Trucks						0	25		100	0		27.1	0	7.2		0		7.2		5.1	13.2	0		5.8	8.8
Bicycles						0	0		0	0		0	0	1		0		1		0	0	0		0	1
% Bicycles						0	0		0	0		0	0	0.2		0		0.2		0	0	0		0	0.1
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Peak Hour Diagram

Specified Period
From: 16:00:00
To: 19:00:00

One Hour Peak
From: 16:30:00
To: 17:30:00

Intersection: William Halton Pkwy & Burnhamthorpe Rd
Site Code: 2336300003
Count Date: Nov 07, 2023

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: William Halton Pkwy runs E/W

East Approach

	Out	In	Total
Cars	430	278	708
Trucks	5	9	14
Bicycles	0	0	0
	435	**287**	**722**

William Halton Pkwy

			Totals
0	0	0	**0**
0	9	276	**285**
0	0	26	**26**

Peds: 0

Peds: 0

Peds: 0

William Halton Pkwy

Totals			
0	0	0	0
435	430	5	0
0	0	0	0

West Approach

	Out	In	Total
Cars	302	494	796
Trucks	9	7	16
Bicycles	0	0	0
	311	**501**	**812**

Totals	66	2	0
Cars	64	2	0
Trucks	2	0	0
Bicycles	0	0	0

Burnhamthorpe Rd

South Approach

	Out	In	Total
Cars	66	26	92
Trucks	2	0	2
Bicycles	0	0	0
	68	**26**	**94**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: William Halton Pkwy & Burnhamthorpe Rd
Site Code: 2336300003
Count Date: Nov 07, 2023
Period: 16:00 - 19:00

Peak Hour Data (16:30 - 17:30)

Start Time	North Approach						South Approach Burnhamthorpe Rd						East Approach William Halton Pkwy						West Approach William Halton Pkwy						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:30					0		15		0	0	0	15	0	112		0	0	112		68	5	0	0	73	200
16:45					0		16		0	0	0	16	0	110		0	0	110		65	8	0	0	73	199
17:00					0		20		1	0	0	21	0	105		0	0	105		80	8	0	0	88	214
17:15					0		15		1	0	0	16	0	108		0	0	108		72	5	0	0	77	201
Grand Total					**0**	**0**	**66**		**2**	**0**	**0**	**68**	**0**	**435**		**0**	**0**	**435**		**285**	**26**	**0**	**0**	**311**	**814**
Approach %						-	97.1		2.9	0		-	0	100		0		-		91.6	8.4	0		-	
Totals %						0	8.1		0.2	0		8.4	0	53.4		0		53.4		35	3.2	0		38.2	
PHF						**0**	**0.83**		**0.5**	**0**		**0.81**	**0**	**0.97**		**0**		**0.97**		**0.89**	**0.81**	**0**		**0.88**	**0.95**
Cars						0	64		2	0		66	0	430		0		430		276	26	0		302	798
% Cars						0	97		100	0		97.1	0	98.9		0		98.9		96.8	100	0		97.1	98
Trucks						0	2		0	0		2	0	5		0		5		9	0	0		9	16
% Trucks						0	3		0	0		2.9	0	1.1		0		1.1		3.2	0	0		2.9	2
Bicycles						0	0		0	0		0	0	0		0		0		0	0	0		0	0
% Bicycles						0	0		0	0		0	0	0		0		0		0	0	0		0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Ontario Traffic Inc.
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Project #23-363 - CGH Transportation

Intersection Count Report

Intersection:	Hwy 407 EB Off-Ramp & Neyagawa Blvd
Municipality:	Oakville
Count Date:	Tuesday, Nov 07, 2023
Site Code:	2336300004
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-10:00, 16:00-19:00
Weather:	Clear
Comments:	

Ontario Traffic Inc.
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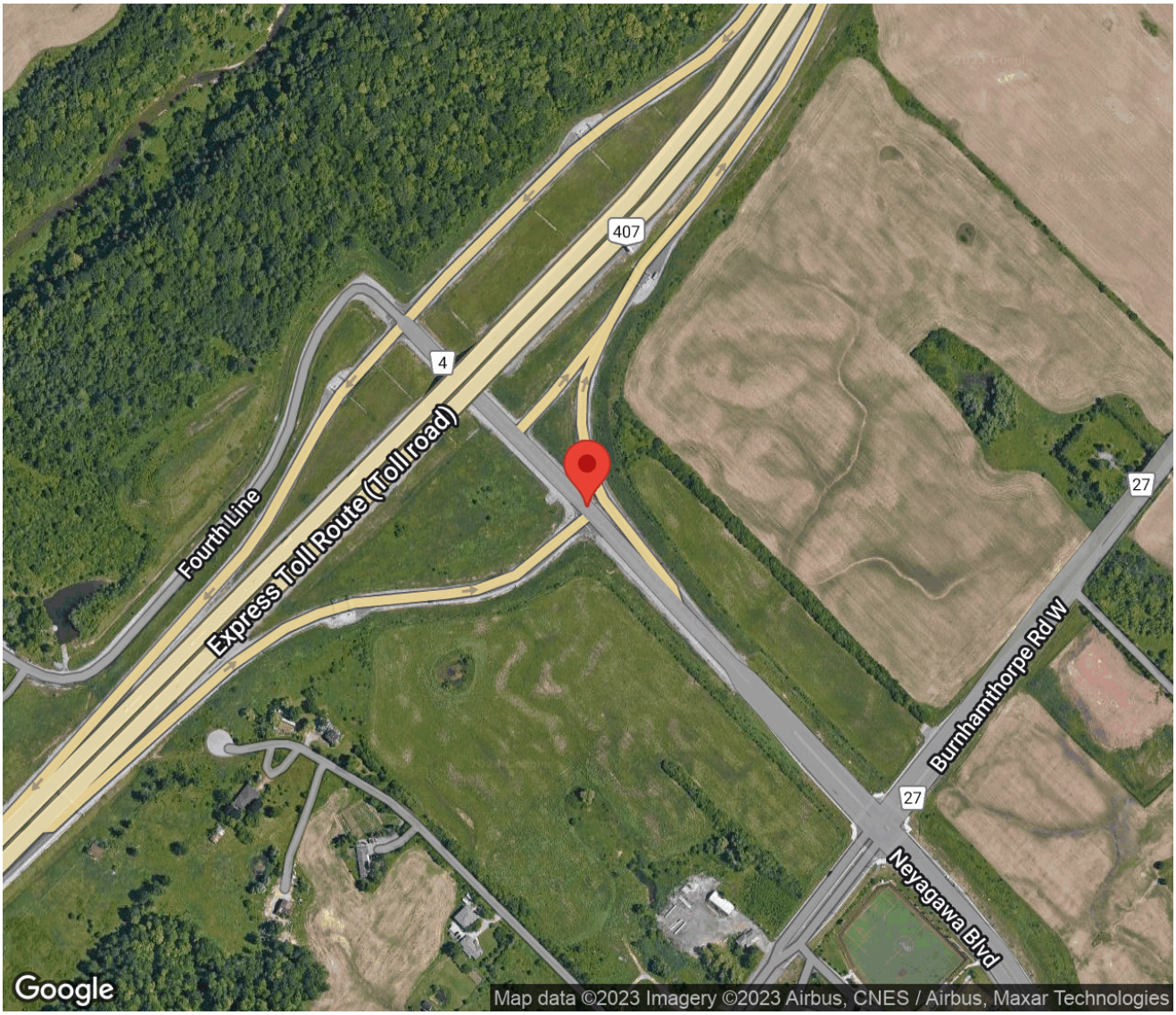
Traffic Count Map

Intersection:	Hwy 407 EB Off-Ramp & Neyagawa Blvd
Site Code:	2336300004
Municipality:	Oakville
Count Date:	Nov 07, 2023



Ontario Traffic Inc.
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Traffic Count Summary

Intersection: Hwy 407 EB Off-Ramp & Neyagawa Blvd
Site Code: 2336300004
Municipality: Oakville
Count Date: Nov 07, 2023

Neyagawa Blvd - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	0	78	0	0	78	0	0	25	221	0	246	0	324
08:00 - 09:00	0	107	0	0	107	0	0	57	281	0	338	0	445
09:00 - 10:00	0	70	0	0	70	0	0	27	151	0	178	0	248
BREAK													
16:00 - 17:00	0	178	0	0	178	0	0	131	95	0	226	0	404
17:00 - 18:00	0	198	0	0	198	0	0	100	136	0	236	0	434
18:00 - 19:00	0	138	0	0	138	0	0	38	78	0	116	0	254
GRAND TOTAL	**0**	**769**	**0**	**0**	**769**	**0**	**0**	**378**	**962**	**0**	**1340**	**0**	**2109**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection: Hwy 407 EB Off-Ramp & Neyagawa Blvd
Site Code: 2336300004
Municipality: Oakville
Count Date: Nov 07, 2023

Hwy 407 EB On-Ramp - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	0	0	0	0	0	0	1	0	58	0	59	0	59
08:00 - 09:00	0	0	0	0	0	0	0	0	65	0	65	0	65
09:00 - 10:00	0	0	0	0	0	0	1	0	37	0	38	0	38
BREAK													
16:00 - 17:00	0	0	0	0	0	0	2	0	51	0	53	0	53
17:00 - 18:00	0	0	0	0	0	0	4	0	86	0	90	0	90
18:00 - 19:00	0	0	0	0	0	0	2	0	32	0	34	0	34
GRAND TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**0**	**329**	**0**	**339**	**0**	**339**

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Hwy 407 EB Off-Ramp & Neyagawa Blvd
Site Code: 2336300004
Municipality: Oakville
Count Date: Nov 07, 2023

North Approach - Neyagawa Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	
07:00	0	18	0	0	18	0	0	0	0	0	0	0	0	0	0	0
07:15	0	23	0	0	23	0	0	0	0	0	0	0	0	0	0	0
07:30	0	16	0	0	16	0	1	0	0	1	0	0	0	0	0	0
07:45	0	19	0	0	19	0	1	0	0	1	0	0	0	0	0	0
08:00	0	26	0	0	26	0	0	0	0	0	0	0	0	0	0	0
08:15	0	27	0	0	27	0	1	0	0	1	0	0	0	0	0	0
08:30	0	28	0	0	28	0	1	0	0	1	0	0	0	0	0	0
08:45	0	23	0	0	23	0	1	0	0	1	0	0	0	0	0	0
09:00	0	14	0	0	14	0	0	0	0	0	0	0	0	0	0	0
09:15	0	17	0	0	17	0	3	0	0	3	0	0	0	0	0	0
09:30	0	16	0	0	16	0	0	0	0	0	0	0	0	0	0	0
09:45	0	19	0	0	19	0	1	0	0	1	0	0	0	0	0	0
SUBTOTAL	0	246	0	0	246	0	9	0	0	9	0	0	0	0	0	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Hwy 407 EB Off-Ramp & Neyagawa Blvd
Site Code: 2336300004
Municipality: Oakville
Count Date: Nov 07, 2023

North Approach - Neyagawa Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	0	43	0	0	43	0	0	0	0	0	0	0	0	0	0	0
16:15	0	43	0	0	43	0	1	0	0	1	0	0	0	0	0	0
16:30	0	44	0	0	44	0	0	0	0	0	0	0	0	0	0	0
16:45	0	47	0	0	47	0	0	0	0	0	0	0	0	0	0	0
17:00	0	54	0	0	54	0	0	0	0	0	0	0	0	0	0	0
17:15	0	44	0	0	44	0	0	0	0	0	0	0	0	0	0	0
17:30	0	55	0	0	55	0	1	0	0	1	0	0	0	0	0	0
17:45	0	44	0	0	44	0	0	0	0	0	0	0	0	0	0	0
18:00	0	45	0	0	45	0	0	0	0	0	0	0	0	0	0	0
18:15	0	33	0	0	33	0	0	0	0	0	0	0	0	0	0	0
18:30	0	29	0	0	29	0	0	0	0	0	0	0	0	0	0	0
18:45	0	31	0	0	31	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	512	0	0	512	0	2	0	0	2	0	0	0	0	0	0
GRAND TOTAL	0	758	0	0	758	0	11	0	0	11	0	0	0	0	0	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Hwy 407 EB Off-Ramp & Neyagawa Blvd
Site Code: 2336300004
Municipality: Oakville
Count Date: Nov 07, 2023

South Approach - Neyagawa Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	0	3	26	0	29	0	0	0	0	0	0	0	0	0	0	0
07:15	0	6	64	0	70	0	0	1	0	1	0	0	0	0	0	0
07:30	0	6	68	0	74	0	0	2	0	2	0	0	0	0	0	0
07:45	0	10	60	0	70	0	0	0	0	0	0	0	0	0	0	0
08:00	0	14	84	0	98	0	0	0	0	0	0	0	0	0	0	0
08:15	0	10	66	0	76	0	0	1	0	1	0	0	0	0	0	0
08:30	0	18	83	0	101	0	0	0	0	0	0	0	0	0	0	0
08:45	0	15	47	0	62	0	0	0	0	0	0	0	0	0	0	0
09:00	0	6	60	0	66	0	0	1	0	1	0	0	0	0	0	0
09:15	0	7	44	0	51	0	0	1	0	1	0	0	0	0	0	0
09:30	0	4	24	0	28	0	0	2	0	2	0	0	0	0	0	0
09:45	0	9	18	0	27	0	1	1	0	2	0	0	0	0	0	0
SUBTOTAL	0	108	644	0	752	0	1	9	0	10	0	0	0	0	0	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Hwy 407 EB Off-Ramp & Neyagawa Blvd
Site Code: 2336300004
Municipality: Oakville
Count Date: Nov 07, 2023

South Approach - Neyagawa Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	0	36	27	0	63	0	0	1	0	1	0	0	0	0	0	0
16:15	0	27	22	0	49	0	1	0	0	1	0	0	0	0	0	0
16:30	0	30	23	0	53	0	0	4	0	4	0	0	0	0	0	0
16:45	0	37	18	0	55	0	0	0	0	0	0	0	0	0	0	0
17:00	0	23	59	0	82	0	0	2	0	2	0	0	0	0	0	0
17:15	0	31	26	0	57	0	1	0	0	1	0	0	0	0	0	0
17:30	0	24	38	0	62	0	1	0	0	1	0	0	0	0	0	0
17:45	0	20	10	0	30	0	0	1	0	1	0	0	0	0	0	0
18:00	0	14	31	0	45	0	0	2	0	2	0	0	0	0	0	0
18:15	0	10	19	0	29	0	0	0	0	0	0	0	0	0	0	0
18:30	0	13	12	0	25	0	0	0	0	0	0	0	0	0	0	0
18:45	0	1	14	0	15	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	266	299	0	565	0	3	10	0	13	0	0	0	0	0	0
GRAND TOTAL	0	374	943	0	1317	0	4	19	0	23	0	0	0	0	0	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Hwy 407 EB Off-Ramp & Neyagawa Blvd
Site Code: 2336300004
Municipality: Oakville
Count Date: Nov 07, 2023

East Approach - Hwy 407 EB On-Ramp

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Hwy 407 EB Off-Ramp & Neyagawa Blvd
Site Code: 2336300004
Municipality: Oakville
Count Date: Nov 07, 2023

East Approach - Hwy 407 EB On-Ramp

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GRAND TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Hwy 407 EB Off-Ramp & Neyagawa Blvd
Site Code: 2336300004
Municipality: Oakville
Count Date: Nov 07, 2023

West Approach - Hwy 407 EB Off-Ramp

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	0	0	5	0	5	0	0	2	0	2	0	0	0	0	0	0
07:15	0	0	10	0	10	0	0	1	0	1	0	0	0	0	0	0
07:30	1	0	12	0	13	0	0	5	0	5	0	0	0	0	0	0
07:45	0	0	22	0	22	0	0	1	0	1	0	0	0	0	0	0
08:00	0	0	16	0	16	0	0	1	0	1	0	0	0	0	0	0
08:15	0	0	20	0	20	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	19	0	19	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	9	0	9	0	0	0	0	0	0	0	0	0	0	0
09:00	0	0	14	0	14	1	0	0	0	1	0	0	0	0	0	0
09:15	0	0	10	0	10	0	0	0	0	0	0	0	0	0	0	0
09:30	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0
09:45	0	0	8	0	8	0	0	1	0	1	0	0	0	0	0	0
SUBTOTAL	1	0	149	0	150	1	0	11	0	12	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Hwy 407 EB Off-Ramp & Neyagawa Blvd
Site Code: 2336300004
Municipality: Oakville
Count Date: Nov 07, 2023

West Approach - Hwy 407 EB Off-Ramp

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	0	0	14	0	14	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	8	0	8	0	0	0	0	0	0	0	0	0	0	0
16:30	1	0	10	0	11	0	0	1	0	1	0	0	0	0	0	0
16:45	1	0	18	0	19	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	15	0	15	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	27	0	27	0	0	0	0	0	0	0	0	0	0	0
17:30	1	0	14	0	15	0	0	0	0	0	0	0	0	0	0	0
17:45	2	0	30	0	32	1	0	0	0	1	0	0	0	0	0	0
18:00	1	0	7	0	8	0	0	0	0	0	0	0	0	0	0	0
18:15	0	0	8	0	8	0	0	1	0	1	0	0	0	0	0	0
18:30	0	0	13	0	13	0	0	0	0	0	0	0	0	0	0	0
18:45	1	0	3	0	4	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	7	0	167	0	174	1	0	2	0	3	0	0	0	0	0	0
GRAND TOTAL	8	0	316	0	324	2	0	13	0	15	0	0	0	0	0	0

Peak Hour Diagram

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

One Hour Peak
From: 07:45:00
To: 08:45:00

Intersection: Hwy 407 EB Off-Ramp & Neyagawa Blvd
Site Code: 2336300004
Count Date: Nov 07, 2023

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Neyagawa Blvd runs N/S

North Approach

	Out	In	Total
Cars	100	52	152
Trucks	3	0	3
Bicycles	0	0	0
	103	**52**	**155**

Neyagawa Blvd

Bicycles	0	0	0
Trucks	3	0	0
Cars	100	0	0
Totals	**103**	**0**	**0**

East Approach

	Out	In	Total
Cars	0	293	293
Trucks	0	1	1
Bicycles	0	0	0
	0	**294**	**294**

Peds: 0

Hwy 407 EB Off-Ramp

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	0	0	**0**
0	2	77	**79**

Peds: 0

Peds: 0

Hwy 407 EB On-Ramp

Totals	Cars	Trucks	Bicycles

Peds: 0

West Approach

	Out	In	Total
Cars	77	0	77
Trucks	2	0	2
Bicycles	0	0	0
	79	**0**	**79**

Totals	52	294	0
Cars	52	293	0
Trucks	0	1	0
Bicycles	0	0	0

Neyagawa Blvd

South Approach

	Out	In	Total
Cars	345	177	522
Trucks	1	5	6
Bicycles	0	0	0
	346	**182**	**528**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Hwy 407 EB Off-Ramp & Neyagawa Blvd
Site Code: 2336300004
Count Date: Nov 07, 2023
Period: 07:00 - 10:00

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

Start Time	North Approach Neyagawa Blvd						South Approach Neyagawa Blvd						East Approach Hwy 407 EB On-Ramp						West Approach Hwy 407 EB Off-Ramp						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
07:45	0	20		0	0	20		10	60	0	0	70					0	0	0	0	23		0	23	113
08:00	0	26		0	0	26		14	84	0	0	98					0	0	0	0	17		0	17	141
08:15	0	28		0	0	28		10	67	0	0	77					0	0	0	0	20		0	20	125
08:30	0	29		0	0	29		18	83	0	0	101					0	0	0	0	19		0	19	149
Grand Total	**0**	**103**		**0**	**0**	**103**		**52**	**294**	**0**	**0**	**346**					**0**	**0**	**0**	**0**	**79**		**0**	**79**	**528**
Approach %	0	100		0		-		15	85	0		-						-	0	0	100			-	
Totals %	0	19.5		0		19.5		9.8	55.7	0		65.5						0	0	0	15			15	
PHF	**0**	**0.89**		**0**		**0.89**		**0.72**	**0.88**	**0**		**0.86**						**0**	**0**	**0**	**0.86**			**0.86**	**0.89**
Cars	0	100		0		100		52	293	0		345						0	0	0	77			77	522
% Cars	0	97.1		0		97.1		100	99.7	0		99.7						0	0	0	97.5			97.5	98.9
Trucks	0	3		0		3		0	1	0		1						0	0	0	2			2	6
% Trucks	0	2.9		0		2.9		0	0.3	0		0.3						0	0	0	2.5			2.5	1.1
Bicycles	0	0		0		0		0	0	0		0						0	0	0	0			0	0
% Bicycles	0	0		0		0		0	0	0		0						0	0	0	0			0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Peak Hour Diagram

Specified Period
From: 16:00:00
To: 19:00:00

One Hour Peak
From: 16:45:00
To: 17:45:00

Intersection: Hwy 407 EB Off-Ramp & Neyagawa Blvd
Site Code: 2336300004
Count Date: Nov 07, 2023

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Neyagawa Blvd runs N/S

North Approach

	Out	In	Total
Cars	200	117	317
Trucks	1	2	3
Bicycles	0	0	0
	201	**119**	**320**

Neyagawa Blvd

Bicycles	0	0	0
Trucks	1	0	0
Cars	200	0	0
Totals	**201**	**0**	**0**

East Approach

	Out	In	Total
Cars	0	141	141
Trucks	0	2	2
Bicycles	0	0	0
	0	**143**	**143**

Peds: 0

Hwy 407 EB Off-Ramp

Bicycles	Trucks	Cars	Totals
0	0	2	**2**
0	0	0	**0**
0	0	74	**74**

Peds: 0

Peds: 0

Hwy 407 EB On-Ramp

Totals	Cars	Trucks	Bicycles

Peds: 0

West Approach

	Out	In	Total
Cars	76	0	76
Trucks	0	0	0
Bicycles	0	0	0
	76	**0**	**76**

Totals	**117**	**143**	**0**
Cars	115	141	0
Trucks	2	2	0
Bicycles	0	0	0

Neyagawa Blvd

South Approach

	Out	In	Total
Cars	256	274	530
Trucks	4	1	5
Bicycles	0	0	0
	260	**275**	**535**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Hwy 407 EB Off-Ramp & Neyagawa Blvd
Site Code: 2336300004
Count Date: Nov 07, 2023
Period: 16:00 - 19:00

Peak Hour Data (16:45 - 17:45)

Start Time	North Approach Neyagawa Blvd						South Approach Neyagawa Blvd						East Approach Hwy 407 EB On-Ramp						West Approach Hwy 407 EB Off-Ramp						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:45	0	47		0	0	47		37	18	0	0	55					0	0	1	0	18		0	19	121
17:00	0	54		0	0	54		23	61	0	0	84					0	0	0	0	15		0	15	153
17:15	0	44		0	0	44		32	26	0	0	58					0	0	0	0	27		0	27	129
17:30	0	56		0	0	56		25	38	0	0	63					0	0	1	0	14		0	15	134
Grand Total	**0**	**201**		**0**	**0**	**201**		**117**	**143**	**0**	**0**	**260**					**0**	**0**	**2**	**0**	**74**		**0**	**76**	**537**
Approach %	0	100		0		-		45	55	0		-						-	2.6	0	97.4			-	
Totals %	0	37.4		0		37.4		21.8	26.6	0		48.4						0	0.4	0	13.8			14.2	
PHF	**0**	**0.9**		**0**		**0.9**		**0.79**	**0.59**	**0**		**0.77**						**0**	**0.5**	**0**	**0.69**			**0.7**	**0.88**
Cars	0	200		0		200		115	141	0		256						0	2	0	74			76	532
% Cars	0	99.5		0		99.5		98.3	98.6	0		98.5						0	100	0	100			100	99.1
Trucks	0	1		0		1		2	2	0		4						0	0	0	0			0	5
% Trucks	0	0.5		0		0.5		1.7	1.4	0		1.5						0	0	0	0			0	0.9
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 D

Signal Timing Plans

Date: 5-Aug-2016
Intersection: Neyagawa Blvd & Burnhamthrope Rd

8 Phase Basic Timing Sheet

	1	2	3	4	5	6	7	8	2 Ped	4 Ped	6 Ped	8 Ped
Phases in use		x	x	x		x		x	x	x	x	x
Direction	SBLT	NB	WBLT	EB	NBLT	SB	EBLT	WB				
Min Green	7	15	7	10	7	15	-	10				
Veh Ext.	3.0	-	3.0	3.0	3.0	-	-	3.0				
Yellow	3.0	3.7	3.0	3.7	3	3.7	-	3.7				
Red	1.0	2.7	1.0	2.7	1	2.7	-	2.7				
Walk	-	7	-	7	-	7	-	7				
Don't Walk	-	24	-	27	-	24	-	27				
Max 1	15	45	15	35	15	45	-	50				
Max 2												
Max 3												
Veh Recall												
Ped Recall												

Notes: Check timings in controller

Pattern 1
Time: 6:00
Cycle Length: 100
Offset (%): 73%

Direction	SBLT	NB	WBLT	EB
Phase	*1*	*2*	*3*	*4*
%	11%	37%	15%	37%
Direction	**NBLT**	**SB**	**EBLT**	**WB**
Phase	***5***	***6***	***7***	***8***
%	11%	37%	0%	52%

Pattern 2
Time: 10:00
Cycle Length: 80
Offset (%): 24%

Direction	SBLT	NB	WBLT	EB
Phase	*1*	*2*	*3*	*4*
%	14%	40%	14%	32%
Direction	**NBLT**	**SB**	**EBLT**	**WB**
Phase	***5***	***6***	***7***	***8***
%	14%	40%	0%	46%

Pattern 3
Time: 15:15
Cycle Length: 100
Offset (%): 94%

Direction	SBLT	NB	WBLT	EB
Phase	*1*	*2*	*3*	*4*
%	11%	44%	13%	32%
Direction	**NBLT**	**SB**	**EBLT**	**WB**
Phase	***5***	***6***	***7***	***8***
%	11%	44%	0%	45%

Pattern 4
Time: 19:00
Cycle Length: Local
Offset (%):

Direction	SBLT	NB	WBLT	EB
Phase	*1*	*2*	*3*	*4*
%				
Direction	**NBLT**	**SB**	**EBLT**	**WB**
Phase	***5***	***6***	***7***	***8***
%				

Pattern 5
Time:
Cycle Length:
Offset (%):

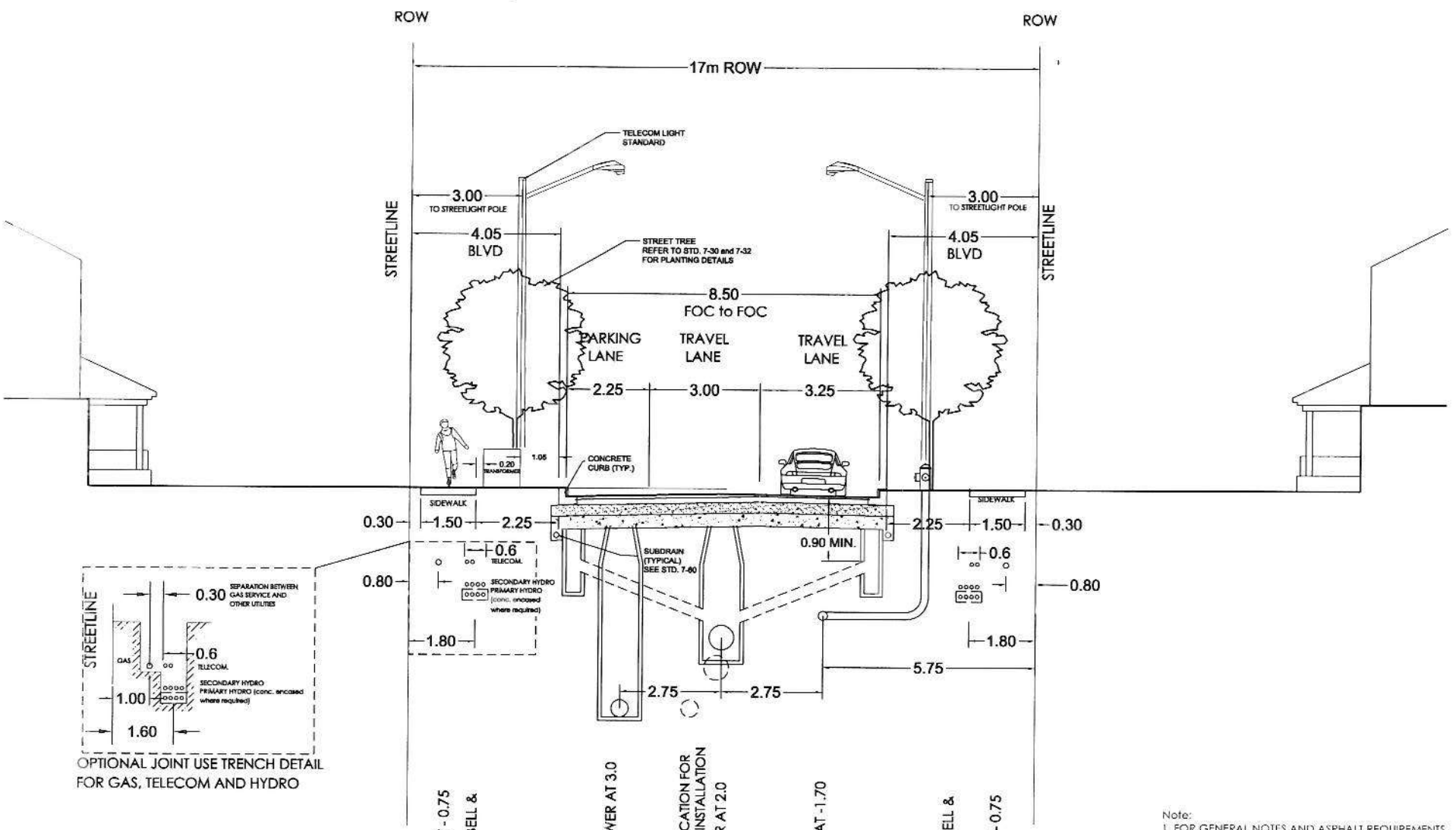
Direction				
Phase	*1*	*2*	*3*	*4*
%				
Direction				
Phase	**5**	**6**	**7**	**8**
%				

Pattern 6
Time:
Cycle Length:
Offset (%):

Direction				
Phase	*1*	*2*	*3*	*4*
%	x	x	x	x
Direction				
Phase	**5**	**6**	**7**	**8**
%		x		x

Appendix E

Roadway Cross-Sections



OPTIONAL JOINT USE TRENCH DETAIL
FOR GAS, TELECOM AND HYDRO

Note:
1. FOR GENERAL NOTES AND ASPHALT REQUIREMENTS REFER TO STD. 7-20

TOWN OF OAKVILLE

STANDARD STREET SECTION

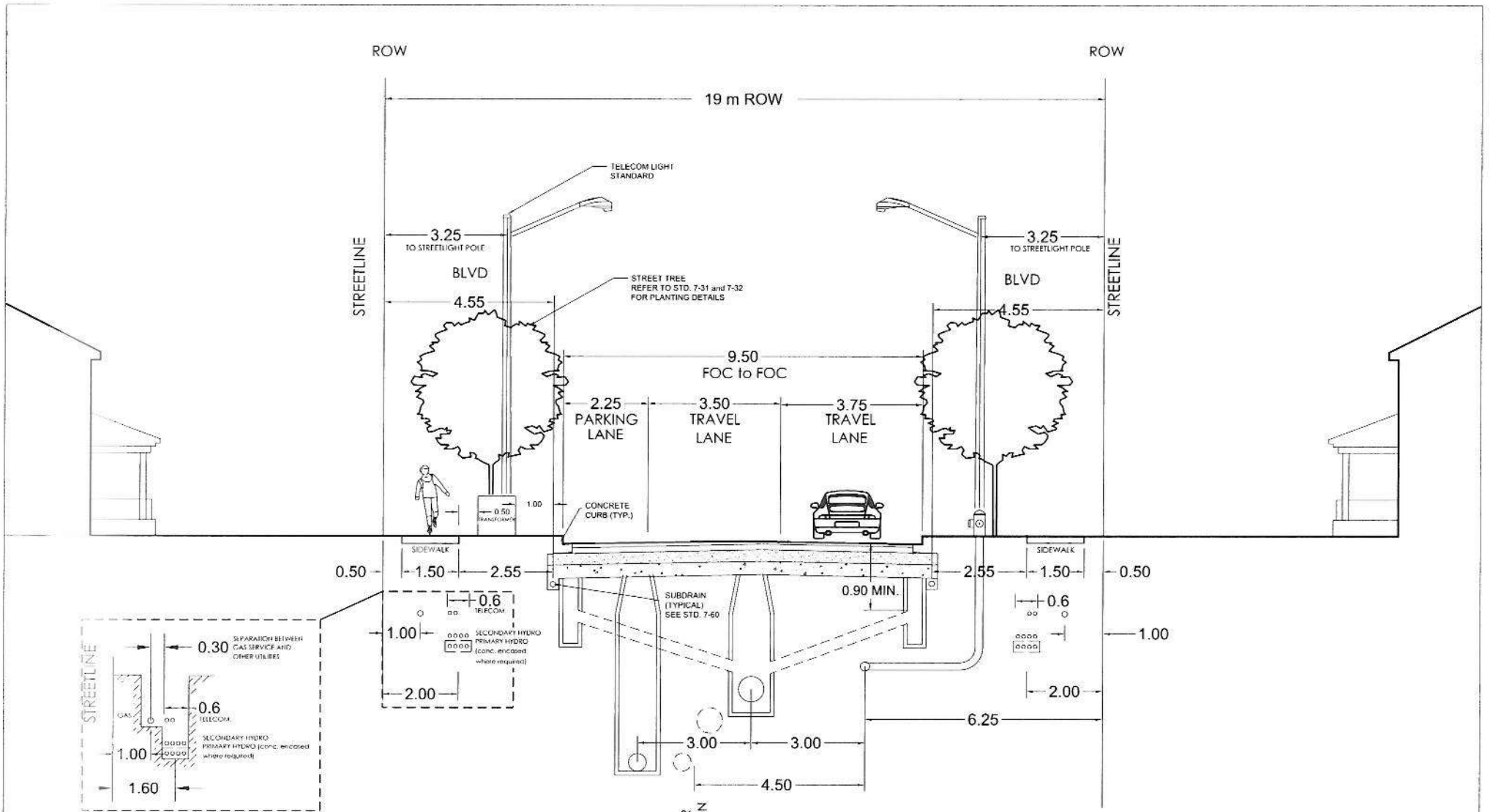
LOCAL ROADWAY
17.0m RIGHT OF WAY
MODIFIED BOULEVARD SPACE

APPROVED

DIRECTOR OF ENGINEERING AND CONSTRUCTION

STD 7-22A

REVISION DATE
July 3, 2012



TOWN OF OAKVILLE

STANDARD STREET SECTION

CONNECTOR / TRANSIT CORRIDOR

19.0m RIGHT OF WAY

APPROVED

DIRECTOR OF ENGINEERING AND CONSTRUCTION

STD 7-23

REVISION DATE

May 2011

Appendix F

Parking Plan

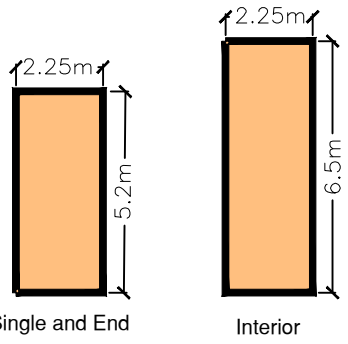
PRELIMINARY ON-STREET PARKING ANALYSIS
Argo Neyagawa Corporation

PART OF LOT 20
CONCESSION 2, NORTH OF DUNDAS STREET

GEOGRAPHIC TOWNSHIP OF TRAFALGAR
NOW IN THE
TOWN OF OAKVILLE
REGIONAL MUNICIPALITY OF HALTON

±49 On-street parking spaces*

TYPICAL ON-STREET PARKING SPACE**



* Subject to adjustment during detailed engineering design

** Per North Oakville Parking Strategy

HIGHWAY 407

Future Transitway
1.24 ha

Future MTO Setback (0.42 ha)

Trail (0.12 ha)

EXISTING RESIDENTIAL

Medium Density
Residential Condominium
1.15 ha

17 STREET "A"

Medium Density
Residential Condominium
1.74 ha

Medium Density
Residential Condominium
1.70 ha

FOURTH LINE

NEYAGAWA BOULEVARD

19 STREET "B" 19

Medium Density
Residential Condominium
1.02 ha

STREET "A"

Mixed Use
1.64 ha

Stormwater Management
Pond
0.93 ha

EXISTING RESIDENTIAL

17

BURNHAMTHORPE ROAD
(FUTURE WILLIAM HALTON PARKWAY)

KING'S CHRISTIAN COLLEGIATE

SCALE 1:2000

December 11, 2023

ARGO DEVELOPMENT CORP

S:\Korsiak & Company\ARGO\Neyagawa\Parking Plan\Argo Neyagawa - Parking Plan - Dec 11 23_sp.dwg

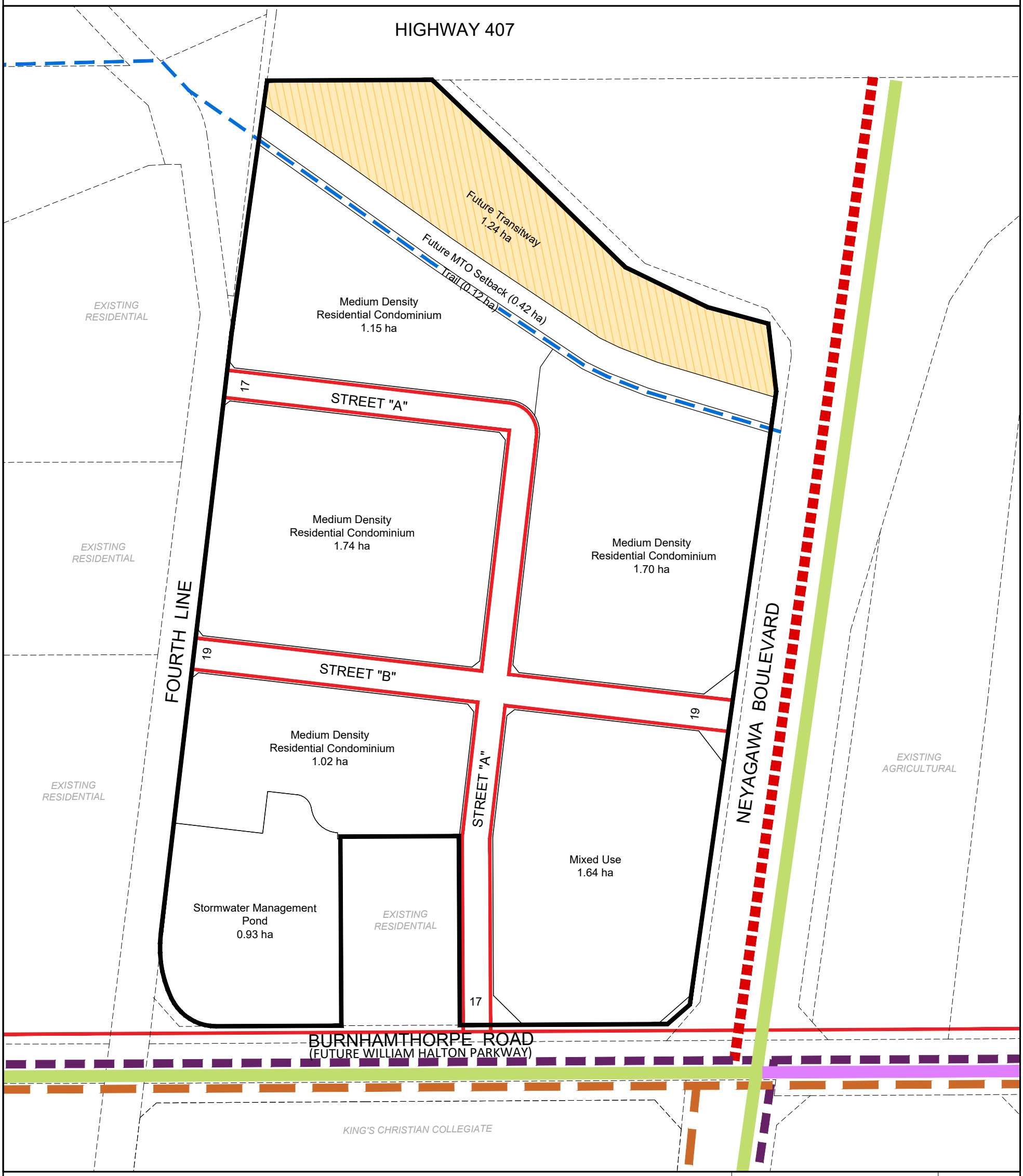
Appendix G

Pedestrian Circulation / Transit Facility Plan

Legend

- Sidewalk
- Multi-use Trail**
- Major Trail System**
- Regional Bicycle Facility**
- Bike Lane**
- Transitway Corridor*
- Secondary Transit Corridor Service*
- Community Service*

* From Figure NOE4 - Transportation Plan - NOESP
** From Figure 1 - North Oakville Trails Plan



Argo Neyagawa

PEDESTRIAN CIRCULATION / TRANSIT FACILITY PLAN

1:2000

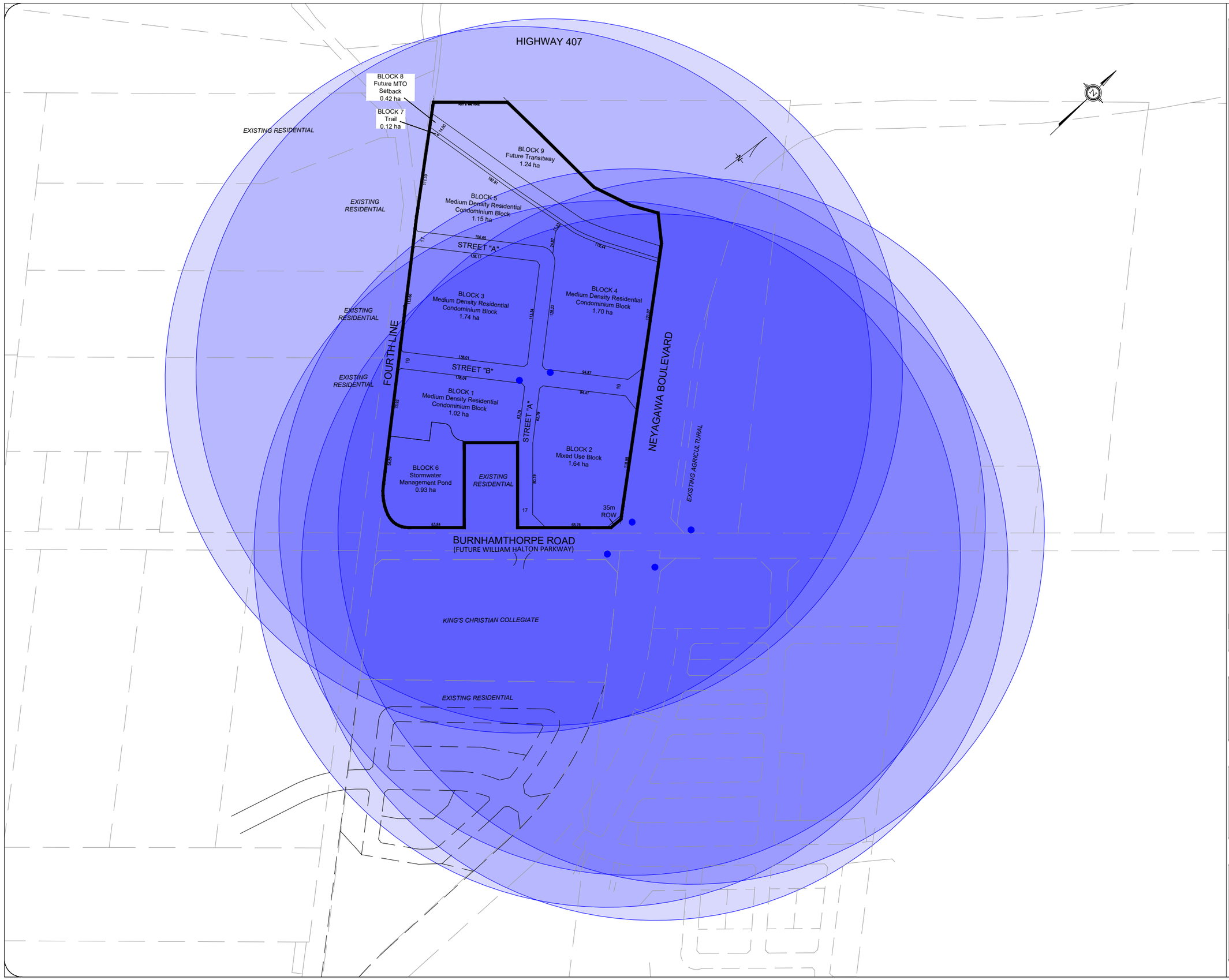
December 19, 2023

S:\Korsiak & Company\ARGO\Neyagawa\Pedestrian Circulation\Argo Neyagawa - Pedestrian Circulation Plan - Dec 19 23_sp.dwg

ARGO DEVELOPMENT CORP

Appendix H

Transit Plan



Notes:

Key Plan:

Legend:

- Transit Stop
- 400m Transit Walking Distance

REV:	DESCRIPTION:	BY:	DATE:
01	Issued for Review:	AN	2023-12-12

STATUS:

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

CLIENT: ARGO

ARCHITECT:

SITE: Neyagawa
Oakville, ON

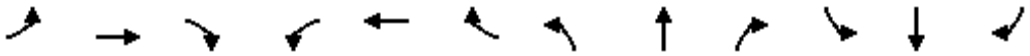
TITLE: Transit Plan

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2023-12-12	AN	MC
PROJECT NO:	DRAWING NO:		REVISION:
2023-043	001		01

Appendix I

2023 Existing Conditions Synchro and Sidra Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	64	160	365	105	8	84	313	341	11	131	38
Future Volume (vph)	26	64	160	365	105	8	84	313	341	11	131	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		70.0	85.0		80.0	80.0		70.0	80.0		75.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			60.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor			0.99	1.00		0.99						
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3305	1479	1653	3368	1566	1668	3500	1566	1750	3433	1566
Flt Permitted	0.666			0.546			0.593			0.513		
Satd. Flow (perm)	1227	3305	1460	949	3368	1546	1041	3500	1566	945	3433	1566
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			208			81			443			124
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		160.4			860.0			440.5			292.4	
Travel Time (s)		9.6			51.6			26.4			17.5	
Confl. Peds. (#/hr)			1	1								
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	2%	8%	8%	8%	6%	2%	7%	2%	2%	2%	4%	2%
Adj. Flow (vph)	34	83	208	474	136	10	109	406	443	14	170	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	83	208	474	136	10	109	406	443	14	170	49
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												



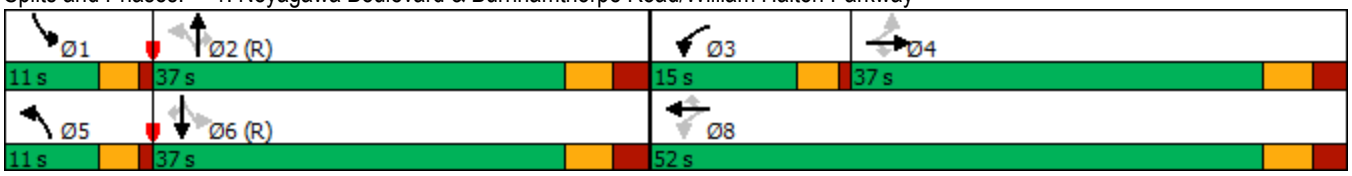
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	15.0	15.0	7.0	15.0	15.0
Minimum Split (s)	40.4	40.4	40.4	11.0	40.4	40.4	11.0	37.4	37.4	11.0	37.4	37.4
Total Split (s)	37.0	37.0	37.0	15.0	52.0	52.0	11.0	37.0	37.0	11.0	37.0	37.0
Total Split (%)	37.0%	37.0%	37.0%	15.0%	52.0%	52.0%	11.0%	37.0%	37.0%	11.0%	37.0%	37.0%
Maximum Green (s)	30.6	30.6	30.6	11.0	45.6	45.6	7.0	30.6	30.6	7.0	30.6	30.6
Yellow Time (s)	3.7	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)	27.0	27.0	27.0		27.0	27.0		24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)	1	1	1		0	0		0	0		0	0
Act Effct Green (s)	14.1	14.1	14.1	31.5	29.1	29.1	59.7	55.9	55.9	55.9	46.5	46.5
Actuated g/C Ratio	0.14	0.14	0.14	0.32	0.29	0.29	0.60	0.56	0.56	0.56	0.46	0.46
v/c Ratio	0.20	0.18	0.54	1.26	0.14	0.02	0.16	0.21	0.41	0.02	0.11	0.06
Control Delay	37.3	36.4	10.0	166.7	25.1	0.1	11.1	14.0	3.5	11.5	17.3	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.3	36.4	10.0	166.7	25.1	0.1	11.1	14.0	3.5	11.5	17.3	0.2
LOS	D	D	B	F	C	A	B	B	A	B	B	A
Approach Delay		19.6			133.0			8.8			13.3	
Approach LOS		B			F			A			B	
Queue Length 50th (m)	6.2	7.9	0.0	~123.8	10.8	0.0	7.2	16.2	0.0	0.9	8.6	0.0
Queue Length 95th (m)	10.1	9.7	8.7	76.1	11.0	0.0	19.1	37.8	8.1	4.2	17.3	0.0
Internal Link Dist (m)		136.4			836.0			416.5			268.4	
Turn Bay Length (m)	70.0		70.0	85.0		80.0	80.0		70.0	80.0		75.0
Base Capacity (vph)	375	1011	591	376	1535	749	668	1956	1070	585	1597	795
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.08	0.35	1.26	0.09	0.01	0.16	0.21	0.41	0.02	0.11	0.06

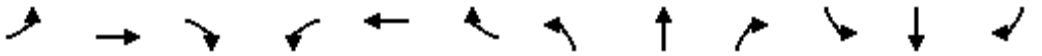
Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 73 (73%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.26	

Intersection Signal Delay: 47.0	Intersection LOS: D
Intersection Capacity Utilization 59.2%	ICU Level of Service B
Analysis Period (min) 15	

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

Splits and Phases: 1: Neyagawa Boulevard & Burnhamthorpe Road/William Halton Parkway



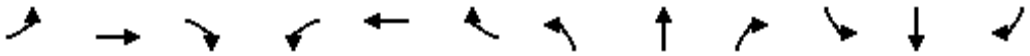


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	64	160	365	105	8	84	313	341	11	131	38
Future Volume (vph)	26	64	160	365	105	8	84	313	341	11	131	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	3305	1460	1652	3368	1546	1668	3500	1566	1750	3433	1566
Flt Permitted	0.67	1.00	1.00	0.55	1.00	1.00	0.59	1.00	1.00	0.51	1.00	1.00
Satd. Flow (perm)	1226	3305	1460	949	3368	1546	1042	3500	1566	946	3433	1566
Peak-hour factor, PHF	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Adj. Flow (vph)	34	83	208	474	136	10	109	406	443	14	170	49
RTOR Reduction (vph)	0	0	179	0	0	7	0	0	210	0	0	26
Lane Group Flow (vph)	34	83	29	474	136	3	109	406	233	14	170	23
Confl. Peds. (#/hr)			1	1								
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	2%	8%	8%	8%	6%	2%	7%	2%	2%	2%	4%	2%
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	14.1	14.1	14.1	29.1	29.1	29.1	58.1	52.7	52.7	48.0	46.6	46.6
Effective Green, g (s)	14.1	14.1	14.1	29.1	29.1	29.1	58.1	52.7	52.7	48.0	46.6	46.6
Actuated g/C Ratio	0.14	0.14	0.14	0.29	0.29	0.29	0.58	0.53	0.53	0.48	0.47	0.47
Clearance Time (s)	6.4	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	172	466	205	353	980	449	652	1844	825	465	1599	729
v/s Ratio Prot		0.03		c0.15	0.04		c0.01	0.12		0.00	0.05	
v/s Ratio Perm	0.03		0.02	c0.24		0.00	0.08		c0.15	0.01		0.01
v/c Ratio	0.20	0.18	0.14	1.34	0.14	0.01	0.17	0.22	0.28	0.03	0.11	0.03
Uniform Delay, d1	38.0	37.8	37.7	34.4	26.2	25.2	9.5	12.7	13.1	13.6	15.0	14.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.2	0.3	172.1	0.1	0.0	0.1	0.3	0.9	0.0	0.1	0.1
Delay (s)	38.5	38.0	38.0	206.6	26.3	25.2	9.6	12.9	14.0	13.7	15.1	14.5
Level of Service	D	D	D	F	C	C	A	B	B	B	B	B
Approach Delay (s)		38.0			164.1			13.0			14.9	
Approach LOS		D			F			B			B	

Intersection Summary			
HCM 2000 Control Delay	60.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	24	0	156	23	2	0	0	7	3	0	0
Future Volume (vph)	0	24	0	156	23	2	0	0	7	3	0	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
Ped Bike Factor												
Frt					0.998			0.865				
Flt Protected					0.959						0.950	
Satd. Flow (prot)	0	1362	0	0	1632	0	0	1260	0	0	1750	0
Flt Permitted					0.959						0.950	
Satd. Flow (perm)	0	1362	0	0	1632	0	0	1260	0	0	1750	0
Link Speed (k/h)		50			60			60			60	
Link Distance (m)		254.1			150.0			328.9			264.5	
Travel Time (s)		18.3			9.0			19.7			15.9	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Heavy Vehicles (%)	2%	38%	2%	6%	39%	2%	2%	2%	29%	2%	2%	2%
Adj. Flow (vph)	0	44	0	289	43	4	0	0	13	6	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	44	0	0	336	0	0	13	0	0	6	0
Enter Blocked Intersection	No	No	No	No	No	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		Free			Free			Stop			Stop	

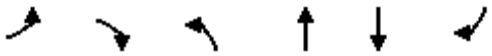
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	27.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	24	0	156	23	2	0	0	7	3	0	0
Future Volume (Veh/h)	0	24	0	156	23	2	0	0	7	3	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Hourly flow rate (vph)	0	44	0	289	43	4	0	0	13	6	0	0
Pedestrians		1										
Lane Width (m)		3.5										
Walking Speed (m/s)		1.0										
Percent Blockage		0										
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					310							
pX, platoon unblocked	0.97						0.97	0.97		0.97	0.97	0.97
vC, conflicting volume	47			44			668	669	44	680	667	46
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	3			44			643	644	44	655	642	2
tC, single (s)	4.1			4.2			7.1	6.5	6.5	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.6	3.5	4.0	3.3
p0 queue free %	100			81			100	100	99	98	100	100
cM capacity (veh/h)	1571			1539			321	309	954	311	309	1049

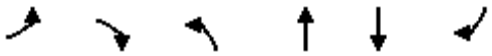
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	44	336	13	6
Volume Left	0	289	0	6
Volume Right	0	4	13	0
cSH	1571	1539	954	311
Volume to Capacity	0.00	0.19	0.01	0.02
Queue Length 95th (m)	0.0	5.2	0.3	0.4
Control Delay (s)	0.0	7.0	8.8	16.8
Lane LOS		A	A	C
Approach Delay (s)	0.0	7.0	8.8	16.8
Approach LOS			A	C

Intersection Summary				
Average Delay	6.4			
Intersection Capacity Utilization	27.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	79	0	52	103	0
Future Volume (vph)	0	79	0	52	103	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected						
Satd. Flow (prot)	1842	1551	0	3500	3466	0
Flt Permitted						
Satd. Flow (perm)	1842	1551	0	3500	3466	0
Link Speed (k/h)	60			80	80	
Link Distance (m)	260.4			118.3	195.2	
Travel Time (s)	15.6			5.3	8.8	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%
Adj. Flow (vph)	0	89	0	58	116	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	89	0	58	116	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	14.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	79	0	52	103	0
Future Volume (Veh/h)	0	79	0	52	103	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	0	89	0	58	116	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	145	58	116			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	145	58	116			
tC, single (s)	6.8	7.0	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	91	100			
cM capacity (veh/h)	833	993	1470			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	0	89	29	29	58	58
Volume Left	0	0	0	0	0	0
Volume Right	0	89	0	0	0	0
cSH	1700	993	1700	1700	1700	1700
Volume to Capacity	0.00	0.09	0.02	0.02	0.03	0.03
Queue Length 95th (m)	0.0	2.2	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	9.0	0.0	0.0	0.0	0.0
Lane LOS	A	A				
Approach Delay (s)	9.0		0.0		0.0	
Approach LOS	A					

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	14.9%	ICU Level of Service	A
Analysis Period (min)	15		

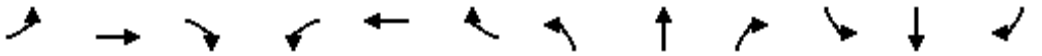
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	393	38	0	413	104	3
Future Volume (vph)	393	38	0	413	104	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		30.0	30.0		30.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			50.0		40.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				0.850
Flt Protected					0.950	
Satd. Flow (prot)	3400	1413	1842	3336	1428	799
Flt Permitted					0.950	
Satd. Flow (perm)	3400	1413	1842	3336	1428	799
Link Speed (k/h)	60			60	40	
Link Distance (m)	860.0			248.4	359.5	
Travel Time (s)	51.6			14.9	32.4	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	5%	13%	2%	7%	25%	100%
Adj. Flow (vph)	452	44	0	475	120	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	452	44	0	475	120	3
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 23.8%		ICU Level of Service A	
Analysis Period (min) 15			

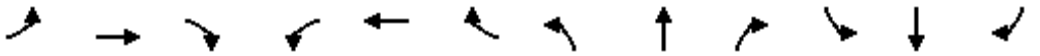
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	393	38	0	413	104	3
Future Volume (Veh/h)	393	38	0	413	104	3
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	452	44	0	475	120	3
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			496		690	226
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			496		690	226
tC, single (s)			4.1		7.3	8.9
tC, 2 stage (s)						
tF (s)			2.2		3.8	4.3
p0 queue free %			100		64	99
cM capacity (veh/h)			1064		332	546

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	226	226	44	0	238	238	120	3
Volume Left	0	0	0	0	0	0	120	0
Volume Right	0	0	44	0	0	0	0	3
cSH	1700	1700	1700	1700	1700	1700	332	546
Volume to Capacity	0.13	0.13	0.03	0.00	0.14	0.14	0.36	0.01
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	12.1	0.1
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	21.8	11.6
Lane LOS							C	B
Approach Delay (s)	0.0			0.0			21.6	
Approach LOS							C	

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	23.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	24	66	434	33	29	49	215	284	15	252	8
Future Volume (vph)	15	24	66	434	33	29	49	215	284	15	252	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		70.0	85.0		80.0	80.0		70.0	80.0		75.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			60.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor			0.99	1.00								
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3433	1566	1750	3500	1551	1750	3500	1566	1750	3500	1566
Flt Permitted	0.731			0.542			0.545			0.599		
Satd. Flow (perm)	1347	3433	1544	997	3500	1551	1004	3500	1566	1103	3500	1566
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			124			81			326			124
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		160.4			860.0			440.5			292.4	
Travel Time (s)		9.6			51.6			26.4			17.5	
Confl. Peds. (#/hr)			2	2								
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	2%	4%	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	17	28	76	499	38	33	56	247	326	17	290	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	28	76	499	38	33	56	247	326	17	290	9
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

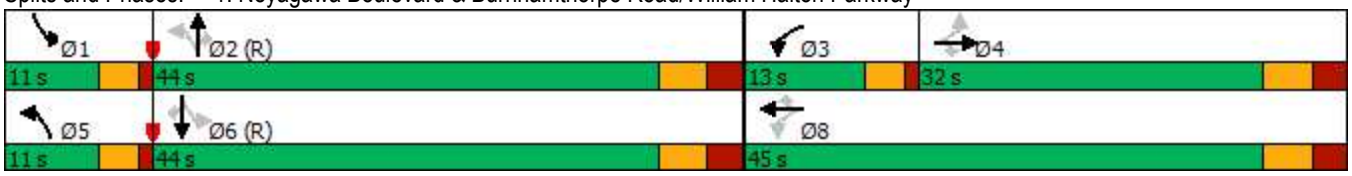


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	15.0	15.0	7.0	15.0	15.0
Minimum Split (s)	40.4	40.4	40.4	11.0	40.4	40.4	11.0	37.4	37.4	11.0	37.4	37.4
Total Split (s)	32.0	32.0	32.0	13.0	45.0	45.0	11.0	44.0	44.0	11.0	44.0	44.0
Total Split (%)	32.0%	32.0%	32.0%	13.0%	45.0%	45.0%	11.0%	44.0%	44.0%	11.0%	44.0%	44.0%
Maximum Green (s)	25.6	25.6	25.6	9.0	38.6	38.6	7.0	37.6	37.6	7.0	37.6	37.6
Yellow Time (s)	3.7	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)	27.0	27.0	27.0		27.0	27.0		24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)	2	2	2		0	0		0	0		0	0
Act Effct Green (s)	13.1	13.1	13.1	25.9	23.5	23.5	64.5	59.3	59.3	62.9	54.9	54.9
Actuated g/C Ratio	0.13	0.13	0.13	0.26	0.24	0.24	0.64	0.59	0.59	0.63	0.55	0.55
v/c Ratio	0.10	0.06	0.25	1.51	0.05	0.08	0.08	0.12	0.31	0.02	0.15	0.01
Control Delay	36.2	35.5	3.3	271.6	25.5	0.3	8.9	12.2	3.0	9.1	14.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.2	35.5	3.3	271.6	25.5	0.3	8.9	12.2	3.0	9.1	14.1	0.0
LOS	D	D	A	F	C	A	A	B	A	A	B	A
Approach Delay		15.3			239.5			7.2			13.4	
Approach LOS		B			F			A			B	
Queue Length 50th (m)	3.1	2.6	0.0	~137.3	3.0	0.0	3.4	8.8	0.0	1.0	14.3	0.0
Queue Length 95th (m)	7.5	5.4	2.5	#157.2	5.4	0.0	11.0	24.3	14.4	4.7	28.1	0.0
Internal Link Dist (m)		136.4			836.0			416.5			268.4	
Turn Bay Length (m)	70.0		70.0	85.0		80.0	80.0		70.0	80.0		75.0
Base Capacity (vph)	344	878	487	331	1351	648	699	2075	1061	738	1920	915
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.03	0.16	1.51	0.03	0.05	0.08	0.12	0.31	0.02	0.15	0.01

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 94 (94%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.51	
Intersection Signal Delay: 89.9	Intersection LOS: F

Intersection Capacity Utilization 63.0% ICU Level of Service B
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.

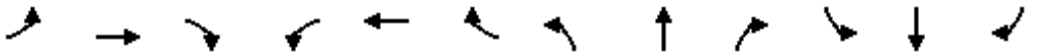
Splits and Phases: 1: Neyagawa Boulevard & Burnhamthorpe Road/William Halton Parkway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	24	66	434	33	29	49	215	284	15	252	8
Future Volume (vph)	15	24	66	434	33	29	49	215	284	15	252	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	3433	1544	1748	3500	1551	1750	3500	1566	1750	3500	1566
Flt Permitted	0.73	1.00	1.00	0.54	1.00	1.00	0.55	1.00	1.00	0.60	1.00	1.00
Satd. Flow (perm)	1347	3433	1544	998	3500	1551	1005	3500	1566	1103	3500	1566
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	17	28	76	499	38	33	56	247	326	17	290	9
RTOR Reduction (vph)	0	0	68	0	0	25	0	0	145	0	0	4
Lane Group Flow (vph)	17	28	8	499	38	8	56	247	181	17	290	5
Confl. Peds. (#/hr)			2	2								
Heavy Vehicles (%)	2%	4%	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	11.1	11.1	11.1	24.8	24.8	24.8	61.2	55.6	55.6	55.6	52.8	52.8
Effective Green, g (s)	11.1	11.1	11.1	24.8	24.8	24.8	61.2	55.6	55.6	55.6	52.8	52.8
Actuated g/C Ratio	0.11	0.11	0.11	0.25	0.25	0.25	0.61	0.56	0.56	0.56	0.53	0.53
Clearance Time (s)	6.4	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	149	381	171	320	868	384	656	1946	870	631	1848	826
v/s Ratio Prot		0.01		c0.15	0.01		c0.00	0.07		0.00	0.08	
v/s Ratio Perm	0.01		0.01	c0.24		0.01	0.05		c0.12	0.01		0.00
v/c Ratio	0.11	0.07	0.05	1.56	0.04	0.02	0.09	0.13	0.21	0.03	0.16	0.01
Uniform Delay, d1	40.0	39.8	39.7	36.8	28.6	28.4	7.8	10.6	11.1	10.0	12.1	11.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.1	0.1	266.5	0.0	0.0	0.1	0.1	0.5	0.0	0.2	0.0
Delay (s)	40.4	39.9	39.9	303.3	28.6	28.4	7.9	10.7	11.7	10.0	12.3	11.2
Level of Service	D	D	D	F	C	C	A	B	B	A	B	B
Approach Delay (s)		39.9			269.1			11.0			12.2	
Approach LOS		D			F			B			B	

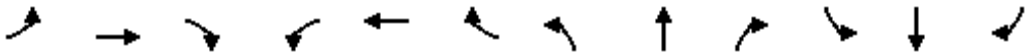
Intersection Summary			
HCM 2000 Control Delay	103.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	5	0	50	10	7	0	0	10	13	0	1
Future Volume (vph)	0	5	0	50	10	7	0	0	10	13	0	1
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					0.986			0.865			0.992	
Flt Protected					0.964						0.955	
Satd. Flow (prot)	0	1842	0	0	1594	0	0	1593	0	0	998	0
Flt Permitted					0.964						0.955	
Satd. Flow (perm)	0	1842	0	0	1594	0	0	1593	0	0	998	0
Link Speed (k/h)		50			60			60			60	
Link Distance (m)		254.1			150.0			328.9			264.5	
Travel Time (s)		18.3			9.0			19.7			15.9	
Confl. Peds. (#/hr)			4	4			4		5	5		4
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	2%	2%	2%	2%	20%	71%	2%	2%	2%	77%	2%	100%
Adj. Flow (vph)	0	6	0	63	13	9	0	0	13	16	0	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	6	0	0	85	0	0	13	0	0	17	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		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		Free			Free			Stop			Stop	

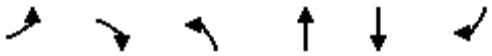
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	5	0	50	10	7	0	0	10	13	0	1
Future Volume (Veh/h)	0	5	0	50	10	7	0	0	10	13	0	1
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	0	6	0	62	12	9	0	0	12	16	0	1
Pedestrians		4			5			4				
Lane Width (m)		3.5			3.5			3.5				
Walking Speed (m/s)		1.0			1.0			1.0				
Percent Blockage		0			0			0				
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					310							
pX, platoon unblocked												
vC, conflicting volume	21			10			156	155	15	164	150	20
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	21			10			156	155	15	164	150	20
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.9	6.5	7.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	4.2	4.0	4.2
p0 queue free %	100			96			100	100	99	97	100	100
cM capacity (veh/h)	1595			1603			778	706	1055	628	710	829

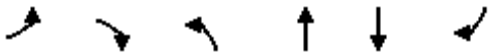
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	6	83	12	17
Volume Left	0	62	0	16
Volume Right	0	9	12	1
cSH	1595	1603	1055	637
Volume to Capacity	0.00	0.04	0.01	0.03
Queue Length 95th (m)	0.0	0.9	0.3	0.6
Control Delay (s)	0.0	5.6	8.5	10.8
Lane LOS		A	A	B
Approach Delay (s)	0.0	5.6	8.5	10.8
Approach LOS			A	B

Intersection Summary				
Average Delay	6.3			
Intersection Capacity Utilization	25.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	74	0	117	201	0
Future Volume (vph)	2	74	0	117	201	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1750	1566	0	3500	3500	0
Flt Permitted	0.950					
Satd. Flow (perm)	1750	1566	0	3500	3500	0
Link Speed (k/h)	60			80	80	
Link Distance (m)	260.4			118.3	195.2	
Travel Time (s)	15.6			5.3	8.8	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	2	84	0	133	228	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	84	0	133	228	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 16.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	74	0	117	201	0
Future Volume (Veh/h)	2	74	0	117	201	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	2	84	0	133	228	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	294	114	228			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	294	114	228			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	91	100			
cM capacity (veh/h)	673	917	1337			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	2	84	66	66	114	114
Volume Left	2	0	0	0	0	0
Volume Right	0	84	0	0	0	0
cSH	673	917	1700	1700	1700	1700
Volume to Capacity	0.00	0.09	0.04	0.04	0.07	0.07
Queue Length 95th (m)	0.1	2.3	0.0	0.0	0.0	0.0
Control Delay (s)	10.4	9.3	0.0	0.0	0.0	0.0
Lane LOS	B	A				
Approach Delay (s)	9.3		0.0		0.0	
Approach LOS	A					

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	16.8%	ICU Level of Service	A
Analysis Period (min)	15		

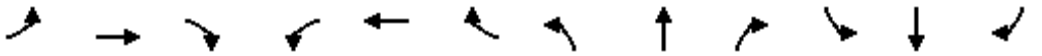
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	285	26	0	435	66	2
Future Volume (vph)	285	26	0	435	66	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		30.0	30.0		30.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			50.0		40.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				0.850
Flt Protected					0.950	
Satd. Flow (prot)	3466	1566	1842	3500	1733	1566
Flt Permitted					0.950	
Satd. Flow (perm)	3466	1566	1842	3500	1733	1566
Link Speed (k/h)	60			60	40	
Link Distance (m)	860.0			248.3	359.5	
Travel Time (s)	51.6			14.9	32.4	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	2%	2%	2%	3%	2%
Adj. Flow (vph)	300	27	0	458	69	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	300	27	0	458	69	2
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 22.3%		ICU Level of Service A	
Analysis Period (min) 15			

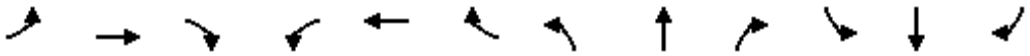
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	285	26	0	435	66	2
Future Volume (Veh/h)	285	26	0	435	66	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	300	27	0	458	69	2
Pedestrians						
Lane Width (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			327		529	150
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			327		529	150
tC, single (s)			4.1		6.9	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		86	100
cM capacity (veh/h)			1229		477	870

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	150	150	27	0	229	229	69	2
Volume Left	0	0	0	0	0	0	69	0
Volume Right	0	0	27	0	0	0	0	2
cSH	1700	1700	1700	1700	1700	1700	477	870
Volume to Capacity	0.09	0.09	0.02	0.00	0.13	0.13	0.14	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	3.8	0.1
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	13.8	9.1
Lane LOS							B	A
Approach Delay (s)	0.0			0.0			13.7	
Approach LOS							B	

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	22.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	64	160	365	105	8	84	313	341	11	131	38
Future Volume (vph)	26	64	160	365	105	8	84	313	341	11	131	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		70.0	85.0		80.0	80.0		70.0	80.0		75.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			60.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor			0.99	1.00		0.99						
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3305	1479	1653	3368	1566	1668	3500	1566	1750	3433	1566
Flt Permitted	0.666			0.552			0.597			0.513		
Satd. Flow (perm)	1227	3305	1459	959	3368	1546	1048	3500	1566	945	3433	1566
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			208			67			443			104
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		160.4			860.0			440.5			292.4	
Travel Time (s)		9.6			51.6			26.4			17.5	
Confl. Peds. (#/hr)			1	1								
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	2%	8%	8%	8%	6%	2%	7%	2%	2%	2%	4%	2%
Adj. Flow (vph)	34	83	208	474	136	10	109	406	443	14	170	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	83	208	474	136	10	109	406	443	14	170	49
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

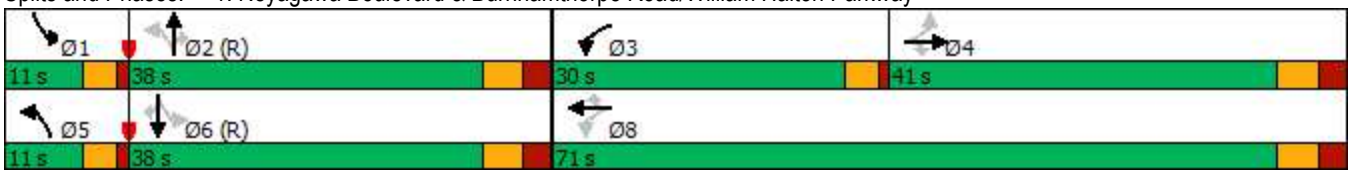


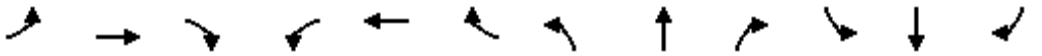
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	15.0	15.0	7.0	15.0	15.0
Minimum Split (s)	40.4	40.4	40.4	11.0	40.4	40.4	11.0	37.4	37.4	11.0	37.4	37.4
Total Split (s)	41.0	41.0	41.0	30.0	71.0	71.0	11.0	38.0	38.0	11.0	38.0	38.0
Total Split (%)	34.2%	34.2%	34.2%	25.0%	59.2%	59.2%	9.2%	31.7%	31.7%	9.2%	31.7%	31.7%
Maximum Green (s)	34.6	34.6	34.6	26.0	64.6	64.6	7.0	31.6	31.6	7.0	31.6	31.6
Yellow Time (s)	3.7	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)	27.0	27.0	27.0		27.0	27.0		24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)	1	1	1		0	0		0	0		0	0
Act Effct Green (s)	14.9	14.9	14.9	47.3	44.9	44.9	63.8	57.9	57.9	59.4	50.0	50.0
Actuated g/C Ratio	0.12	0.12	0.12	0.39	0.37	0.37	0.53	0.48	0.48	0.50	0.42	0.42
v/c Ratio	0.22	0.20	0.57	0.90	0.11	0.02	0.18	0.24	0.45	0.03	0.12	0.07
Control Delay	47.2	45.9	11.8	51.7	23.4	0.0	17.1	21.6	4.5	17.3	24.1	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.2	45.9	11.8	51.7	23.4	0.0	17.1	21.6	4.5	17.3	24.1	0.2
LOS	D	D	B	D	C	A	B	C	A	B	C	A
Approach Delay		24.2			44.7			13.2			18.7	
Approach LOS		C			D			B			B	
Queue Length 50th (m)	7.7	9.8	0.0	100.4	11.6	0.0	10.9	23.8	0.0	1.3	11.8	0.0
Queue Length 95th (m)	12.0	11.7	9.1	75.4	10.9	0.0	24.9	47.3	7.8	5.5	21.6	0.0
Internal Link Dist (m)		136.4			836.0			416.5			268.4	
Turn Bay Length (m)	70.0		70.0	85.0		80.0	80.0		70.0	80.0		75.0
Base Capacity (vph)	353	952	568	528	1813	863	600	1689	984	515	1430	713
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.09	0.37	0.90	0.08	0.01	0.18	0.24	0.45	0.03	0.12	0.07

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.90	

Intersection Signal Delay: 24.6	Intersection LOS: C
Intersection Capacity Utilization 59.2%	ICU Level of Service B
Analysis Period (min) 15	

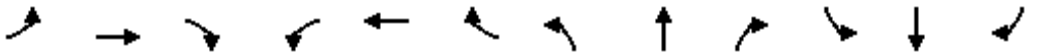
Splits and Phases: 1: Neyagawa Boulevard & Burnhamthorpe Road/William Halton Parkway



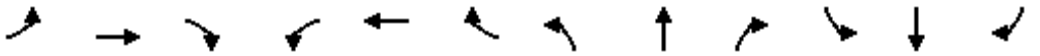


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	64	160	365	105	8	84	313	341	11	131	38
Future Volume (vph)	26	64	160	365	105	8	84	313	341	11	131	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	3305	1459	1652	3368	1546	1668	3500	1566	1750	3433	1566
Flt Permitted	0.67	1.00	1.00	0.55	1.00	1.00	0.60	1.00	1.00	0.51	1.00	1.00
Satd. Flow (perm)	1226	3305	1459	960	3368	1546	1048	3500	1566	946	3433	1566
Peak-hour factor, PHF	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Adj. Flow (vph)	34	83	208	474	136	10	109	406	443	14	170	49
RTOR Reduction (vph)	0	0	182	0	0	6	0	0	238	0	0	29
Lane Group Flow (vph)	34	83	26	474	136	4	109	406	205	14	170	20
Confl. Peds. (#/hr)			1	1								
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	2%	8%	8%	8%	6%	2%	7%	2%	2%	2%	4%	2%
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	14.9	14.9	14.9	44.9	44.9	44.9	62.3	55.5	55.5	52.8	50.0	50.0
Effective Green, g (s)	14.9	14.9	14.9	44.9	44.9	44.9	62.3	55.5	55.5	52.8	50.0	50.0
Actuated g/C Ratio	0.12	0.12	0.12	0.37	0.37	0.37	0.52	0.46	0.46	0.44	0.42	0.42
Clearance Time (s)	6.4	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	152	410	181	509	1260	578	586	1618	724	435	1430	652
v/s Ratio Prot		0.03		c0.20	0.04		c0.01	0.12		0.00	0.05	
v/s Ratio Perm	0.03		0.02	c0.15		0.00	0.08		c0.13	0.01		0.01
v/c Ratio	0.22	0.20	0.14	0.93	0.11	0.01	0.19	0.25	0.28	0.03	0.12	0.03
Uniform Delay, d1	47.3	47.2	46.9	33.7	24.5	23.6	14.9	19.6	19.9	19.0	21.5	20.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.2	0.4	24.0	0.0	0.0	0.2	0.4	1.0	0.0	0.2	0.1
Delay (s)	48.1	47.5	47.2	57.7	24.5	23.6	15.1	20.0	20.9	19.0	21.7	20.8
Level of Service	D	D	D	E	C	C	B	B	C	B	C	C
Approach Delay (s)		47.4			49.9			19.9			21.3	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	32.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	24	66	434	33	29	49	215	284	15	252	8
Future Volume (vph)	15	24	66	434	33	29	49	215	284	15	252	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		70.0	85.0		80.0	80.0		70.0	80.0		75.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			60.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor			0.99	1.00								
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3433	1566	1750	3500	1551	1750	3500	1566	1750	3500	1566
Flt Permitted	0.731			0.562			0.544			0.599		
Satd. Flow (perm)	1347	3433	1544	1033	3500	1551	1002	3500	1566	1103	3500	1566
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			104			67			326			104
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		160.4			860.0			440.5			292.4	
Travel Time (s)		9.6			51.6			26.4			17.5	
Confl. Peds. (#/hr)			2	2								
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	2%	4%	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	17	28	76	499	38	33	56	247	326	17	290	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	28	76	499	38	33	56	247	326	17	290	9
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

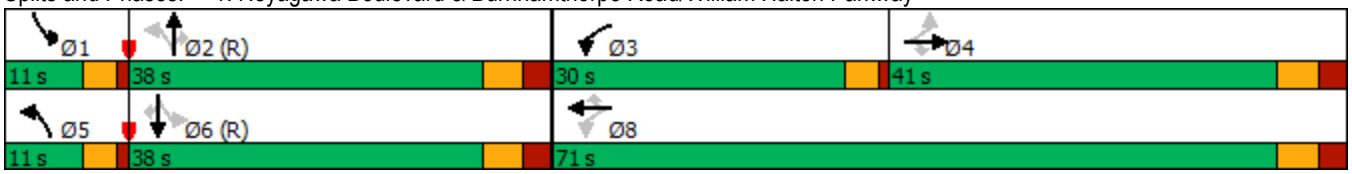


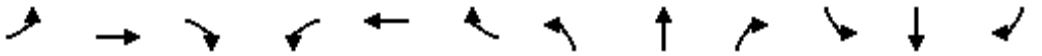
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	15.0	15.0	7.0	15.0	15.0
Minimum Split (s)	40.4	40.4	40.4	11.0	40.4	40.4	11.0	37.4	37.4	11.0	37.4	37.4
Total Split (s)	41.0	41.0	41.0	30.0	71.0	71.0	11.0	38.0	38.0	11.0	38.0	38.0
Total Split (%)	34.2%	34.2%	34.2%	25.0%	59.2%	59.2%	9.2%	31.7%	31.7%	9.2%	31.7%	31.7%
Maximum Green (s)	34.6	34.6	34.6	26.0	64.6	64.6	7.0	31.6	31.6	7.0	31.6	31.6
Yellow Time (s)	3.7	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)	27.0	27.0	27.0		27.0	27.0		24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)	2	2	2		0	0		0	0		0	0
Act Effct Green (s)	14.8	14.8	14.8	43.9	41.5	41.5	66.7	61.2	61.2	64.7	56.6	56.6
Actuated g/C Ratio	0.12	0.12	0.12	0.37	0.35	0.35	0.56	0.51	0.51	0.54	0.47	0.47
v/c Ratio	0.10	0.07	0.27	0.94	0.03	0.06	0.09	0.14	0.34	0.03	0.18	0.01
Control Delay	43.3	42.7	5.1	59.0	21.4	0.7	16.6	20.1	4.3	17.0	22.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.3	42.7	5.1	59.0	21.4	0.7	16.6	20.1	4.3	17.0	22.6	0.0
LOS	D	D	A	E	C	A	B	C	A	B	C	A
Approach Delay		19.2			53.1			11.6			21.6	
Approach LOS		B			D			B			C	
Queue Length 50th (m)	3.8	3.2	0.0	105.5	3.1	0.0	5.4	13.8	0.0	1.6	20.3	0.0
Queue Length 95th (m)	8.2	6.0	5.4	93.9	4.6	0.8	16.5	34.2	18.4	7.0	39.6	0.0
Internal Link Dist (m)		136.4			836.0			416.5			268.4	
Turn Bay Length (m)	70.0		70.0	85.0		80.0	80.0		70.0	80.0		75.0
Base Capacity (vph)	388	989	519	533	1884	865	602	1784	958	632	1650	793
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.03	0.15	0.94	0.02	0.04	0.09	0.14	0.34	0.03	0.18	0.01

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 28.6	Intersection LOS: C

Intersection Capacity Utilization 63.0% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: Neyagawa Boulevard & Burnhamthorpe Road/William Halton Parkway





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	24	66	434	33	29	49	215	284	15	252	8
Future Volume (vph)	15	24	66	434	33	29	49	215	284	15	252	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	3433	1544	1748	3500	1551	1750	3500	1566	1750	3500	1566
Flt Permitted	0.73	1.00	1.00	0.56	1.00	1.00	0.54	1.00	1.00	0.60	1.00	1.00
Satd. Flow (perm)	1347	3433	1544	1035	3500	1551	1003	3500	1566	1103	3500	1566
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	17	28	76	499	38	33	56	247	326	17	290	9
RTOR Reduction (vph)	0	0	68	0	0	21	0	0	170	0	0	5
Lane Group Flow (vph)	17	28	8	499	38	12	56	247	156	17	290	4
Confl. Peds. (#/hr)			2	2								
Heavy Vehicles (%)	2%	4%	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	12.8	12.8	12.8	42.8	42.8	42.8	63.4	57.5	57.5	57.4	54.5	54.5
Effective Green, g (s)	12.8	12.8	12.8	42.8	42.8	42.8	63.4	57.5	57.5	57.4	54.5	54.5
Actuated g/C Ratio	0.11	0.11	0.11	0.36	0.36	0.36	0.53	0.48	0.48	0.48	0.45	0.45
Clearance Time (s)	6.4	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	143	366	164	523	1248	553	566	1677	750	543	1589	711
v/s Ratio Prot		0.01		c0.21	0.01		c0.00	0.07		0.00	0.08	
v/s Ratio Perm	0.01		0.01	c0.13		0.01	0.05		c0.10	0.01		0.00
v/c Ratio	0.12	0.08	0.05	0.95	0.03	0.02	0.10	0.15	0.21	0.03	0.18	0.01
Uniform Delay, d1	48.5	48.3	48.1	35.6	25.1	25.0	13.8	17.5	18.1	16.5	19.5	17.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.1	0.1	28.0	0.0	0.0	0.1	0.2	0.6	0.0	0.3	0.0
Delay (s)	48.9	48.4	48.3	63.6	25.1	25.0	13.9	17.7	18.7	16.5	19.7	17.9
Level of Service	D	D	D	E	C	C	B	B	B	B	B	B
Approach Delay (s)		48.4			58.8			17.9			19.5	
Approach LOS		D			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	34.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Appendix J

Traffic Control Warrant Sheets

Street 'B' at Neyagawa Boulevard (Site Access #1)
2028 FT

Justification #7

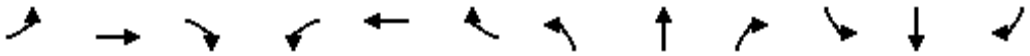
Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	401	45%	27%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	45	27%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	370	41%	0%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	0	0%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B

Appendix K

2028 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)	29	679	182	242	752	42	144	361	321	43	148	42
Future Volume (vph)	29	679	182	242	752	42	144	361	321	43	148	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		70.0	85.0		80.0	80.0		70.0	80.0		75.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			60.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor			0.99	1.00		0.99						
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3305	1479	1653	3368	1566	1668	3500	1566	1750	3433	1566
Flt Permitted	0.293			0.102			0.584			0.423		
Satd. Flow (perm)	540	3305	1459	177	3368	1546	1025	3500	1566	779	3433	1566
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			219			67			417			104
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		310.4			860.0			440.5			292.4	
Travel Time (s)		18.6			51.6			26.4			17.5	
Confl. Peds. (#/hr)			1	1								
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	2%	8%	8%	8%	6%	2%	7%	2%	2%	2%	4%	2%
Adj. Flow (vph)	38	882	236	314	977	55	187	469	417	56	192	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	882	236	314	977	55	187	469	417	56	192	55
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

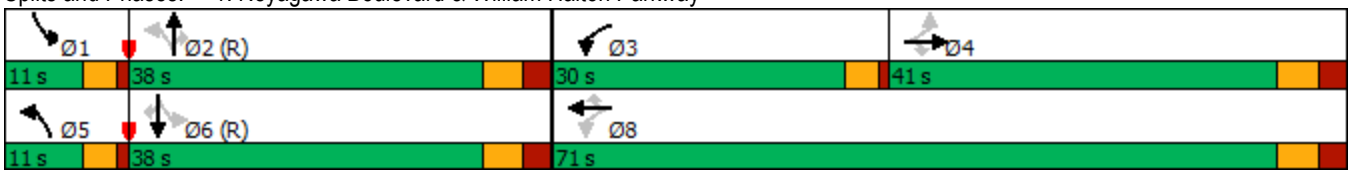


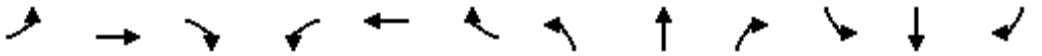
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	15.0	15.0	7.0	15.0	15.0
Minimum Split (s)	40.4	40.4	40.4	11.0	40.4	40.4	11.0	37.4	37.4	11.0	37.4	37.4
Total Split (s)	41.0	41.0	41.0	30.0	71.0	71.0	11.0	38.0	38.0	11.0	38.0	38.0
Total Split (%)	34.2%	34.2%	34.2%	25.0%	59.2%	59.2%	9.2%	31.7%	31.7%	9.2%	31.7%	31.7%
Maximum Green (s)	34.6	34.6	34.6	26.0	64.6	64.6	7.0	31.6	31.6	7.0	31.6	31.6
Yellow Time (s)	3.7	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)	27.0	27.0	27.0		27.0	27.0		24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)	1	1	1		0	0		0	0		0	0
Act Effct Green (s)	35.1	35.1	35.1	63.5	61.1	61.1	46.1	37.3	37.3	43.3	33.9	33.9
Actuated g/C Ratio	0.29	0.29	0.29	0.53	0.51	0.51	0.38	0.31	0.31	0.36	0.28	0.28
v/c Ratio	0.24	0.91	0.41	0.87	0.57	0.07	0.43	0.43	0.54	0.17	0.20	0.11
Control Delay	37.2	55.4	7.7	53.4	21.5	2.5	30.3	36.2	6.2	25.3	34.4	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.2	55.4	7.7	53.4	21.5	2.5	30.3	36.2	6.2	25.3	34.4	0.8
LOS	D	E	A	D	C	A	C	D	A	C	C	A
Approach Delay		45.1			28.2			23.5			26.6	
Approach LOS		D			C			C			C	
Queue Length 50th (m)	6.6	102.1	2.8	54.2	75.6	0.0	30.7	49.5	0.0	8.4	18.6	0.0
Queue Length 95th (m)	13.9	106.7	12.1	67.4	74.6	2.9	40.6	54.8	8.3	14.7	24.0	0.0
Internal Link Dist (m)		286.4			836.0			416.5			268.4	
Turn Bay Length (m)	70.0		70.0	85.0		80.0	80.0		70.0	80.0		75.0
Base Capacity (vph)	160	981	587	413	1813	863	438	1089	774	337	969	516
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.90	0.40	0.76	0.54	0.06	0.43	0.43	0.54	0.17	0.20	0.11

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	

Intersection Signal Delay: 31.8	Intersection LOS: C
Intersection Capacity Utilization 70.3%	ICU Level of Service C
Analysis Period (min) 15	

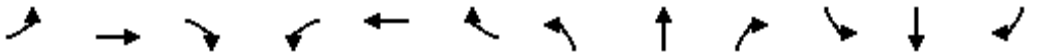
Splits and Phases: 1: Neyagawa Boulevard & William Halton Parkway





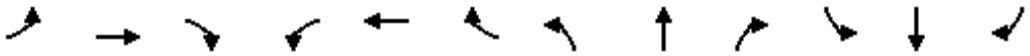
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	679	182	242	752	42	144	361	321	43	148	42
Future Volume (vph)	29	679	182	242	752	42	144	361	321	43	148	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	3305	1459	1653	3368	1546	1668	3500	1566	1750	3433	1566
Flt Permitted	0.29	1.00	1.00	0.10	1.00	1.00	0.58	1.00	1.00	0.42	1.00	1.00
Satd. Flow (perm)	540	3305	1459	178	3368	1546	1026	3500	1566	780	3433	1566
Peak-hour factor, PHF	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Adj. Flow (vph)	38	882	236	314	977	55	187	469	417	56	192	55
RTOR Reduction (vph)	0	0	155	0	0	27	0	0	290	0	0	40
Lane Group Flow (vph)	38	882	81	314	977	28	187	469	127	56	192	15
Confl. Peds. (#/hr)			1	1								
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	2%	8%	8%	8%	6%	2%	7%	2%	2%	2%	4%	2%
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	35.2	35.2	35.2	61.1	61.1	61.1	44.8	36.5	36.5	39.4	33.8	33.8
Effective Green, g (s)	35.2	35.2	35.2	61.1	61.1	61.1	44.8	36.5	36.5	39.4	33.8	33.8
Actuated g/C Ratio	0.29	0.29	0.29	0.51	0.51	0.51	0.37	0.30	0.30	0.33	0.28	0.28
Clearance Time (s)	6.4	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	158	969	427	359	1714	787	427	1064	476	301	966	441
v/s Ratio Prot		0.27		c0.16	0.29		c0.03	c0.13		0.01	0.06	
v/s Ratio Perm	0.07		0.06	c0.29		0.02	0.13		0.08	0.05		0.01
v/c Ratio	0.24	0.91	0.19	0.87	0.57	0.04	0.44	0.44	0.27	0.19	0.20	0.04
Uniform Delay, d1	32.2	40.9	31.7	33.7	20.4	14.7	26.9	33.5	31.6	28.0	32.8	31.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	12.3	0.2	20.4	0.5	0.0	0.7	1.3	1.4	0.3	0.5	0.1
Delay (s)	33.0	53.2	32.0	54.1	20.8	14.7	27.6	34.9	33.0	28.3	33.3	31.4
Level of Service	C	D	C	D	C	B	C	C	C	C	C	C
Approach Delay (s)		48.2			28.3			32.9			32.0	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	35.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



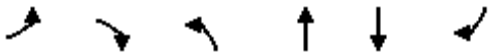
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	639	0	172	712	2	0	0	8	3	0	0
Future Volume (vph)	0	639	0	172	712	2	0	0	8	3	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt								0.865				
Flt Protected					0.990						0.950	
Satd. Flow (prot)	0	3305	0	0	3334	0	0	1260	0	0	1750	0
Flt Permitted					0.990						0.950	
Satd. Flow (perm)	0	3305	0	0	3334	0	0	1260	0	0	1750	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		254.1			310.4			328.9			264.5	
Travel Time (s)		15.2			18.6			19.7			15.9	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Heavy Vehicles (%)	2%	8%	2%	6%	6%	2%	2%	2%	29%	2%	2%	2%
Adj. Flow (vph)	0	1183	0	319	1319	4	0	0	15	6	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1183	0	0	1642	0	0	15	0	0	6	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 56.1%		ICU Level of Service B	
Analysis Period (min) 15			



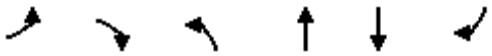
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	0	639	0	172	712	2	0	0	8	3	0	0
Future Volume (veh/h)	0	639	0	172	712	2	0	0	8	3	0	0
Peak Hour Factor	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Hourly flow rate (vph)	0	1183	0	319	1319	4	0	0	15	6	0	0
Approach Volume (veh/h)		1183			1642			15			6	
Crossing Volume (veh/h)		325			0			1189			1638#	
High Capacity (veh/h)		1073			1385			533			366	
High v/c (veh/h)		1.10			1.19			0.03			0.02	
Low Capacity (veh/h)		879			1161			406			267	
Low v/c (veh/h)		1.35			1.41			0.04			0.02	

Intersection Summary				
Maximum v/c High	1.19			
Maximum v/c Low	1.41			
Intersection Capacity Utilization	56.1%	ICU Level of Service	B	
# Crossing flow exceeds 1200, method is not applicable				



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	99	0	63	136	0
Future Volume (vph)	0	99	0	63	136	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected						
Satd. Flow (prot)	1842	1551	0	3500	3466	0
Flt Permitted						
Satd. Flow (perm)	1842	1551	0	3500	3466	0
Link Speed (k/h)	60			80	80	
Link Distance (m)	260.4			118.3	195.2	
Travel Time (s)	15.6			5.3	8.8	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%
Adj. Flow (vph)	0	111	0	71	153	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	111	0	71	153	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	16.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	99	0	63	136	0
Future Volume (Veh/h)	0	99	0	63	136	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	0	111	0	71	153	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	188	76	153			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	188	76	153			
tC, single (s)	6.8	7.0	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	89	100			
cM capacity (veh/h)	783	966	1425			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	0	111	36	36	76	76
Volume Left	0	0	0	0	0	0
Volume Right	0	111	0	0	0	0
cSH	1700	966	1700	1700	1700	1700
Volume to Capacity	0.00	0.11	0.02	0.02	0.04	0.04
Queue Length 95th (m)	0.0	2.9	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	9.2	0.0	0.0	0.0	0.0
Lane LOS	A	A				
Approach Delay (s)	9.2		0.0		0.0	
Approach LOS	A					

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	16.6%	ICU Level of Service	A
Analysis Period (min)	15		

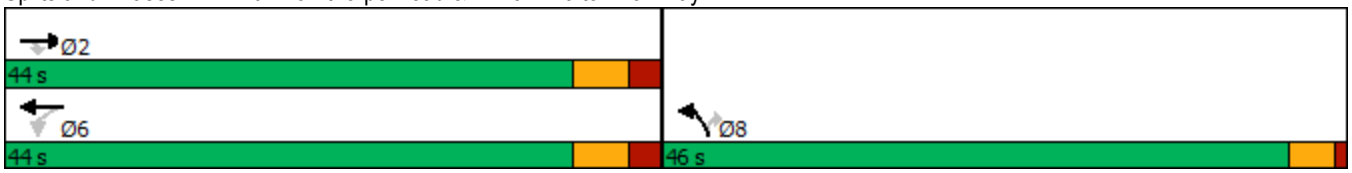
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	967	190	2	626	423	11
Future Volume (vph)	967	190	2	626	423	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		30.0	30.0		30.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			50.0		40.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor					0.81	
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3400	1413	1750	3336	1653	799
Flt Permitted			0.178		0.950	
Satd. Flow (perm)	3400	1413	328	3336	1345	799
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		128				13
Link Speed (k/h)	60			60	40	
Link Distance (m)	860.0			249.1	359.5	
Travel Time (s)	51.6			14.9	32.4	
Confl. Peds. (#/hr)					200	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	5%	13%	2%	7%	8%	100%
Adj. Flow (vph)	1111	218	2	720	486	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1111	218	2	720	486	13
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	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	7.0	7.0
Minimum Split (s)	35.9	35.9	35.9	35.9	37.0	37.0
Total Split (s)	44.0	44.0	44.0	44.0	46.0	46.0
Total Split (%)	48.9%	48.9%	48.9%	48.9%	51.1%	51.1%
Maximum Green (s)	38.1	38.1	38.1	38.1	42.0	42.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.0
All-Red Time (s)	2.2	2.2	2.2	2.2	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.9	4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	Max	Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	23.0	23.0	23.0	23.0	22.0	22.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	38.5	38.5	38.5	38.5	26.8	26.8
Actuated g/C Ratio	0.51	0.51	0.51	0.51	0.36	0.36
v/c Ratio	0.64	0.28	0.01	0.42	0.83	0.04
Control Delay	17.0	6.8	13.0	13.8	34.4	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.0	6.8	13.0	13.8	34.4	7.6
LOS	B	A	B	B	C	A
Approach Delay	15.3			13.8	33.7	
Approach LOS	B			B	C	
Queue Length 50th (m)	55.7	6.2	0.1	31.1	61.0	0.0
Queue Length 95th (m)	98.1	21.3	1.4	56.8	89.4	2.9
Internal Link Dist (m)	836.0			225.1	335.5	
Turn Bay Length (m)		30.0	30.0		30.0	
Base Capacity (vph)	1737	785	167	1705	931	455
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.28	0.01	0.42	0.52	0.03

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 75.3			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 18.5		Intersection LOS: B	
Intersection Capacity Utilization 58.4%		ICU Level of Service B	

Analysis Period (min) 15

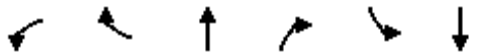
Splits and Phases: 4: Burnhamthorpe Road & William Halton Parkway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	967	190	2	626	423	11
Future Volume (vph)	967	190	2	626	423	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9	5.9	5.9	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	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
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)	3400	1413	1750	3336	1653	799
Flt Permitted	1.00	1.00	0.18	1.00	0.95	1.00
Satd. Flow (perm)	3400	1413	328	3336	1653	799
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	1111	218	2	720	486	13
RTOR Reduction (vph)	0	62	0	0	0	8
Lane Group Flow (vph)	1111	156	2	720	486	5
Confl. Peds. (#/hr)					200	
Heavy Vehicles (%)	5%	13%	2%	7%	8%	100%
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	38.5	38.5	38.5	38.5	26.8	26.8
Effective Green, g (s)	38.5	38.5	38.5	38.5	26.8	26.8
Actuated g/C Ratio	0.51	0.51	0.51	0.51	0.36	0.36
Clearance Time (s)	5.9	5.9	5.9	5.9	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1740	723	167	1707	589	284
v/s Ratio Prot	c0.33			0.22	c0.29	
v/s Ratio Perm		0.11	0.01			0.01
v/c Ratio	0.64	0.22	0.01	0.42	0.83	0.02
Uniform Delay, d1	13.3	10.1	9.0	11.4	22.1	15.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	0.7	0.1	0.8	9.2	0.0
Delay (s)	15.1	10.7	9.1	12.2	31.3	15.7
Level of Service	B	B	A	B	C	B
Approach Delay (s)	14.4			12.2	30.9	
Approach LOS	B			B	C	

Intersection Summary			
HCM 2000 Control Delay	17.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	75.2	Sum of lost time (s)	9.9
Intersection Capacity Utilization	58.4%	ICU Level of Service	B
Analysis Period (min)	15		

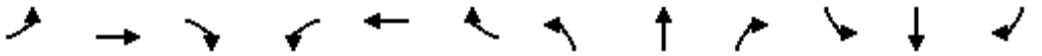
c Critical Lane Group



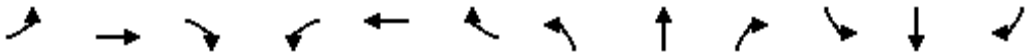
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	63	367	0	235
Future Volume (vph)	0	0	63	367	0	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt			0.872			
Flt Protected						
Satd. Flow (prot)	0	0	3052	0	0	3500
Flt Permitted						
Satd. Flow (perm)	0	0	3052	0	0	3500
Link Speed (k/h)	50		80			80
Link Distance (m)	104.9		292.4			118.3
Travel Time (s)	7.6		13.2			5.3
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	0	71	412	0	264
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	483	0	0	264
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		3.5			3.5
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.0%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection Sign configuration not allowed in HCM analysis.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	819	89	384	1090	78	91	249	204	82	287	9
Future Volume (vph)	17	819	89	384	1090	78	91	249	204	82	287	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		70.0	85.0		80.0	80.0		70.0	80.0		75.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			60.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor			0.99	1.00								
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3433	1566	1750	3500	1551	1750	3500	1566	1750	3500	1566
Flt Permitted	0.223			0.104			0.500			0.547		
Satd. Flow (perm)	411	3433	1544	192	3500	1551	921	3500	1566	1008	3500	1566
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			104			90			234			104
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		310.4			860.0			440.5			289.1	
Travel Time (s)		18.6			51.6			26.4			17.3	
Confl. Peds. (#/hr)			2	2								
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	2%	4%	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	20	941	102	441	1253	90	105	286	234	94	330	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	941	102	441	1253	90	105	286	234	94	330	10
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	15.0	15.0	7.0	15.0	15.0
Minimum Split (s)	40.4	40.4	40.4	11.0	40.4	40.4	11.0	37.4	37.4	11.0	37.4	37.4
Total Split (s)	41.0	41.0	41.0	30.0	71.0	71.0	11.0	38.0	38.0	11.0	38.0	38.0
Total Split (%)	34.2%	34.2%	34.2%	25.0%	59.2%	59.2%	9.2%	31.7%	31.7%	9.2%	31.7%	31.7%
Maximum Green (s)	34.6	34.6	34.6	26.0	64.6	64.6	7.0	31.6	31.6	7.0	31.6	31.6
Yellow Time (s)	3.7	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)	27.0	27.0	27.0		27.0	27.0		24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)	2	2	2		0	0		0	0		0	0
Act Effct Green (s)	34.4	34.4	34.4	66.8	64.4	64.4	41.2	31.8	31.8	41.2	31.8	31.8
Actuated g/C Ratio	0.29	0.29	0.29	0.56	0.54	0.54	0.34	0.26	0.26	0.34	0.26	0.26
v/c Ratio	0.17	0.96	0.20	0.99	0.67	0.10	0.29	0.31	0.40	0.24	0.36	0.02
Control Delay	36.6	62.2	6.8	75.7	22.2	3.0	27.5	36.5	6.5	26.7	37.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.6	62.2	6.8	75.7	22.2	3.0	27.5	36.5	6.5	26.7	37.2	0.1
LOS	D	E	A	E	C	A	C	D	A	C	D	A
Approach Delay		56.4			34.5			23.8			34.1	
Approach LOS		E			C			C			C	
Queue Length 50th (m)	3.5	114.4	0.0	87.3	107.1	0.0	16.3	28.5	0.0	14.5	33.3	0.0
Queue Length 95th (m)	10.0	#145.4	11.2	#143.8	123.3	6.8	27.6	39.1	16.6	25.1	44.8	0.0
Internal Link Dist (m)		286.4			836.0			416.5			265.1	
Turn Bay Length (m)	70.0		70.0	85.0		80.0	80.0		70.0	80.0		75.0
Base Capacity (vph)	118	989	519	444	1884	876	364	926	586	388	926	490
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.95	0.20	0.99	0.67	0.10	0.29	0.31	0.40	0.24	0.36	0.02

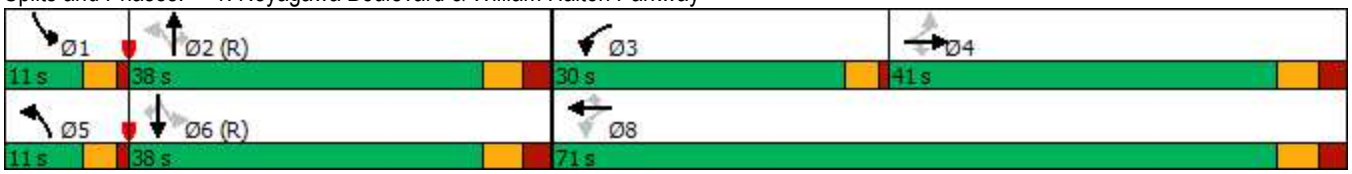
Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 38.7	Intersection LOS: D

Intersection Capacity Utilization 79.9% ICU Level of Service D

Analysis Period (min) 15

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

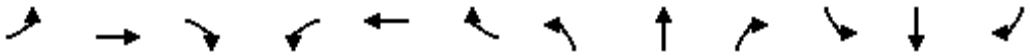
Splits and Phases: 1: Neyagawa Boulevard & William Halton Parkway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	819	89	384	1090	78	91	249	204	82	287	9
Future Volume (vph)	17	819	89	384	1090	78	91	249	204	82	287	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	3433	1544	1750	3500	1551	1750	3500	1566	1750	3500	1566
Flt Permitted	0.22	1.00	1.00	0.10	1.00	1.00	0.50	1.00	1.00	0.55	1.00	1.00
Satd. Flow (perm)	410	3433	1544	192	3500	1551	921	3500	1566	1007	3500	1566
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	20	941	102	441	1253	90	105	286	234	94	330	10
RTOR Reduction (vph)	0	0	73	0	0	42	0	0	172	0	0	7
Lane Group Flow (vph)	20	941	29	441	1253	48	105	286	62	94	330	3
Confl. Peds. (#/hr)			2	2								
Heavy Vehicles (%)	2%	4%	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	34.4	34.4	34.4	64.4	64.4	64.4	38.8	31.8	31.8	38.8	31.8	31.8
Effective Green, g (s)	34.4	34.4	34.4	64.4	64.4	64.4	38.8	31.8	31.8	38.8	31.8	31.8
Actuated g/C Ratio	0.29	0.29	0.29	0.54	0.54	0.54	0.32	0.27	0.27	0.32	0.27	0.27
Clearance Time (s)	6.4	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	117	984	442	440	1878	832	346	927	414	368	927	414
v/s Ratio Prot		0.27		c0.22	0.36		c0.02	0.08		0.01	c0.09	
v/s Ratio Perm	0.05		0.02	c0.32		0.03	0.08		0.04	0.07		0.00
v/c Ratio	0.17	0.96	0.07	1.00	0.67	0.06	0.30	0.31	0.15	0.26	0.36	0.01
Uniform Delay, d1	32.1	42.1	31.1	36.8	20.1	13.3	29.3	35.3	33.8	29.0	35.8	32.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	18.8	0.1	43.5	0.9	0.0	0.5	0.9	0.8	0.4	1.1	0.0
Delay (s)	32.8	60.9	31.2	80.3	21.0	13.3	29.8	36.2	34.5	29.4	36.9	32.5
Level of Service	C	E	C	F	C	B	C	D	C	C	D	C
Approach Delay (s)		57.5			35.3			34.5			35.1	
Approach LOS		E			D			C			D	

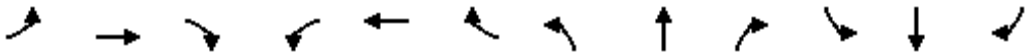
Intersection Summary			
HCM 2000 Control Delay	41.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



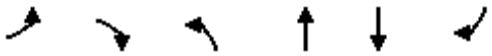
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	815	0	55	1102	8	0	0	11	14	0	1
Future Volume (vph)	0	815	0	55	1102	8	0	0	11	14	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.999			0.865			0.993	
Flt Protected					0.998						0.955	
Satd. Flow (prot)	0	3500	0	0	3473	0	0	1593	0	0	1000	0
Flt Permitted					0.998						0.955	
Satd. Flow (perm)	0	3500	0	0	3473	0	0	1593	0	0	1000	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		254.1			310.4			328.9			264.5	
Travel Time (s)		15.2			18.6			19.7			15.9	
Confl. Peds. (#/hr)			4	4			4		5	5		4
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	2%	2%	2%	2%	2%	71%	2%	2%	2%	77%	2%	100%
Adj. Flow (vph)	0	1019	0	69	1378	10	0	0	14	18	0	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1019	0	0	1457	0	0	14	0	0	19	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 73.1%		ICU Level of Service D	
Analysis Period (min) 15			



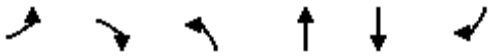
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	0	815	0	55	1102	8	0	0	11	14	0	1
Future Volume (veh/h)	0	815	0	55	1102	8	0	0	11	14	0	1
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	0	1019	0	69	1378	10	0	0	14	18	0	1
Approach Volume (veh/h)		1019			1457			14			19	
Crossing Volume (veh/h)		87			0			1037			1447#	
High Capacity (veh/h)		1294			1385			604			430	
High v/c (veh/h)		0.79			1.05			0.02			0.04	
Low Capacity (veh/h)		1079			1161			467			320	
Low v/c (veh/h)		0.94			1.25			0.03			0.06	

Intersection Summary				
Maximum v/c High	1.05			
Maximum v/c Low	1.25			
Intersection Capacity Utilization	73.1%	ICU Level of Service	D	
# Crossing flow exceeds 1200, method is not applicable				



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	99	0	154	279	0
Future Volume (vph)	2	99	0	154	279	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1750	1566	0	3500	3500	0
Flt Permitted	0.950					
Satd. Flow (perm)	1750	1566	0	3500	3500	0
Link Speed (k/h)	60			80	80	
Link Distance (m)	260.4			121.6	195.2	
Travel Time (s)	15.6			5.5	8.8	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	2	113	0	175	317	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	113	0	175	317	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.5%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	99	0	154	279	0
Future Volume (Veh/h)	2	99	0	154	279	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	2	112	0	175	317	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	404	158	317			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	404	158	317			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	87	100			
cM capacity (veh/h)	574	859	1240			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	2	112	88	88	158	158
Volume Left	2	0	0	0	0	0
Volume Right	0	112	0	0	0	0
cSH	574	859	1700	1700	1700	1700
Volume to Capacity	0.00	0.13	0.05	0.05	0.09	0.09
Queue Length 95th (m)	0.1	3.4	0.0	0.0	0.0	0.0
Control Delay (s)	11.3	9.8	0.0	0.0	0.0	0.0
Lane LOS	B	A				
Approach Delay (s)	9.8		0.0		0.0	
Approach LOS	A					

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	20.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	751	292	7	1268	344	6
Future Volume (vph)	751	292	7	1268	344	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		30.0	30.0		30.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			50.0		40.0	
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)	3466	1566	1750	3500	1733	1566
Flt Permitted			0.326		0.950	
Satd. Flow (perm)	3466	1566	601	3500	1733	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		306				6
Link Speed (k/h)	60			60	40	
Link Distance (m)	860.0			248.0	359.5	
Travel Time (s)	51.6			14.9	32.4	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	2%	2%	2%	3%	2%
Adj. Flow (vph)	791	307	7	1335	362	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	791	307	7	1335	362	6
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	Prot	Perm
Protected Phases	2			6	8	

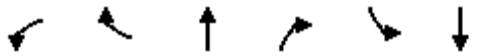
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases		2	6			8
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	7.0	7.0
Minimum Split (s)	35.9	35.9	35.9	35.9	37.0	37.0
Total Split (s)	53.0	53.0	53.0	53.0	37.0	37.0
Total Split (%)	58.9%	58.9%	58.9%	58.9%	41.1%	41.1%
Maximum Green (s)	47.1	47.1	47.1	47.1	33.0	33.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.0
All-Red Time (s)	2.2	2.2	2.2	2.2	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.9	4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	Max	Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	23.0	23.0	23.0	23.0	22.0	22.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	47.5	47.5	47.5	47.5	21.4	21.4
Actuated g/C Ratio	0.60	0.60	0.60	0.60	0.27	0.27
v/c Ratio	0.38	0.29	0.02	0.63	0.77	0.01
Control Delay	9.6	2.0	8.7	12.8	37.9	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.6	2.0	8.7	12.8	37.9	11.8
LOS	A	A	A	B	D	B
Approach Delay	7.5			12.8	37.5	
Approach LOS	A			B	D	
Queue Length 50th (m)	28.6	0.1	0.4	60.3	49.3	0.0
Queue Length 95th (m)	52.4	11.0	2.5	106.7	77.2	2.5
Internal Link Dist (m)	836.0			224.0	335.5	
Turn Bay Length (m)		30.0	30.0		30.0	
Base Capacity (vph)	2088	1065	362	2109	729	662
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	0.38	0.29	0.02	0.63	0.50	0.01

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 78.8			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 14.0		Intersection LOS: B	
Intersection Capacity Utilization 62.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 4: Burnhamthorpe Road & William Halton Parkway

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	751	292	7	1268	344	6
Future Volume (vph)	751	292	7	1268	344	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9	5.9	5.9	4.0	4.0
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)	3466	1566	1750	3500	1733	1566
Flt Permitted	1.00	1.00	0.33	1.00	0.95	1.00
Satd. Flow (perm)	3466	1566	601	3500	1733	1566
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	791	307	7	1335	362	6
RTOR Reduction (vph)	0	122	0	0	0	4
Lane Group Flow (vph)	791	185	7	1335	362	2
Heavy Vehicles (%)	3%	2%	2%	2%	3%	2%
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	47.5	47.5	47.5	47.5	21.4	21.4
Effective Green, g (s)	47.5	47.5	47.5	47.5	21.4	21.4
Actuated g/C Ratio	0.60	0.60	0.60	0.60	0.27	0.27
Clearance Time (s)	5.9	5.9	5.9	5.9	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2089	943	362	2109	470	425
v/s Ratio Prot	0.23			c0.38	c0.21	
v/s Ratio Perm		0.12	0.01			0.00
v/c Ratio	0.38	0.20	0.02	0.63	0.77	0.00
Uniform Delay, d1	8.1	7.1	6.3	10.1	26.4	20.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.5	0.1	1.5	7.6	0.0
Delay (s)	8.6	7.5	6.4	11.5	34.1	20.9
Level of Service	A	A	A	B	C	C
Approach Delay (s)	8.3			11.5	33.8	
Approach LOS	A			B	C	

Intersection Summary			
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	78.8	Sum of lost time (s)	9.9
Intersection Capacity Utilization	62.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	154	191	0	378
Future Volume (vph)	0	0	154	191	0	378
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt			0.917			
Flt Protected						
Satd. Flow (prot)	0	0	3209	0	0	3500
Flt Permitted						
Satd. Flow (perm)	0	0	3209	0	0	3500
Link Speed (k/h)	50		80			80
Link Distance (m)	124.4		289.1			121.6
Travel Time (s)	9.0		13.0			5.5
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	0	0	175	217	0	430
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	392	0	0	430
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		3.5			3.5
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection Sign configuration not allowed in HCM analysis.

MOVEMENT SUMMARY

Site: 1 [Burnhamthorpe Road at Fourth Line - 2028 FB AM]

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: Fourth Line												
1	L2	2	2.0	0.060	11.7	LOS B	0.2	1.4	0.71	0.71	0.71	48.5
2	T1	2	2.0	0.060	11.7	LOS B	0.2	1.4	0.71	0.71	0.71	48.2
3	R2	15	29.0	0.060	13.1	LOS B	0.2	1.4	0.71	0.71	0.71	46.5
Approach		19	23.6	0.060	12.9	LOS B	0.2	1.4	0.71	0.71	0.71	46.8
East: William Halton Parkway												
4	L2	319	6.0	0.754	16.4	LOS C	10.6	77.8	0.16	0.03	0.16	45.6
5	T1	1319	6.0	0.754	16.4	LOS C	10.6	77.8	0.16	0.03	0.16	46.1
6	R2	4	2.0	0.754	16.3	LOS C	10.6	77.8	0.16	0.03	0.16	45.3
Approach		1641	6.0	0.754	16.4	LOS C	10.6	77.8	0.16	0.03	0.16	46.0
North: Fourth Line												
7	L2	6	2.0	0.029	11.8	LOS B	0.1	0.5	0.72	0.72	0.72	47.7
8	T1	2	2.0	0.029	11.8	LOS B	0.1	0.5	0.72	0.72	0.72	47.4
9	R2	2	2.0	0.029	11.8	LOS B	0.1	0.5	0.72	0.72	0.72	46.3
Approach		9	2.0	0.029	11.8	LOS B	0.1	0.5	0.72	0.72	0.72	47.4
West: William Halton Parkway												
10	L2	2	2.0	0.774	22.6	LOS C	12.7	94.8	0.83	1.21	1.79	43.4
11	T1	1183	8.0	0.774	22.7	LOS C	12.7	94.8	0.83	1.21	1.79	43.2
12	R2	2	2.0	0.774	22.6	LOS C	12.7	94.8	0.83	1.21	1.79	42.1
Approach		1187	8.0	0.774	22.7	LOS C	12.7	94.8	0.83	1.21	1.79	43.2
All Vehicles		2856	6.9	0.774	19.0	LOS C	12.7	94.8	0.44	0.53	0.84	44.8

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.

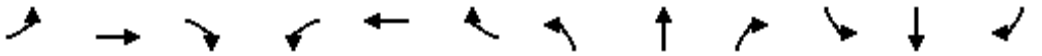
MOVEMENT SUMMARY

Site: 1 [Burnhamthorpe Road at Fourth Line - 2028 FB PM]

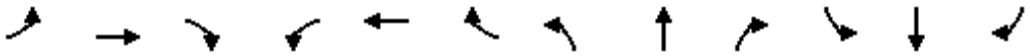
Site Category: (None)
Roundabout

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: Fourth Line												
1	L2	1	2.0	0.034	7.9	LOS A	0.1	0.6	0.58	0.58	0.58	52.0
2	T1	1	2.0	0.034	7.9	LOS A	0.1	0.6	0.58	0.58	0.58	51.7
3	R2	14	2.0	0.034	7.9	LOS A	0.1	0.6	0.58	0.58	0.58	50.3
Approach		16	2.0	0.034	7.9	LOS A	0.1	0.6	0.58	0.58	0.58	50.5
East: William Halton Parkway												
4	L2	69	2.0	0.656	12.5	LOS B	7.1	50.3	0.09	0.02	0.09	48.9
5	T1	1378	2.0	0.656	12.5	LOS B	7.1	50.3	0.09	0.02	0.09	48.8
6	R2	10	71.0	0.656	13.6	LOS B	7.0	50.1	0.09	0.02	0.09	46.2
Approach		1456	2.5	0.656	12.5	LOS B	7.1	50.3	0.09	0.02	0.09	48.8
North: Fourth Line												
7	L2	18	77.0	0.070	14.1	LOS B	0.1	1.5	0.67	0.67	0.67	44.5
8	T1	1	2.0	0.070	10.6	LOS B	0.1	1.5	0.67	0.67	0.67	46.2
9	R2	1	100.0	0.070	15.1	LOS C	0.1	1.5	0.67	0.67	0.67	44.3
Approach		20	73.7	0.070	13.9	LOS B	0.1	1.5	0.67	0.67	0.67	44.6
West: William Halton Parkway												
10	L2	1	2.0	0.507	9.7	LOS A	3.2	22.9	0.37	0.22	0.37	51.1
11	T1	1019	2.0	0.507	9.7	LOS A	3.2	22.9	0.37	0.22	0.37	50.8
12	R2	1	2.0	0.507	9.7	LOS A	3.2	22.9	0.37	0.22	0.37	49.3
Approach		1021	2.0	0.507	9.7	LOS A	3.2	22.9	0.37	0.22	0.37	50.8
All Vehicles		2514	2.8	0.656	11.3	LOS B	7.1	50.3	0.21	0.11	0.21	49.6

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.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	679	182	242	752	42	144	361	321	43	148	42
Future Volume (vph)	29	679	182	242	752	42	144	361	321	43	148	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		70.0	85.0		80.0	80.0		70.0	80.0		75.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	100.0			100.0			60.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor			0.99	1.00		0.99						
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3305	1479	3206	3368	1566	1668	3500	1566	1750	3433	1566
Flt Permitted	0.950			0.950			0.583			0.438		
Satd. Flow (perm)	1750	3305	1459	3205	3368	1546	1024	3500	1566	807	3433	1566
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			235			104			332			140
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		310.4			860.0			440.5			292.4	
Travel Time (s)		18.6			51.6			26.4			17.5	
Confl. Peds. (#/hr)			1	1								
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	2%	8%	8%	8%	6%	2%	7%	2%	2%	2%	4%	2%
Adj. Flow (vph)	38	882	236	314	977	55	187	469	417	56	192	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	882	236	314	977	55	187	469	417	56	192	55
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

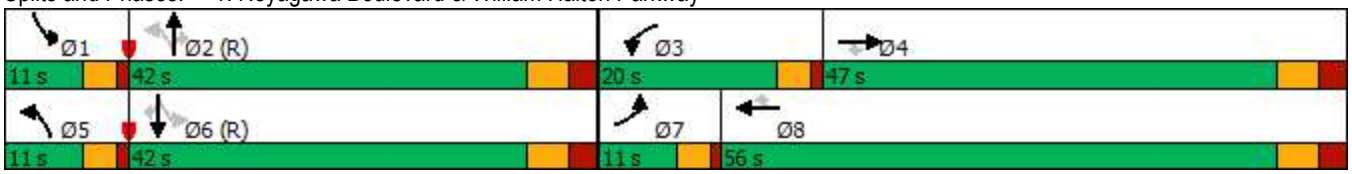


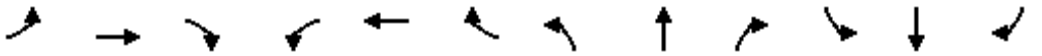
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	15.0	15.0	7.0	15.0	15.0
Minimum Split (s)	11.0	40.4	40.4	11.0	40.4	40.4	11.0	37.4	37.4	11.0	37.4	37.4
Total Split (s)	11.0	47.0	47.0	20.0	56.0	56.0	11.0	42.0	42.0	11.0	42.0	42.0
Total Split (%)	9.2%	39.2%	39.2%	16.7%	46.7%	46.7%	9.2%	35.0%	35.0%	9.2%	35.0%	35.0%
Maximum Green (s)	7.0	40.6	40.6	16.0	49.6	49.6	7.0	35.6	35.6	7.0	35.6	35.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		27.0	27.0		27.0	27.0		24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		1	1		0	0		0	0		0	0
Act Effct Green (s)	7.0	37.2	37.2	15.1	49.8	49.8	51.1	41.9	41.9	47.6	38.1	38.1
Actuated g/C Ratio	0.06	0.31	0.31	0.13	0.42	0.42	0.43	0.35	0.35	0.40	0.32	0.32
v/c Ratio	0.37	0.86	0.38	0.78	0.70	0.08	0.39	0.38	0.55	0.15	0.18	0.09
Control Delay	65.2	48.2	5.5	64.6	32.3	0.5	26.1	32.3	10.7	22.2	31.1	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.2	48.2	5.5	64.6	32.3	0.5	26.1	32.3	10.7	22.2	31.1	0.3
LOS	E	D	A	E	C	A	C	C	B	C	C	A
Approach Delay		40.0			38.5			22.8			23.9	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	8.8	100.8	0.2	37.1	101.7	0.0	28.0	46.3	14.6	7.7	17.7	0.0
Queue Length 95th (m)	17.0	98.6	8.5	43.9	97.3	0.0	38.3	52.1	24.9	13.8	22.8	0.0
Internal Link Dist (m)		286.4			836.0			416.5			268.4	
Turn Bay Length (m)	70.0		70.0	85.0		80.0	80.0		70.0	80.0		75.0
Base Capacity (vph)	102	1118	649	427	1422	713	482	1221	762	376	1089	592
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.79	0.36	0.74	0.69	0.08	0.39	0.38	0.55	0.15	0.18	0.09

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	

Intersection Signal Delay: 33.5	Intersection LOS: C
Intersection Capacity Utilization 64.4%	ICU Level of Service C
Analysis Period (min) 15	

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





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	679	182	242	752	42	144	361	321	43	148	42
Future Volume (vph)	29	679	182	242	752	42	144	361	321	43	148	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	3305	1459	3206	3368	1546	1668	3500	1566	1750	3433	1566
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.58	1.00	1.00	0.44	1.00	1.00
Satd. Flow (perm)	1750	3305	1459	3206	3368	1546	1024	3500	1566	807	3433	1566
Peak-hour factor, PHF	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Adj. Flow (vph)	38	882	236	314	977	55	187	469	417	56	192	55
RTOR Reduction (vph)	0	0	159	0	0	32	0	0	223	0	0	38
Lane Group Flow (vph)	38	882	77	314	977	23	187	469	194	56	192	17
Confl. Peds. (#/hr)			1	1								
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	2%	8%	8%	8%	6%	2%	7%	2%	2%	2%	4%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2	6		6
Actuated Green, G (s)	4.2	38.9	38.9	15.1	49.8	49.8	48.2	39.5	39.5	42.2	36.5	36.5
Effective Green, g (s)	4.2	38.9	38.9	15.1	49.8	49.8	48.2	39.5	39.5	42.2	36.5	36.5
Actuated g/C Ratio	0.04	0.32	0.32	0.13	0.41	0.41	0.40	0.33	0.33	0.35	0.30	0.30
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	61	1071	472	403	1397	641	457	1152	515	328	1044	476
v/s Ratio Prot	0.02	c0.27		c0.10	0.29		c0.03	0.13		0.01	0.06	
v/s Ratio Perm			0.05			0.01	c0.13		0.12	0.05		0.01
v/c Ratio	0.62	0.82	0.16	0.78	0.70	0.04	0.41	0.41	0.38	0.17	0.18	0.04
Uniform Delay, d1	57.1	37.4	28.9	50.8	28.9	20.8	24.3	31.2	30.8	26.1	30.8	29.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	18.1	5.2	0.2	9.2	1.6	0.0	0.6	1.1	2.1	0.2	0.4	0.1
Delay (s)	75.3	42.6	29.1	60.0	30.5	20.9	24.9	32.2	32.9	26.4	31.2	29.5
Level of Service	E	D	C	E	C	C	C	C	C	C	C	C
Approach Delay (s)		40.9			37.0			31.2			30.0	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	36.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

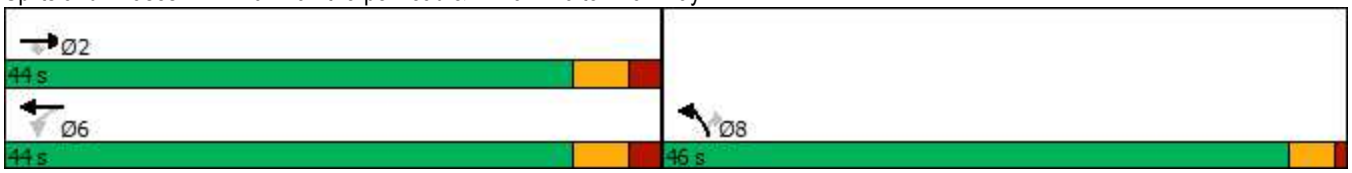
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	967	190	2	626	423	11
Future Volume (vph)	967	190	2	626	423	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		30.0	30.0		100.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			50.0		15.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor					0.81	
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3400	1413	1750	3336	1653	799
Flt Permitted			0.178		0.950	
Satd. Flow (perm)	3400	1413	328	3336	1345	799
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		128				13
Link Speed (k/h)	60			60	40	
Link Distance (m)	860.0			249.1	359.5	
Travel Time (s)	51.6			14.9	32.4	
Confl. Peds. (#/hr)					200	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	5%	13%	2%	7%	8%	100%
Adj. Flow (vph)	1111	218	2	720	486	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1111	218	2	720	486	13
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.0			7.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	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	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	7.0	7.0
Minimum Split (s)	35.9	35.9	35.9	35.9	37.0	37.0
Total Split (s)	44.0	44.0	44.0	44.0	46.0	46.0
Total Split (%)	48.9%	48.9%	48.9%	48.9%	51.1%	51.1%
Maximum Green (s)	38.1	38.1	38.1	38.1	42.0	42.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.0
All-Red Time (s)	2.2	2.2	2.2	2.2	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.9	4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	Max	Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	23.0	23.0	23.0	23.0	22.0	22.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	38.5	38.5	38.5	38.5	26.8	26.8
Actuated g/C Ratio	0.51	0.51	0.51	0.51	0.36	0.36
v/c Ratio	0.64	0.28	0.01	0.42	0.83	0.04
Control Delay	17.0	6.8	13.0	13.8	34.4	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.0	6.8	13.0	13.8	34.4	7.6
LOS	B	A	B	B	C	A
Approach Delay	15.3			13.8	33.7	
Approach LOS	B			B	C	
Queue Length 50th (m)	55.7	6.2	0.1	31.1	61.0	0.0
Queue Length 95th (m)	98.1	21.3	1.4	56.8	89.4	2.9
Internal Link Dist (m)	836.0			225.1	335.5	
Turn Bay Length (m)		30.0	30.0		100.0	
Base Capacity (vph)	1737	785	167	1705	931	455
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.28	0.01	0.42	0.52	0.03

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 75.3			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 18.5		Intersection LOS: B	
Intersection Capacity Utilization 58.4%		ICU Level of Service B	

Analysis Period (min) 15

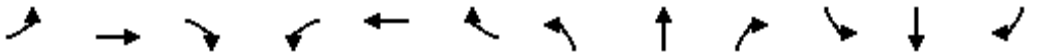
Splits and Phases: 4: Burnhamthorpe Road & William Halton Parkway



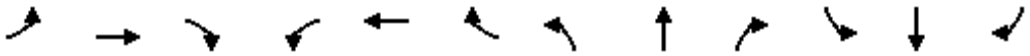
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	967	190	2	626	423	11
Future Volume (vph)	967	190	2	626	423	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9	5.9	5.9	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	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
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)	3400	1413	1750	3336	1653	799
Flt Permitted	1.00	1.00	0.18	1.00	0.95	1.00
Satd. Flow (perm)	3400	1413	328	3336	1653	799
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	1111	218	2	720	486	13
RTOR Reduction (vph)	0	62	0	0	0	8
Lane Group Flow (vph)	1111	156	2	720	486	5
Confl. Peds. (#/hr)					200	
Heavy Vehicles (%)	5%	13%	2%	7%	8%	100%
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	38.5	38.5	38.5	38.5	26.8	26.8
Effective Green, g (s)	38.5	38.5	38.5	38.5	26.8	26.8
Actuated g/C Ratio	0.51	0.51	0.51	0.51	0.36	0.36
Clearance Time (s)	5.9	5.9	5.9	5.9	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1740	723	167	1707	589	284
v/s Ratio Prot	c0.33			0.22	c0.29	
v/s Ratio Perm		0.11	0.01			0.01
v/c Ratio	0.64	0.22	0.01	0.42	0.83	0.02
Uniform Delay, d1	13.3	10.1	9.0	11.4	22.1	15.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	0.7	0.1	0.8	9.2	0.0
Delay (s)	15.1	10.7	9.1	12.2	31.3	15.7
Level of Service	B	B	A	B	C	B
Approach Delay (s)	14.4			12.2	30.9	
Approach LOS	B			B	C	

Intersection Summary			
HCM 2000 Control Delay	17.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	75.2	Sum of lost time (s)	9.9
Intersection Capacity Utilization	58.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	819	89	384	1090	78	91	249	204	82	287	9
Future Volume (vph)	17	819	89	384	1090	78	91	249	204	82	287	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		70.0	85.0		80.0	80.0		70.0	80.0		75.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	100.0			100.0			60.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor			0.99	1.00								
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3433	1566	3395	3500	1551	1750	3500	1566	1750	3500	1566
Flt Permitted	0.950			0.950			0.503			0.552		
Satd. Flow (perm)	1750	3433	1544	3392	3500	1551	927	3500	1566	1017	3500	1566
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			140			104			234			140
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		310.4			860.0			440.5			289.1	
Travel Time (s)		18.6			51.6			26.4			17.3	
Confl. Peds. (#/hr)			2	2								
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	2%	4%	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	20	941	102	441	1253	90	105	286	234	94	330	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	941	102	441	1253	90	105	286	234	94	330	10
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

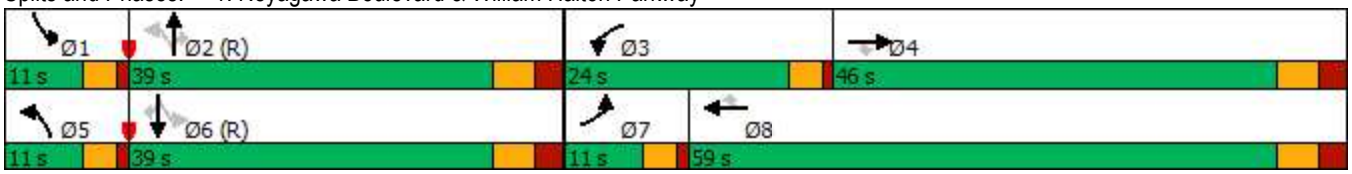


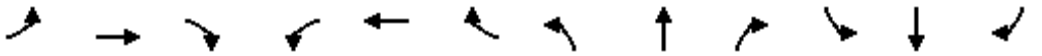
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	15.0	15.0	7.0	15.0	15.0
Minimum Split (s)	11.0	40.4	40.4	11.0	40.4	40.4	11.0	37.4	37.4	11.0	37.4	37.4
Total Split (s)	11.0	46.0	46.0	24.0	59.0	59.0	11.0	39.0	39.0	11.0	39.0	39.0
Total Split (%)	9.2%	38.3%	38.3%	20.0%	49.2%	49.2%	9.2%	32.5%	32.5%	9.2%	32.5%	32.5%
Maximum Green (s)	7.0	39.6	39.6	20.0	52.6	52.6	7.0	32.6	32.6	7.0	32.6	32.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		27.0	27.0		27.0	27.0		24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		2	2		0	0		0	0		0	0
Act Effct Green (s)	7.0	37.3	37.3	18.9	55.8	55.8	45.5	35.7	35.7	45.3	35.6	35.6
Actuated g/C Ratio	0.06	0.31	0.31	0.16	0.46	0.46	0.38	0.30	0.30	0.38	0.30	0.30
v/c Ratio	0.20	0.88	0.18	0.82	0.77	0.12	0.26	0.27	0.37	0.22	0.32	0.02
Control Delay	58.6	49.9	2.5	62.5	31.0	3.2	25.6	34.1	6.1	25.0	34.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	49.9	2.5	62.5	31.0	3.2	25.6	34.1	6.1	25.0	34.7	0.1
LOS	E	D	A	E	C	A	C	C	A	C	C	A
Approach Delay		45.5			37.4			22.2			31.8	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	4.6	107.6	0.0	51.8	110.0	0.0	16.0	28.1	0.0	14.2	32.9	0.0
Queue Length 95th (m)	12.1	126.6	4.5	66.9	153.3	6.4	27.2	38.6	16.4	24.8	44.3	0.0
Internal Link Dist (m)		286.4			836.0			416.5			265.1	
Turn Bay Length (m)	70.0		70.0	85.0		80.0	80.0		70.0	80.0		75.0
Base Capacity (vph)	102	1132	603	565	1633	779	402	1041	630	428	1039	563
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.83	0.17	0.78	0.77	0.12	0.26	0.27	0.37	0.22	0.32	0.02

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 36.6	Intersection LOS: D

Intersection Capacity Utilization 71.6% ICU Level of Service C
Analysis Period (min) 15

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





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	819	89	384	1090	78	91	249	204	82	287	9
Future Volume (vph)	17	819	89	384	1090	78	91	249	204	82	287	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	3433	1544	3395	3500	1551	1750	3500	1566	1750	3500	1566
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.50	1.00	1.00	0.55	1.00	1.00
Satd. Flow (perm)	1750	3433	1544	3395	3500	1551	927	3500	1566	1017	3500	1566
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	20	941	102	441	1253	90	105	286	234	94	330	10
RTOR Reduction (vph)	0	0	68	0	0	48	0	0	169	0	0	7
Lane Group Flow (vph)	20	941	34	441	1253	42	105	286	65	94	330	3
Confl. Peds. (#/hr)			2	2								
Heavy Vehicles (%)	2%	4%	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2	6		6
Actuated Green, G (s)	2.8	39.7	39.7	18.9	55.8	55.8	40.7	33.3	33.3	40.5	33.2	33.2
Effective Green, g (s)	2.8	39.7	39.7	18.9	55.8	55.8	40.7	33.3	33.3	40.5	33.2	33.2
Actuated g/C Ratio	0.02	0.33	0.33	0.16	0.46	0.46	0.34	0.28	0.28	0.34	0.28	0.28
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	40	1135	510	534	1627	721	365	971	434	387	968	433
v/s Ratio Prot	0.01	c0.27		c0.13	0.36		c0.02	0.08		0.01	c0.09	
v/s Ratio Perm			0.02			0.03	0.08		0.04	0.07		0.00
v/c Ratio	0.50	0.83	0.07	0.83	0.77	0.06	0.29	0.29	0.15	0.24	0.34	0.01
Uniform Delay, d1	57.9	37.0	27.5	49.0	26.8	17.6	27.9	34.1	32.7	27.8	34.7	31.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.5	5.1	0.1	10.1	2.3	0.0	0.4	0.8	0.7	0.3	1.0	0.0
Delay (s)	67.4	42.2	27.5	59.0	29.1	17.7	28.4	34.9	33.4	28.2	35.6	31.5
Level of Service	E	D	C	E	C	B	C	C	C	C	D	C
Approach Delay (s)		41.2			35.9			33.2			33.9	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	36.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	71.6%	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)	751	292	7	1268	344	6
Future Volume (vph)	751	292	7	1268	344	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		30.0	30.0		100.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			50.0		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)	3466	1566	1750	3500	1733	1566
Flt Permitted			0.326		0.950	
Satd. Flow (perm)	3466	1566	601	3500	1733	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		306				6
Link Speed (k/h)	60			60	40	
Link Distance (m)	860.0			248.0	359.5	
Travel Time (s)	51.6			14.9	32.4	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	2%	2%	2%	3%	2%
Adj. Flow (vph)	791	307	7	1335	362	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	791	307	7	1335	362	6
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.0			7.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases		2	6			8
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	7.0	7.0
Minimum Split (s)	35.9	35.9	35.9	35.9	37.0	37.0
Total Split (s)	53.0	53.0	53.0	53.0	37.0	37.0
Total Split (%)	58.9%	58.9%	58.9%	58.9%	41.1%	41.1%
Maximum Green (s)	47.1	47.1	47.1	47.1	33.0	33.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.0
All-Red Time (s)	2.2	2.2	2.2	2.2	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.9	4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	Max	Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	23.0	23.0	23.0	23.0	22.0	22.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	47.5	47.5	47.5	47.5	21.4	21.4
Actuated g/C Ratio	0.60	0.60	0.60	0.60	0.27	0.27
v/c Ratio	0.38	0.29	0.02	0.63	0.77	0.01
Control Delay	9.6	2.0	8.7	12.8	37.9	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.6	2.0	8.7	12.8	37.9	11.8
LOS	A	A	A	B	D	B
Approach Delay	7.5			12.8	37.5	
Approach LOS	A			B	D	
Queue Length 50th (m)	28.6	0.1	0.4	60.3	49.3	0.0
Queue Length 95th (m)	52.4	11.0	2.5	106.7	77.2	2.5
Internal Link Dist (m)	836.0			224.0	335.5	
Turn Bay Length (m)		30.0	30.0		100.0	
Base Capacity (vph)	2088	1065	362	2109	729	662
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	0.38	0.29	0.02	0.63	0.50	0.01

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 78.8			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 14.0		Intersection LOS: B	
Intersection Capacity Utilization 62.4%		ICU Level of Service B	
Analysis Period (min) 15			

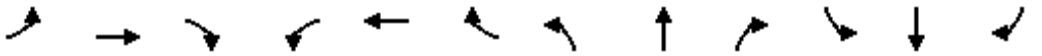
Splits and Phases: 4: Burnhamthorpe Road & William Halton Parkway

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	751	292	7	1268	344	6
Future Volume (vph)	751	292	7	1268	344	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9	5.9	5.9	4.0	4.0
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)	3466	1566	1750	3500	1733	1566
Flt Permitted	1.00	1.00	0.33	1.00	0.95	1.00
Satd. Flow (perm)	3466	1566	601	3500	1733	1566
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	791	307	7	1335	362	6
RTOR Reduction (vph)	0	122	0	0	0	4
Lane Group Flow (vph)	791	185	7	1335	362	2
Heavy Vehicles (%)	3%	2%	2%	2%	3%	2%
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	47.5	47.5	47.5	47.5	21.4	21.4
Effective Green, g (s)	47.5	47.5	47.5	47.5	21.4	21.4
Actuated g/C Ratio	0.60	0.60	0.60	0.60	0.27	0.27
Clearance Time (s)	5.9	5.9	5.9	5.9	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2089	943	362	2109	470	425
v/s Ratio Prot	0.23			c0.38	c0.21	
v/s Ratio Perm		0.12	0.01			0.00
v/c Ratio	0.38	0.20	0.02	0.63	0.77	0.00
Uniform Delay, d1	8.1	7.1	6.3	10.1	26.4	20.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.5	0.1	1.5	7.6	0.0
Delay (s)	8.6	7.5	6.4	11.5	34.1	20.9
Level of Service	A	A	A	B	C	C
Approach Delay (s)	8.3			11.5	33.8	
Approach LOS	A			B	C	

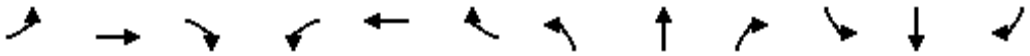
Intersection Summary			
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	78.8	Sum of lost time (s)	9.9
Intersection Capacity Utilization	62.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Appendix L

2033 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)	32	776	200	262	822	42	149	396	341	44	163	46
Future Volume (vph)	32	776	200	262	822	42	149	396	341	44	163	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		70.0	85.0		80.0	80.0		70.0	80.0		75.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	100.0			100.0			60.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor			0.99	1.00		0.99						
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3305	1479	3206	3368	1566	1668	3500	1566	1750	3433	1566
Flt Permitted	0.950			0.950			0.588			0.382		
Satd. Flow (perm)	1750	3305	1459	3205	3368	1546	1033	3500	1566	704	3433	1566
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			227			104			319			140
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		310.4			860.0			440.5			292.4	
Travel Time (s)		18.6			51.6			26.4			17.5	
Confl. Peds. (#/hr)			1	1								
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	2%	8%	8%	8%	6%	2%	7%	2%	2%	2%	4%	2%
Adj. Flow (vph)	42	1008	260	340	1068	55	194	514	443	57	212	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	42	1008	260	340	1068	55	194	514	443	57	212	60
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

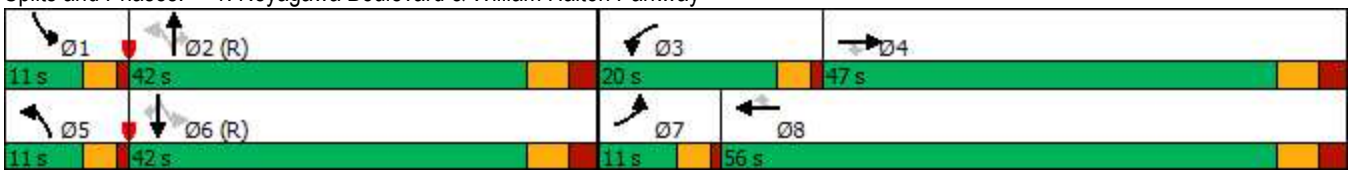


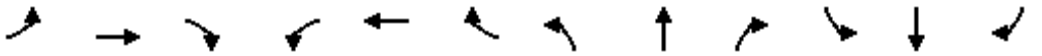
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	15.0	15.0	7.0	15.0	15.0
Minimum Split (s)	11.0	40.4	40.4	11.0	40.4	40.4	11.0	37.4	37.4	11.0	37.4	37.4
Total Split (s)	11.0	47.0	47.0	20.0	56.0	56.0	11.0	42.0	42.0	11.0	42.0	42.0
Total Split (%)	9.2%	39.2%	39.2%	16.7%	46.7%	46.7%	9.2%	35.0%	35.0%	9.2%	35.0%	35.0%
Maximum Green (s)	7.0	40.6	40.6	16.0	49.6	49.6	7.0	35.6	35.6	7.0	35.6	35.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		27.0	27.0		27.0	27.0		24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		1	1		0	0		0	0		0	0
Act Effct Green (s)	7.0	39.6	39.6	15.5	50.3	50.3	47.3	39.3	39.3	46.0	36.6	36.6
Actuated g/C Ratio	0.06	0.33	0.33	0.13	0.42	0.42	0.39	0.33	0.33	0.38	0.30	0.30
v/c Ratio	0.41	0.92	0.41	0.82	0.76	0.08	0.43	0.45	0.61	0.17	0.20	0.10
Control Delay	67.0	53.2	7.7	67.6	34.1	0.4	28.3	34.6	14.1	23.1	31.9	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.0	53.2	7.7	67.6	34.1	0.4	28.3	34.6	14.1	23.1	31.9	0.4
LOS	E	D	A	E	C	A	C	C	B	C	C	A
Approach Delay		44.6			40.6			25.6			24.6	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	9.7	118.3	5.2	40.5	111.9	0.0	30.1	52.5	23.1	8.1	19.6	0.0
Queue Length 95th (m)	18.2	116.2	14.0	47.3	109.0	0.0	39.6	57.2	34.5	14.0	24.9	0.0
Internal Link Dist (m)		286.4			836.0			416.5			268.4	
Turn Bay Length (m)	70.0		70.0	85.0		80.0	80.0		70.0	80.0		75.0
Base Capacity (vph)	102	1118	643	427	1413	709	446	1145	726	331	1047	575
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.90	0.40	0.80	0.76	0.08	0.43	0.45	0.61	0.17	0.20	0.10

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.92	

Intersection Signal Delay: 36.5	Intersection LOS: D
Intersection Capacity Utilization 67.2%	ICU Level of Service C
Analysis Period (min) 15	

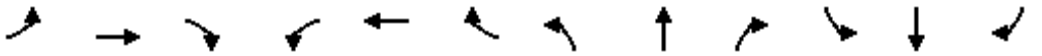
Splits and Phases: 1: Neyagawa Boulevard & William Halton Parkway





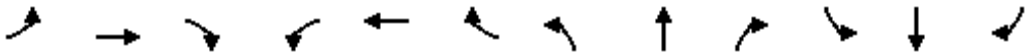
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	776	200	262	822	42	149	396	341	44	163	46
Future Volume (vph)	32	776	200	262	822	42	149	396	341	44	163	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	3305	1459	3206	3368	1546	1668	3500	1566	1750	3433	1566
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.59	1.00	1.00	0.38	1.00	1.00
Satd. Flow (perm)	1750	3305	1459	3206	3368	1546	1032	3500	1566	703	3433	1566
Peak-hour factor, PHF	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Adj. Flow (vph)	42	1008	260	340	1068	55	194	514	443	57	212	60
RTOR Reduction (vph)	0	0	151	0	0	32	0	0	219	0	0	42
Lane Group Flow (vph)	42	1008	109	340	1068	23	194	514	224	57	212	18
Confl. Peds. (#/hr)			1	1								
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	2%	8%	8%	8%	6%	2%	7%	2%	2%	2%	4%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2	6		6
Actuated Green, G (s)	5.6	40.4	40.4	15.5	50.3	50.3	45.2	37.7	37.7	41.4	35.8	35.8
Effective Green, g (s)	5.6	40.4	40.4	15.5	50.3	50.3	45.2	37.7	37.7	41.4	35.8	35.8
Actuated g/C Ratio	0.05	0.34	0.34	0.13	0.42	0.42	0.38	0.31	0.31	0.34	0.30	0.30
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	81	1112	491	414	1411	648	428	1099	491	291	1024	467
v/s Ratio Prot	0.02	c0.30		c0.11	0.32		c0.03	c0.15		0.01	0.06	
v/s Ratio Perm			0.07			0.01	0.14		0.14	0.06		0.01
v/c Ratio	0.52	0.91	0.22	0.82	0.76	0.04	0.45	0.47	0.46	0.20	0.21	0.04
Uniform Delay, d1	55.9	38.0	28.5	50.9	29.6	20.5	26.9	33.1	32.9	26.8	31.5	29.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.5	10.5	0.2	12.3	2.4	0.0	0.8	1.4	3.0	0.3	0.5	0.2
Delay (s)	61.4	48.5	28.8	63.2	32.0	20.6	27.6	34.5	36.0	27.1	31.9	30.0
Level of Service	E	D	C	E	C	C	C	C	D	C	C	C
Approach Delay (s)		45.0			38.8			33.9			30.8	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	38.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	67.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



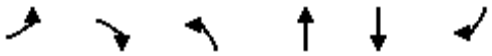
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	732	0	190	769	2	0	0	9	4	0	0
Future Volume (vph)	0	732	0	190	769	2	0	0	9	4	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt								0.865				
Flt Protected					0.990						0.950	
Satd. Flow (prot)	0	3305	0	0	3334	0	0	1260	0	0	1750	0
Flt Permitted					0.990						0.950	
Satd. Flow (perm)	0	3305	0	0	3334	0	0	1260	0	0	1750	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		254.1			310.4			328.9			264.5	
Travel Time (s)		15.2			18.6			19.7			15.9	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Heavy Vehicles (%)	2%	8%	2%	6%	6%	2%	2%	2%	29%	2%	2%	2%
Adj. Flow (vph)	0	1356	0	352	1424	4	0	0	17	7	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1356	0	0	1780	0	0	17	0	0	7	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		



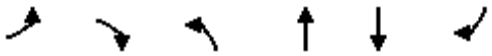
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	0	732	0	190	769	2	0	0	9	4	0	0
Future Volume (veh/h)	0	732	0	190	769	2	0	0	9	4	0	0
Peak Hour Factor	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Hourly flow rate (vph)	0	1356	0	352	1424	4	0	0	17	7	0	0
Approach Volume (veh/h)		1356			1780			17			7	
Crossing Volume (veh/h)		359			0			1363#			1776#	
High Capacity (veh/h)		1044			1385			461			325	
High v/c (veh/h)		1.30			1.29			0.04			0.02	
Low Capacity (veh/h)		853			1161			346			234	
Low v/c (veh/h)		1.59			1.53			0.05			0.03	

Intersection Summary				
Maximum v/c High	1.30			
Maximum v/c Low	1.59			
Intersection Capacity Utilization	60.7%	ICU Level of Service	B	
# Crossing flow exceeds 1200, method is not applicable				



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	108	0	69	148	0
Future Volume (vph)	0	108	0	69	148	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected						
Satd. Flow (prot)	1842	1551	0	3500	3466	0
Flt Permitted						
Satd. Flow (perm)	1842	1551	0	3500	3466	0
Link Speed (k/h)	60			80	80	
Link Distance (m)	260.4			118.3	195.2	
Travel Time (s)	15.6			5.3	8.8	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%
Adj. Flow (vph)	0	121	0	78	166	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	121	0	78	166	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.4%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	108	0	69	148	0
Future Volume (Veh/h)	0	108	0	69	148	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	0	121	0	78	166	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	205	83	166			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	205	83	166			
tC, single (s)	6.8	7.0	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	87	100			
cM capacity (veh/h)	765	957	1410			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	0	121	39	39	83	83
Volume Left	0	0	0	0	0	0
Volume Right	0	121	0	0	0	0
cSH	1700	957	1700	1700	1700	1700
Volume to Capacity	0.00	0.13	0.02	0.02	0.05	0.05
Queue Length 95th (m)	0.0	3.3	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	9.3	0.0	0.0	0.0	0.0
Lane LOS	A	A				
Approach Delay (s)	9.3		0.0		0.0	
Approach LOS	A					

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	17.4%	ICU Level of Service	A
Analysis Period (min)	15		

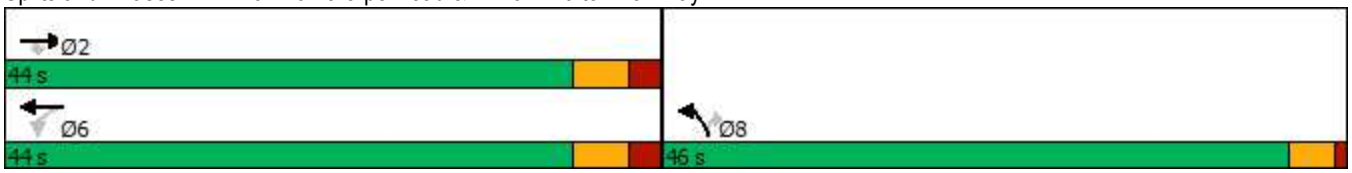
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1071	197	2	708	435	12
Future Volume (vph)	1071	197	2	708	435	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		30.0	30.0		100.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			50.0		15.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor					0.81	
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3400	1413	1750	3336	1653	799
Flt Permitted			0.137		0.950	
Satd. Flow (perm)	3400	1413	252	3336	1345	799
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		120				14
Link Speed (k/h)	60			60	40	
Link Distance (m)	860.0			249.1	359.5	
Travel Time (s)	51.6			14.9	32.4	
Confl. Peds. (#/hr)					200	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	5%	13%	2%	7%	8%	100%
Adj. Flow (vph)	1231	226	2	814	500	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1231	226	2	814	500	14
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.0			7.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	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	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	7.0	7.0
Minimum Split (s)	35.9	35.9	35.9	35.9	37.0	37.0
Total Split (s)	44.0	44.0	44.0	44.0	46.0	46.0
Total Split (%)	48.9%	48.9%	48.9%	48.9%	51.1%	51.1%
Maximum Green (s)	38.1	38.1	38.1	38.1	42.0	42.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.0
All-Red Time (s)	2.2	2.2	2.2	2.2	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.9	4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	Max	Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	23.0	23.0	23.0	23.0	22.0	22.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	38.5	38.5	38.5	38.5	27.7	27.7
Actuated g/C Ratio	0.51	0.51	0.51	0.51	0.36	0.36
v/c Ratio	0.72	0.29	0.02	0.48	0.83	0.05
Control Delay	19.4	7.7	14.0	15.0	34.7	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.4	7.7	14.0	15.0	34.7	7.3
LOS	B	A	B	B	C	A
Approach Delay	17.6			15.0	34.0	
Approach LOS	B			B	C	
Queue Length 50th (m)	66.9	7.6	0.1	37.4	63.6	0.0
Queue Length 95th (m)	116.8	24.3	1.5	67.7	92.5	3.0
Internal Link Dist (m)	836.0			225.1	335.5	
Turn Bay Length (m)		30.0	30.0		100.0	
Base Capacity (vph)	1718	773	127	1686	920	451
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.29	0.02	0.48	0.54	0.03

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 76.2			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 19.9		Intersection LOS: B	
Intersection Capacity Utilization 62.0%		ICU Level of Service B	

Analysis Period (min) 15

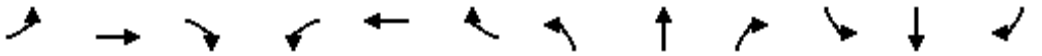
Splits and Phases: 4: Burnhamthorpe Road & William Halton Parkway



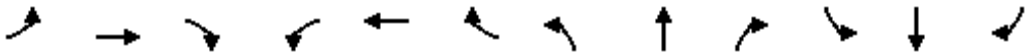
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1071	197	2	708	435	12
Future Volume (vph)	1071	197	2	708	435	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9	5.9	5.9	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	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
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)	3400	1413	1750	3336	1653	799
Flt Permitted	1.00	1.00	0.14	1.00	0.95	1.00
Satd. Flow (perm)	3400	1413	253	3336	1653	799
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	1231	226	2	814	500	14
RTOR Reduction (vph)	0	59	0	0	0	9
Lane Group Flow (vph)	1231	167	2	814	500	5
Confl. Peds. (#/hr)					200	
Heavy Vehicles (%)	5%	13%	2%	7%	8%	100%
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	38.5	38.5	38.5	38.5	27.7	27.7
Effective Green, g (s)	38.5	38.5	38.5	38.5	27.7	27.7
Actuated g/C Ratio	0.51	0.51	0.51	0.51	0.36	0.36
Clearance Time (s)	5.9	5.9	5.9	5.9	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1720	714	127	1687	601	290
v/s Ratio Prot	c0.36			0.24	c0.30	
v/s Ratio Perm		0.12	0.01			0.01
v/c Ratio	0.72	0.23	0.02	0.48	0.83	0.02
Uniform Delay, d1	14.6	10.5	9.4	12.3	22.1	15.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.6	0.8	0.2	1.0	9.6	0.0
Delay (s)	17.1	11.3	9.6	13.3	31.7	15.5
Level of Service	B	B	A	B	C	B
Approach Delay (s)	16.2			13.3	31.2	
Approach LOS	B			B	C	

Intersection Summary			
HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	76.1	Sum of lost time (s)	9.9
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	868	95	403	1193	81	94	273	213	79	315	10
Future Volume (vph)	18	868	95	403	1193	81	94	273	213	79	315	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		70.0	85.0		80.0	80.0		70.0	80.0		75.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	100.0			100.0			60.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor			0.99	1.00								
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3433	1566	3395	3500	1551	1750	3500	1566	1750	3500	1566
Flt Permitted	0.950			0.950			0.468			0.517		
Satd. Flow (perm)	1750	3433	1544	3392	3500	1551	862	3500	1566	952	3500	1566
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			140			104			245			140
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		310.4			860.0			440.5			289.1	
Travel Time (s)		18.6			51.6			26.4			17.3	
Confl. Peds. (#/hr)			2	2								
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	2%	4%	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	21	998	109	463	1371	93	108	314	245	91	362	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	998	109	463	1371	93	108	314	245	91	362	11
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	15.0	15.0	7.0	15.0	15.0
Minimum Split (s)	11.0	40.4	40.4	11.0	40.4	40.4	11.0	37.4	37.4	11.0	37.4	37.4
Total Split (s)	11.0	46.0	46.0	24.0	59.0	59.0	11.0	39.0	39.0	11.0	39.0	39.0
Total Split (%)	9.2%	38.3%	38.3%	20.0%	49.2%	49.2%	9.2%	32.5%	32.5%	9.2%	32.5%	32.5%
Maximum Green (s)	7.0	39.6	39.6	20.0	52.6	52.6	7.0	32.6	32.6	7.0	32.6	32.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		27.0	27.0		27.0	27.0		24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		2	2		0	0		0	0		0	0
Act Effct Green (s)	7.0	38.3	38.3	19.3	57.2	57.2	44.0	34.4	34.4	44.0	34.4	34.4
Actuated g/C Ratio	0.06	0.32	0.32	0.16	0.48	0.48	0.37	0.29	0.29	0.37	0.29	0.29
v/c Ratio	0.21	0.91	0.19	0.85	0.82	0.12	0.29	0.31	0.39	0.23	0.36	0.02
Control Delay	58.9	52.2	2.8	64.4	32.7	3.4	26.5	35.3	6.2	25.5	36.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.9	52.2	2.8	64.4	32.7	3.4	26.5	35.3	6.2	25.5	36.0	0.1
LOS	E	D	A	E	C	A	C	D	A	C	D	A
Approach Delay		47.5			38.9			23.2			33.1	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	4.8	116.3	0.0	54.8	126.3	0.0	16.5	31.2	0.0	13.8	36.5	0.0
Queue Length 95th (m)	12.6	136.7	6.0	#71.3	175.5	7.1	28.1	42.2	16.6	24.3	48.3	0.0
Internal Link Dist (m)		286.4			836.0			416.5			265.1	
Turn Bay Length (m)	70.0		70.0	85.0		80.0	80.0		70.0	80.0		75.0
Base Capacity (vph)	102	1132	603	565	1668	793	369	1002	623	397	1002	548
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.88	0.18	0.82	0.82	0.12	0.29	0.31	0.39	0.23	0.36	0.02

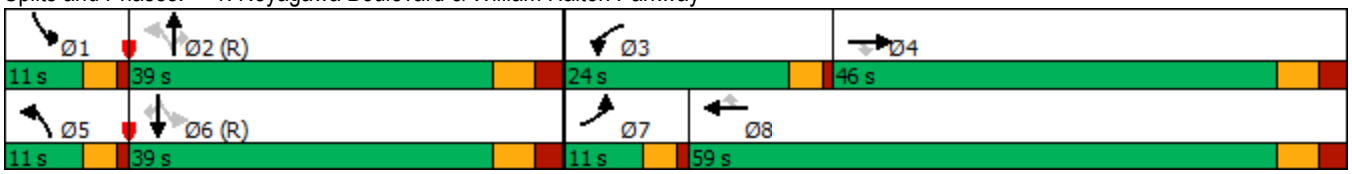
Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 38.1	Intersection LOS: D

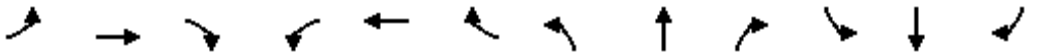
Intersection Capacity Utilization 74.5% ICU Level of Service D

Analysis Period (min) 15

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

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

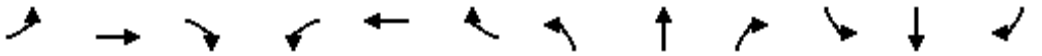




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	868	95	403	1193	81	94	273	213	79	315	10
Future Volume (vph)	18	868	95	403	1193	81	94	273	213	79	315	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	3433	1544	3395	3500	1551	1750	3500	1566	1750	3500	1566
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.47	1.00	1.00	0.52	1.00	1.00
Satd. Flow (perm)	1750	3433	1544	3395	3500	1551	863	3500	1566	953	3500	1566
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	21	998	109	463	1371	93	108	314	245	91	362	11
RTOR Reduction (vph)	0	0	72	0	0	49	0	0	180	0	0	8
Lane Group Flow (vph)	21	998	37	463	1371	44	108	314	65	91	362	3
Confl. Peds. (#/hr)			2	2								
Heavy Vehicles (%)	2%	4%	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2	6		6
Actuated Green, G (s)	2.8	40.7	40.7	19.3	57.2	57.2	39.2	32.0	32.0	39.2	32.0	32.0
Effective Green, g (s)	2.8	40.7	40.7	19.3	57.2	57.2	39.2	32.0	32.0	39.2	32.0	32.0
Actuated g/C Ratio	0.02	0.34	0.34	0.16	0.48	0.48	0.33	0.27	0.27	0.33	0.27	0.27
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	40	1164	523	546	1668	739	335	933	417	359	933	417
v/s Ratio Prot	0.01	0.29		c0.14	c0.39		c0.02	0.09		0.02	c0.10	
v/s Ratio Perm			0.02			0.03	0.09		0.04	0.07		0.00
v/c Ratio	0.53	0.86	0.07	0.85	0.82	0.06	0.32	0.34	0.16	0.25	0.39	0.01
Uniform Delay, d1	57.9	36.9	26.8	48.9	27.0	16.9	29.1	35.4	33.7	28.7	36.0	32.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.9	6.4	0.1	11.7	3.4	0.0	0.6	1.0	0.8	0.4	1.2	0.0
Delay (s)	69.8	43.4	26.9	60.6	30.4	17.0	29.6	36.4	34.5	29.1	37.2	32.4
Level of Service	E	D	C	E	C	B	C	D	C	C	D	C
Approach Delay (s)		42.3			37.0			34.6			35.5	
Approach LOS		D			D			C			D	

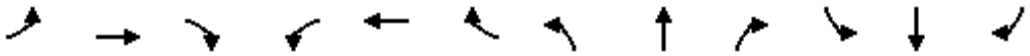
Intersection Summary			
HCM 2000 Control Delay	37.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	74.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



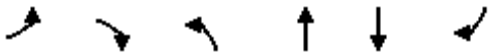
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	860	0	61	1199	9	0	0	12	16	0	1
Future Volume (vph)	0	860	0	61	1199	9	0	0	12	16	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.999			0.865			0.994	
Flt Protected					0.998						0.955	
Satd. Flow (prot)	0	3500	0	0	3473	0	0	1593	0	0	1001	0
Flt Permitted					0.998						0.955	
Satd. Flow (perm)	0	3500	0	0	3473	0	0	1593	0	0	1001	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		254.1			310.4			328.9			264.5	
Travel Time (s)		15.2			18.6			19.7			15.9	
Confl. Peds. (#/hr)			4	4			4		5	5		4
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	2%	2%	2%	2%	2%	71%	2%	2%	2%	77%	2%	100%
Adj. Flow (vph)	0	1075	0	76	1499	11	0	0	15	20	0	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1075	0	0	1586	0	0	15	0	0	21	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		



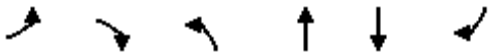
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	0	860	0	61	1199	9	0	0	12	16	0	1
Future Volume (veh/h)	0	860	0	61	1199	9	0	0	12	16	0	1
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	0	1075	0	76	1499	11	0	0	15	20	0	1
Approach Volume (veh/h)		1075			1586			15			21	
Crossing Volume (veh/h)		96			0			1095			1575#	
High Capacity (veh/h)		1285			1385			576			386	
High v/c (veh/h)		0.84			1.15			0.03			0.05	
Low Capacity (veh/h)		1070			1161			443			284	
Low v/c (veh/h)		1.00			1.37			0.03			0.07	

Intersection Summary				
Maximum v/c High	1.15			
Maximum v/c Low	1.37			
Intersection Capacity Utilization	77.3%	ICU Level of Service	D	
# Crossing flow exceeds 1200, method is not applicable				



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	106	0	167	298	0
Future Volume (vph)	2	106	0	167	298	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1750	1566	0	3500	3500	0
Flt Permitted	0.950					
Satd. Flow (perm)	1750	1566	0	3500	3500	0
Link Speed (k/h)	60			80	80	
Link Distance (m)	260.4			121.6	195.2	
Travel Time (s)	15.6			5.5	8.8	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	2	120	0	190	339	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	120	0	190	339	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 21.5%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	106	0	167	298	0
Future Volume (Veh/h)	2	106	0	167	298	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	2	120	0	190	339	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	434	170	339			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	434	170	339			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	86	100			
cM capacity (veh/h)	550	845	1217			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	2	120	95	95	170	170
Volume Left	2	0	0	0	0	0
Volume Right	0	120	0	0	0	0
cSH	550	845	1700	1700	1700	1700
Volume to Capacity	0.00	0.14	0.06	0.06	0.10	0.10
Queue Length 95th (m)	0.1	3.8	0.0	0.0	0.0	0.0
Control Delay (s)	11.6	10.0	0.0	0.0	0.0	0.0
Lane LOS	B	A				
Approach Delay (s)	10.0		0.0		0.0	
Approach LOS	A					

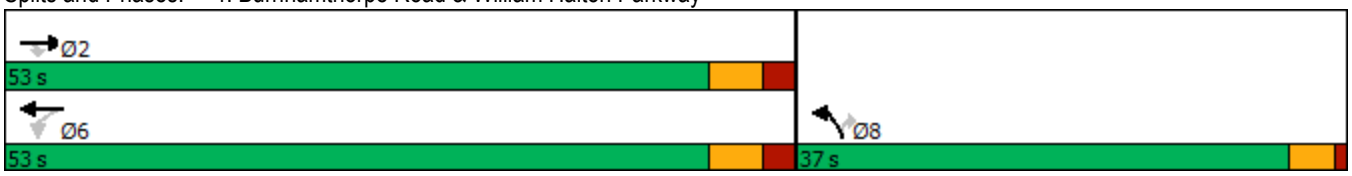
Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	21.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	827	282	6	1386	344	6
Future Volume (vph)	827	282	6	1386	344	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		30.0	30.0		100.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			50.0		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)	3466	1566	1750	3500	1733	1566
Flt Permitted			0.293		0.950	
Satd. Flow (perm)	3466	1566	540	3500	1733	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		269				6
Link Speed (k/h)	60			60	40	
Link Distance (m)	860.0			248.0	359.5	
Travel Time (s)	51.6			14.9	32.4	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	2%	2%	2%	3%	2%
Adj. Flow (vph)	871	297	6	1459	362	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	871	297	6	1459	362	6
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.0			7.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases		2	6			8
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	7.0	7.0
Minimum Split (s)	35.9	35.9	35.9	35.9	37.0	37.0
Total Split (s)	53.0	53.0	53.0	53.0	37.0	37.0
Total Split (%)	58.9%	58.9%	58.9%	58.9%	41.1%	41.1%
Maximum Green (s)	47.1	47.1	47.1	47.1	33.0	33.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.0
All-Red Time (s)	2.2	2.2	2.2	2.2	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.9	4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	Max	Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	23.0	23.0	23.0	23.0	22.0	22.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	47.5	47.5	47.5	47.5	21.4	21.4
Actuated g/C Ratio	0.60	0.60	0.60	0.60	0.27	0.27
v/c Ratio	0.42	0.28	0.02	0.69	0.77	0.01
Control Delay	10.0	2.5	8.7	14.0	37.9	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.0	2.5	8.7	14.0	37.9	11.8
LOS	A	A	A	B	D	B
Approach Delay	8.1			14.0	37.5	
Approach LOS	A			B	D	
Queue Length 50th (m)	32.4	1.5	0.3	69.9	49.3	0.0
Queue Length 95th (m)	59.0	13.2	2.2	123.9	77.2	2.5
Internal Link Dist (m)	836.0			224.0	335.5	
Turn Bay Length (m)		30.0	30.0		100.0	
Base Capacity (vph)	2088	1050	325	2109	729	662
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	0.42	0.28	0.02	0.69	0.50	0.01

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 78.8			
Natural Cycle: 80			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 14.6		Intersection LOS: B	
Intersection Capacity Utilization 65.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 4: Burnhamthorpe Road & William Halton Parkway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	827	282	6	1386	344	6
Future Volume (vph)	827	282	6	1386	344	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9	5.9	5.9	4.0	4.0
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)	3466	1566	1750	3500	1733	1566
Flt Permitted	1.00	1.00	0.29	1.00	0.95	1.00
Satd. Flow (perm)	3466	1566	539	3500	1733	1566
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	871	297	6	1459	362	6
RTOR Reduction (vph)	0	107	0	0	0	4
Lane Group Flow (vph)	871	190	6	1459	362	2
Heavy Vehicles (%)	3%	2%	2%	2%	3%	2%
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	47.5	47.5	47.5	47.5	21.4	21.4
Effective Green, g (s)	47.5	47.5	47.5	47.5	21.4	21.4
Actuated g/C Ratio	0.60	0.60	0.60	0.60	0.27	0.27
Clearance Time (s)	5.9	5.9	5.9	5.9	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2089	943	324	2109	470	425
v/s Ratio Prot	0.25			c0.42	c0.21	
v/s Ratio Perm		0.12	0.01			0.00
v/c Ratio	0.42	0.20	0.02	0.69	0.77	0.00
Uniform Delay, d1	8.3	7.1	6.3	10.7	26.4	20.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.5	0.1	1.9	7.6	0.0
Delay (s)	8.9	7.6	6.4	12.6	34.1	20.9
Level of Service	A	A	A	B	C	C
Approach Delay (s)	8.6			12.5	33.8	
Approach LOS	A			B	C	

Intersection Summary			
HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	78.8	Sum of lost time (s)	9.9
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

MOVEMENT SUMMARY

Site: 1 [Burnhamthorpe Road at Fourth Line - 2033 FB AM]

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: Fourth Line												
1	L2	2	2.0	0.089	16.3	LOS C	0.2	2.1	0.79	0.79	0.79	45.5
2	T1	2	2.0	0.089	16.3	LOS C	0.2	2.1	0.79	0.79	0.79	45.3
3	R2	17	29.0	0.089	18.2	LOS C	0.2	2.1	0.79	0.79	0.79	43.8
Approach		20	24.1	0.089	17.9	LOS C	0.2	2.1	0.79	0.79	0.79	44.0
East: William Halton Parkway												
4	L2	352	6.0	0.817	20.2	LOS C	15.0	110.6	0.21	0.04	0.21	43.6
5	T1	1424	6.0	0.817	20.2	LOS C	15.0	110.7	0.21	0.04	0.21	44.1
6	R2	4	2.0	0.817	20.1	LOS C	15.0	110.7	0.21	0.04	0.21	43.4
Approach		1780	6.0	0.817	20.2	LOS C	15.0	110.7	0.21	0.04	0.21	44.0
North: Fourth Line												
7	L2	7	2.0	0.040	13.6	LOS B	0.1	0.7	0.76	0.76	0.76	46.4
8	T1	2	2.0	0.040	13.6	LOS B	0.1	0.7	0.76	0.76	0.76	46.2
9	R2	2	2.0	0.040	13.6	LOS B	0.1	0.7	0.76	0.76	0.76	45.1
Approach		11	2.0	0.040	13.6	LOS B	0.1	0.7	0.76	0.76	0.76	46.2
West: William Halton Parkway												
10	L2	2	2.0	0.925	40.7	LOS E	24.8	185.2	1.00	1.82	3.03	35.9
11	T1	1356	8.0	0.925	40.8	LOS E	24.8	185.2	1.00	1.82	3.03	35.7
12	R2	2	2.0	0.925	40.7	LOS E	24.8	185.2	1.00	1.82	3.03	35.0
Approach		1359	8.0	0.925	40.8	LOS E	24.8	185.2	1.00	1.82	3.03	35.7
All Vehicles		3170	6.9	0.925	29.0	LOS D	24.8	185.2	0.55	0.81	1.42	40.0

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.

MOVEMENT SUMMARY

Site: 1 [Burnhamthorpe Road at Fourth Line - 2033 FB PM]

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: Fourth Line												
1	L2	1	2.0	0.039	8.5	LOS A	0.1	0.8	0.61	0.61	0.61	51.6
2	T1	1	2.0	0.039	8.5	LOS A	0.1	0.8	0.61	0.61	0.61	51.3
3	R2	15	2.0	0.039	8.5	LOS A	0.1	0.8	0.61	0.61	0.61	49.9
Approach		18	2.0	0.039	8.5	LOS A	0.1	0.8	0.61	0.61	0.61	50.1
East: William Halton Parkway												
4	L2	76	2.0	0.715	14.5	LOS B	9.3	65.9	0.11	0.02	0.11	47.7
5	T1	1499	2.0	0.715	14.5	LOS B	9.3	65.9	0.11	0.02	0.11	47.6
6	R2	11	71.0	0.715	15.6	LOS C	9.1	65.4	0.11	0.02	0.11	45.1
Approach		1586	2.5	0.715	14.5	LOS B	9.3	65.9	0.11	0.02	0.11	47.6
North: Fourth Line												
7	L2	20	77.0	0.087	15.9	LOS C	0.2	1.8	0.70	0.70	0.70	43.5
8	T1	1	2.0	0.087	12.1	LOS B	0.2	1.8	0.70	0.70	0.70	45.1
9	R2	1	100.0	0.087	17.1	LOS C	0.2	1.8	0.70	0.70	0.70	43.3
Approach		23	74.1	0.087	15.8	LOS C	0.2	1.8	0.70	0.70	0.70	43.6
West: William Halton Parkway												
10	L2	1	2.0	0.541	10.5	LOS B	3.6	25.6	0.41	0.26	0.41	50.5
11	T1	1075	2.0	0.541	10.5	LOS B	3.6	25.6	0.41	0.26	0.41	50.3
12	R2	1	2.0	0.541	10.5	LOS B	3.6	25.6	0.41	0.26	0.41	48.8
Approach		1078	2.0	0.541	10.5	LOS B	3.6	25.6	0.41	0.26	0.41	50.3
All Vehicles		2704	2.9	0.715	12.9	LOS B	9.3	65.9	0.24	0.12	0.24	48.6

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 M

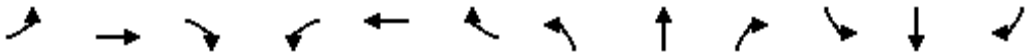
All-Way Stop Control Warrant

Street B & Street A												
2038 FT	NBL	NBT	NBR	WBL	WBT	WBR	SBL	SBT	SBR	EBL	EBT	EBR
AM	13	8	40	8	12	2	20	10	30	8	10	10
AM Sum	61			22			60			28		
PM	14	21	29	21	12	5	15	7	22	21	7	22
PM Sum	64			38			44			50		
EB/WB AM	50	29%	NB/SB AM	121	71%							
EB/WB PM	88	75%	NB/SB PM	29	25%							

Appendix N

2028 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)	59	699	212	242	779	42	159	361	321	93	158	52
Future Volume (vph)	59	699	212	242	779	42	159	361	321	93	158	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		70.0	85.0		80.0	80.0		70.0	80.0		75.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	100.0			100.0			60.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor			0.99	1.00		0.99						
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3305	1479	3206	3368	1566	1668	3500	1566	1750	3433	1566
Flt Permitted	0.950			0.950			0.605			0.413		
Satd. Flow (perm)	1750	3305	1459	3205	3368	1546	1062	3500	1566	761	3433	1566
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			266			104			297			140
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		132.5			860.0			440.5			177.4	
Travel Time (s)		8.0			51.6			26.4			10.6	
Confl. Peds. (#/hr)			1	1								
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	2%	8%	8%	8%	6%	2%	7%	2%	2%	2%	4%	2%
Adj. Flow (vph)	77	908	275	314	1012	55	206	469	417	121	205	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	77	908	275	314	1012	55	206	469	417	121	205	68
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												



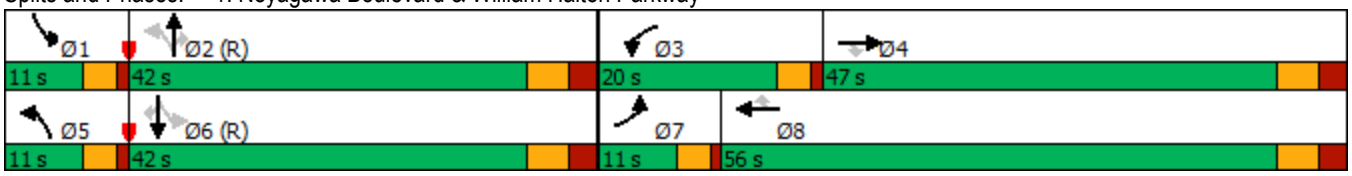
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	15.0	15.0	7.0	15.0	15.0
Minimum Split (s)	11.0	40.4	40.4	11.0	40.4	40.4	11.0	37.4	37.4	11.0	37.4	37.4
Total Split (s)	11.0	47.0	47.0	20.0	56.0	56.0	11.0	42.0	42.0	11.0	42.0	42.0
Total Split (%)	9.2%	39.2%	39.2%	16.7%	46.7%	46.7%	9.2%	35.0%	35.0%	9.2%	35.0%	35.0%
Maximum Green (s)	7.0	40.6	40.6	16.0	49.6	49.6	7.0	35.6	35.6	7.0	35.6	35.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		27.0	27.0		27.0	27.0		24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		1	1		0	0		0	0		0	0
Act Effct Green (s)	7.0	37.9	37.9	15.1	46.0	46.0	49.6	38.7	38.7	47.6	37.6	37.6
Actuated g/C Ratio	0.06	0.32	0.32	0.13	0.38	0.38	0.41	0.32	0.32	0.40	0.31	0.31
v/c Ratio	0.75	0.87	0.43	0.78	0.78	0.08	0.43	0.42	0.59	0.33	0.19	0.12
Control Delay	96.2	48.6	6.1	64.6	37.2	0.5	27.4	34.1	14.0	24.8	31.5	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	96.2	48.6	6.1	64.6	37.2	0.5	27.4	34.1	14.0	24.8	31.5	0.4
LOS	F	D	A	E	D	A	C	C	B	C	C	A
Approach Delay		42.3			42.0			25.2			24.1	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	18.2	103.0	1.4	37.1	104.6	0.0	31.9	47.2	22.1	17.7	19.0	0.0
Queue Length 95th (m)	#33.8	102.1	9.7	43.9	101.8	0.0	41.9	52.1	33.7	25.7	24.2	0.0
Internal Link Dist (m)		108.5			836.0			416.5			153.4	
Turn Bay Length (m)	70.0		70.0	85.0		80.0	80.0		70.0	80.0		75.0
Base Capacity (vph)	102	1118	669	427	1392	700	482	1127	705	364	1076	587
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.81	0.41	0.74	0.73	0.08	0.43	0.42	0.59	0.33	0.19	0.12

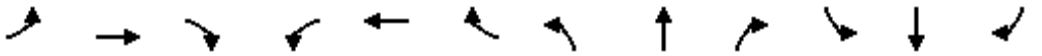
Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.87	

Intersection Signal Delay: 35.9	Intersection LOS: D
Intersection Capacity Utilization 66.0%	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.

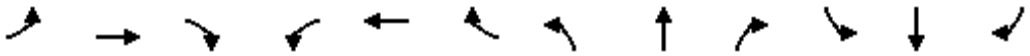
Splits and Phases: 1: Neyagawa Boulevard & William Halton Parkway





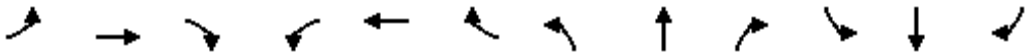
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	699	212	242	779	42	159	361	321	93	158	52
Future Volume (vph)	59	699	212	242	779	42	159	361	321	93	158	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	3305	1459	3206	3368	1546	1668	3500	1566	1750	3433	1566
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.61	1.00	1.00	0.41	1.00	1.00
Satd. Flow (perm)	1750	3305	1459	3206	3368	1546	1063	3500	1566	761	3433	1566
Peak-hour factor, PHF	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Adj. Flow (vph)	77	908	275	314	1012	55	206	469	417	121	205	68
RTOR Reduction (vph)	0	0	182	0	0	34	0	0	201	0	0	47
Lane Group Flow (vph)	77	908	93	314	1012	21	206	469	216	121	205	21
Confl. Peds. (#/hr)			1	1								
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	2%	8%	8%	8%	6%	2%	7%	2%	2%	2%	4%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2	6		6
Actuated Green, G (s)	7.0	37.9	37.9	15.1	46.0	46.0	47.3	38.7	38.7	45.1	37.6	37.6
Effective Green, g (s)	7.0	37.9	37.9	15.1	46.0	46.0	47.3	38.7	38.7	45.1	37.6	37.6
Actuated g/C Ratio	0.06	0.32	0.32	0.13	0.38	0.38	0.39	0.32	0.32	0.38	0.31	0.31
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	102	1043	460	403	1291	592	462	1128	505	347	1075	490
v/s Ratio Prot	0.04	c0.27		c0.10	0.30		c0.03	0.13		0.02	0.06	
v/s Ratio Perm			0.06			0.01	c0.14		0.14	0.11		0.01
v/c Ratio	0.75	0.87	0.20	0.78	0.78	0.04	0.45	0.42	0.43	0.35	0.19	0.04
Uniform Delay, d1	55.7	38.7	30.0	50.8	32.6	23.1	25.3	31.8	31.9	25.3	30.1	28.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	26.7	8.1	0.2	9.2	3.2	0.0	0.7	1.1	2.6	0.6	0.4	0.2
Delay (s)	82.3	46.8	30.2	60.0	35.8	23.2	26.0	32.9	34.6	25.9	30.5	28.8
Level of Service	F	D	C	E	D	C	C	C	C	C	C	C
Approach Delay (s)		45.4			40.8			32.3			28.8	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	38.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



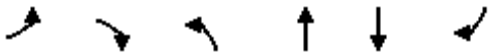
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	639	0	172	762	10	0	0	8	83	0	10
Future Volume (vph)	23	639	0	172	762	10	0	0	8	83	0	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.998			0.865			0.985	
Flt Protected		0.998			0.991						0.957	
Satd. Flow (prot)	0	3305	0	0	3332	0	0	1260	0	0	1736	0
Flt Permitted		0.998			0.991						0.957	
Satd. Flow (perm)	0	3305	0	0	3332	0	0	1260	0	0	1736	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		254.1			177.9			328.9			209.4	
Travel Time (s)		15.2			10.7			19.7			12.6	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Heavy Vehicles (%)	2%	8%	2%	6%	6%	2%	2%	2%	29%	2%	2%	2%
Adj. Flow (vph)	43	1183	0	319	1411	19	0	0	15	154	0	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1226	0	0	1749	0	0	15	0	0	173	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		



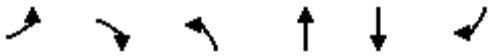
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	23	639	0	172	762	10	0	0	8	83	0	10
Future Volume (veh/h)	23	639	0	172	762	10	0	0	8	83	0	10
Peak Hour Factor	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Hourly flow rate (vph)	43	1183	0	319	1411	19	0	0	15	154	0	19
Approach Volume (veh/h)		1226			1749			15			173	
Crossing Volume (veh/h)		473			43			1380#			1730#	
High Capacity (veh/h)		954			1339			454			338	
High v/c (veh/h)		1.29			1.31			0.03			0.51	
Low Capacity (veh/h)		773			1120			340			245	
Low v/c (veh/h)		1.59			1.56			0.04			0.71	

Intersection Summary				
Maximum v/c High	1.31			
Maximum v/c Low	1.59			
Intersection Capacity Utilization	66.6%	ICU Level of Service	C	
# Crossing flow exceeds 1200, method is not applicable				



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	103	0	73	144	0
Future Volume (vph)	0	103	0	73	144	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected						
Satd. Flow (prot)	1842	1551	0	3500	3466	0
Flt Permitted						
Satd. Flow (perm)	1842	1551	0	3500	3466	0
Link Speed (k/h)	60			80	80	
Link Distance (m)	260.4			118.3	195.2	
Travel Time (s)	15.6			5.3	8.8	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%
Adj. Flow (vph)	0	116	0	82	162	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	116	0	82	162	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	17.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	103	0	73	144	0
Future Volume (Veh/h)	0	103	0	73	144	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	0	116	0	82	162	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	203	81	162			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	203	81	162			
tC, single (s)	6.8	7.0	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	88	100			
cM capacity (veh/h)	767	959	1414			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	0	116	41	41	81	81
Volume Left	0	0	0	0	0	0
Volume Right	0	116	0	0	0	0
cSH	1700	959	1700	1700	1700	1700
Volume to Capacity	0.00	0.12	0.02	0.02	0.05	0.05
Queue Length 95th (m)	0.0	3.1	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	9.3	0.0	0.0	0.0	0.0
Lane LOS	A	A				
Approach Delay (s)	9.3		0.0		0.0	
Approach LOS	A					

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	17.0%	ICU Level of Service	A
Analysis Period (min)	15		

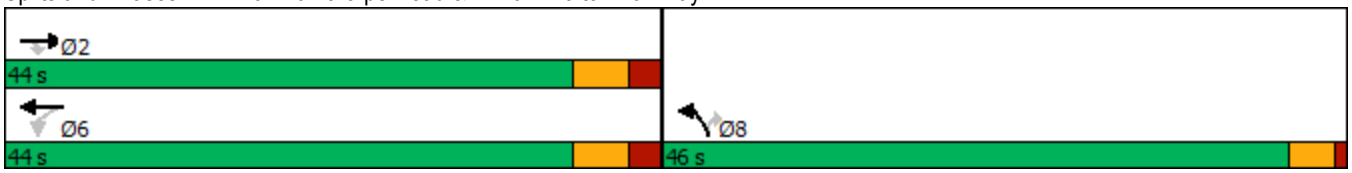
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1027	200	2	649	427	11
Future Volume (vph)	1027	200	2	649	427	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		30.0	30.0		100.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			50.0		15.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor					0.81	
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3400	1413	1750	3336	1653	799
Flt Permitted			0.155		0.950	
Satd. Flow (perm)	3400	1413	286	3336	1345	799
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		127				13
Link Speed (k/h)	60			60	40	
Link Distance (m)	860.0			249.1	359.5	
Travel Time (s)	51.6			14.9	32.4	
Confl. Peds. (#/hr)					200	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	5%	13%	2%	7%	8%	100%
Adj. Flow (vph)	1180	230	2	746	491	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1180	230	2	746	491	13
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.0			7.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	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	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	7.0	7.0
Minimum Split (s)	35.9	35.9	35.9	35.9	37.0	37.0
Total Split (s)	44.0	44.0	44.0	44.0	46.0	46.0
Total Split (%)	48.9%	48.9%	48.9%	48.9%	51.1%	51.1%
Maximum Green (s)	38.1	38.1	38.1	38.1	42.0	42.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.0
All-Red Time (s)	2.2	2.2	2.2	2.2	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.9	4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	Max	Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	23.0	23.0	23.0	23.0	22.0	22.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	38.5	38.5	38.5	38.5	27.1	27.1
Actuated g/C Ratio	0.51	0.51	0.51	0.51	0.36	0.36
v/c Ratio	0.68	0.29	0.01	0.44	0.83	0.04
Control Delay	18.1	7.3	13.5	14.2	34.5	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.1	7.3	13.5	14.2	34.5	7.5
LOS	B	A	B	B	C	A
Approach Delay	16.4			14.2	33.8	
Approach LOS	B			B	C	
Queue Length 50th (m)	61.8	7.2	0.1	32.7	62.0	0.0
Queue Length 95th (m)	107.9	23.7	1.5	60.1	90.3	2.9
Internal Link Dist (m)	836.0			225.1	335.5	
Turn Bay Length (m)		30.0	30.0		100.0	
Base Capacity (vph)	1730	781	145	1698	927	454
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	0.68	0.29	0.01	0.44	0.53	0.03

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 75.6			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 19.1		Intersection LOS: B	
Intersection Capacity Utilization 60.3%		ICU Level of Service B	

Analysis Period (min) 15

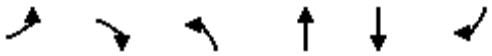
Splits and Phases: 4: Burnhamthorpe Road & William Halton Parkway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1027	200	2	649	427	11
Future Volume (vph)	1027	200	2	649	427	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9	5.9	5.9	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	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
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)	3400	1413	1750	3336	1653	799
Flt Permitted	1.00	1.00	0.15	1.00	0.95	1.00
Satd. Flow (perm)	3400	1413	285	3336	1653	799
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	1180	230	2	746	491	13
RTOR Reduction (vph)	0	62	0	0	0	8
Lane Group Flow (vph)	1180	168	2	746	491	5
Confl. Peds. (#/hr)					200	
Heavy Vehicles (%)	5%	13%	2%	7%	8%	100%
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	38.5	38.5	38.5	38.5	27.1	27.1
Effective Green, g (s)	38.5	38.5	38.5	38.5	27.1	27.1
Actuated g/C Ratio	0.51	0.51	0.51	0.51	0.36	0.36
Clearance Time (s)	5.9	5.9	5.9	5.9	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1733	720	145	1701	593	286
v/s Ratio Prot	c0.35			0.22	c0.30	
v/s Ratio Perm		0.12	0.01			0.01
v/c Ratio	0.68	0.23	0.01	0.44	0.83	0.02
Uniform Delay, d1	13.9	10.3	9.1	11.7	22.1	15.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.2	0.8	0.2	0.8	9.3	0.0
Delay (s)	16.1	11.0	9.3	12.5	31.4	15.6
Level of Service	B	B	A	B	C	B
Approach Delay (s)	15.3			12.5	31.0	
Approach LOS	B			B	C	

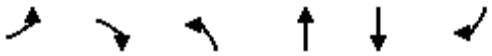
Intersection Summary			
HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	75.5	Sum of lost time (s)	9.9
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	70	0	461	233	11
Future Volume (vph)	0	70	0	461	233	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.993	
Flt Protected						
Satd. Flow (prot)	0	1593	0	3500	3475	0
Flt Permitted						
Satd. Flow (perm)	0	1593	0	3500	3475	0
Link Speed (k/h)	50			80	80	
Link Distance (m)	152.4			177.4	115.0	
Travel Time (s)	11.0			8.0	5.2	
Confl. Peds. (#/hr)		5				5
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	78	0	512	259	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	78	0	512	271	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

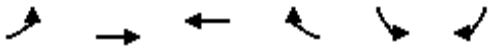
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	24.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	70	0	461	233	11
Future Volume (Veh/h)	0	70	0	461	233	11
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	78	0	512	259	12
Pedestrians	5			5		
Lane Width (m)	3.5			3.5		
Walking Speed (m/s)	1.0			1.0		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				177		
pX, platoon unblocked	0.91					
vC, conflicting volume	526	146	276			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	278	146	276			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	91	100			
cM capacity (veh/h)	623	867	1278			

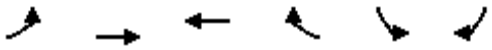
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	78	256	256	173	98
Volume Left	0	0	0	0	0
Volume Right	78	0	0	0	12
cSH	867	1700	1700	1700	1700
Volume to Capacity	0.09	0.15	0.15	0.10	0.06
Queue Length 95th (m)	2.2	0.0	0.0	0.0	0.0
Control Delay (s)	9.6	0.0	0.0	0.0	0.0
Lane LOS	A				
Approach Delay (s)	9.6	0.0		0.0	
Approach LOS	A				

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	24.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	969	956	34	0	40
Future Volume (vph)	0	969	956	34	0	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.995			0.865
Flt Protected						
Satd. Flow (prot)	0	3500	3482	0	0	1593
Flt Permitted						
Satd. Flow (perm)	0	3500	3482	0	0	1593
Link Speed (k/h)		60	60		50	
Link Distance (m)		177.9	132.5		186.6	
Travel Time (s)		10.7	8.0		13.4	
Confl. Peds. (#/hr)				5		5
Confl. Bikes (#/hr)				5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1077	1062	38	0	44
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1077	1100	0	0	44
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 39.1%		ICU Level of Service A	
Analysis Period (min) 15			



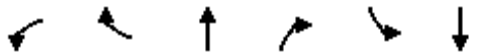
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	969	956	34	0	40
Future Volume (Veh/h)	0	969	956	34	0	40
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1077	1062	38	0	44
Pedestrians		5			5	
Lane Width (m)		3.5			3.5	
Walking Speed (m/s)		1.0			1.0	
Percent Blockage		0			0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			133			
pX, platoon unblocked	0.75				0.75	0.75
vC, conflicting volume	1105				1624	560
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	467				1161	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	95
cM capacity (veh/h)	812				140	803

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	538	538	708	392	44
Volume Left	0	0	0	0	0
Volume Right	0	0	0	38	44
cSH	1700	1700	1700	1700	803
Volume to Capacity	0.32	0.32	0.42	0.23	0.05
Queue Length 95th (m)	0.0	0.0	0.0	0.0	1.3
Control Delay (s)	0.0	0.0	0.0	0.0	9.7
Lane LOS					A
Approach Delay (s)	0.0		0.0		9.7
Approach LOS					A

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	39.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	80	0	10	23	0	13
Future Volume (vph)	80	0	10	23	0	13
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			0.905			
Flt Protected	0.950					
Satd. Flow (prot)	1750	0	1667	0	0	1842
Flt Permitted	0.950					
Satd. Flow (perm)	1750	0	1667	0	0	1842
Link Speed (k/h)	50		60			60
Link Distance (m)	162.7		209.4			128.1
Travel Time (s)	11.7		12.6			7.7
Confl. Peds. (#/hr)	5	5		5	5	
Confl. Bikes (#/hr)		5		5		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	89	0	11	26	0	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	89	0	37	0	0	14
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.5		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

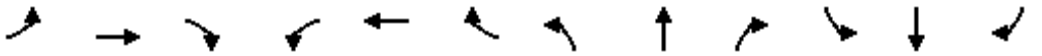
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	17.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	80	0	10	23	0	13
Future Volume (Veh/h)	80	0	10	23	0	13
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)	89	0	11	26	0	14
Pedestrians	5		5			5
Lane Width (m)	3.5		3.5			3.5
Walking Speed (m/s)	1.0		1.0			1.0
Percent Blockage	0		0			0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	48	34			42	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	48	34			42	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	100			100	
cM capacity (veh/h)	952	1029			1559	

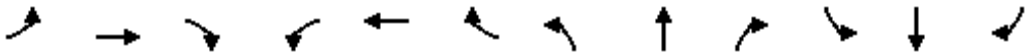
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	89	37	14
Volume Left	89	0	0
Volume Right	0	26	0
cSH	952	1700	1559
Volume to Capacity	0.09	0.02	0.00
Queue Length 95th (m)	2.3	0.0	0.0
Control Delay (s)	9.2	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.2	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	5.8		
Intersection Capacity Utilization	17.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	10	10	8	12	2	13	8	40	20	10	30
Future Volume (vph)	8	10	10	8	12	2	13	8	40	20	10	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		0.952			0.989			0.911			0.932	
Flt Protected		0.986			0.982			0.990			0.984	
Satd. Flow (prot)	0	1729	0	0	1789	0	0	1661	0	0	1689	0
Flt Permitted		0.986			0.982			0.990			0.984	
Satd. Flow (perm)	0	1729	0	0	1789	0	0	1661	0	0	1689	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		162.7			152.4			186.6			102.7	
Travel Time (s)		11.7			11.0			13.4			7.4	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	11	11	9	13	2	14	9	44	22	11	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	31	0	0	24	0	0	67	0	0	66	0
Enter Blocked Intersection	No	No	No	No	No	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		Free			Free			Stop			Stop	

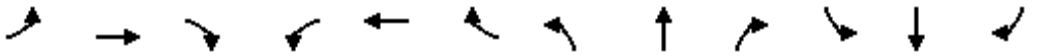
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	18.6%	ICU Level of Service	A
Analysis Period (min)	15		



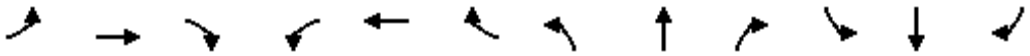
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	10	10	8	12	2	13	8	40	20	10	30
Future Volume (Veh/h)	8	10	10	8	12	2	13	8	40	20	10	30
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	9	11	11	9	13	2	14	9	44	22	11	33
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	20			27			115	78	26	125	82	24
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	20			27			115	78	26	125	82	24
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			98	99	96	97	99	97
cM capacity (veh/h)	1588			1579			805	796	1039	785	791	1042

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	31	24	67	66
Volume Left	9	9	14	22
Volume Right	11	2	44	33
cSH	1588	1579	943	897
Volume to Capacity	0.01	0.01	0.07	0.07
Queue Length 95th (m)	0.1	0.1	1.7	1.8
Control Delay (s)	2.1	2.8	9.1	9.3
Lane LOS	A	A	A	A
Approach Delay (s)	2.1	2.8	9.1	9.3
Approach LOS			A	A

Intersection Summary				
Average Delay	7.2			
Intersection Capacity Utilization	18.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	883	117	403	1268	81	137	273	213	115	322	17
Future Volume (vph)	40	883	117	403	1268	81	137	273	213	115	322	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		70.0	85.0		80.0	80.0		70.0	80.0		75.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	100.0			100.0			60.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor			0.99	1.00								
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3433	1566	3395	3500	1551	1750	3500	1566	1750	3500	1566
Flt Permitted	0.950			0.950			0.464			0.523		
Satd. Flow (perm)	1750	3433	1544	3392	3500	1551	855	3500	1566	963	3500	1566
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			140			104			245			140
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		132.5			860.0			440.5			177.4	
Travel Time (s)		8.0			51.6			26.4			10.6	
Confl. Peds. (#/hr)			2	2								
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	2%	4%	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	46	1015	134	463	1457	93	157	314	245	132	370	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	1015	134	463	1457	93	157	314	245	132	370	20
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	15.0	15.0	7.0	15.0	15.0
Minimum Split (s)	11.0	40.4	40.4	11.0	40.4	40.4	11.0	37.4	37.4	11.0	37.4	37.4
Total Split (s)	11.0	46.0	46.0	24.0	59.0	59.0	11.0	39.0	39.0	11.0	39.0	39.0
Total Split (%)	9.2%	38.3%	38.3%	20.0%	49.2%	49.2%	9.2%	32.5%	32.5%	9.2%	32.5%	32.5%
Maximum Green (s)	7.0	39.6	39.6	20.0	52.6	52.6	7.0	32.6	32.6	7.0	32.6	32.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		27.0	27.0		27.0	27.0		24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		2	2		0	0		0	0		0	0
Act Effct Green (s)	7.0	38.7	38.7	19.3	53.1	53.1	43.8	34.2	34.2	43.5	34.0	34.0
Actuated g/C Ratio	0.06	0.32	0.32	0.16	0.44	0.44	0.36	0.28	0.28	0.36	0.28	0.28
v/c Ratio	0.45	0.92	0.23	0.85	0.94	0.12	0.43	0.32	0.40	0.33	0.37	0.04
Control Delay	69.1	52.8	5.2	64.4	45.0	3.5	29.8	35.4	6.2	27.5	36.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.1	52.8	5.2	64.4	45.0	3.5	29.8	35.4	6.2	27.5	36.3	0.1
LOS	E	D	A	E	D	A	C	D	A	C	D	A
Approach Delay		48.0			47.5			24.2			32.7	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	10.7	119.1	0.0	54.8	170.4	0.0	24.8	31.2	0.0	20.5	37.4	0.0
Queue Length 95th (m)	22.2	#139.9	11.0	#71.3	#206.3	7.1	39.0	42.2	16.6	33.4	49.3	0.0
Internal Link Dist (m)		108.5			836.0			416.5			153.4	
Turn Bay Length (m)	70.0		70.0	85.0		80.0	80.0		70.0	80.0		75.0
Base Capacity (vph)	102	1134	604	565	1550	744	365	996	620	395	992	544
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.90	0.22	0.82	0.94	0.13	0.43	0.32	0.40	0.33	0.37	0.04

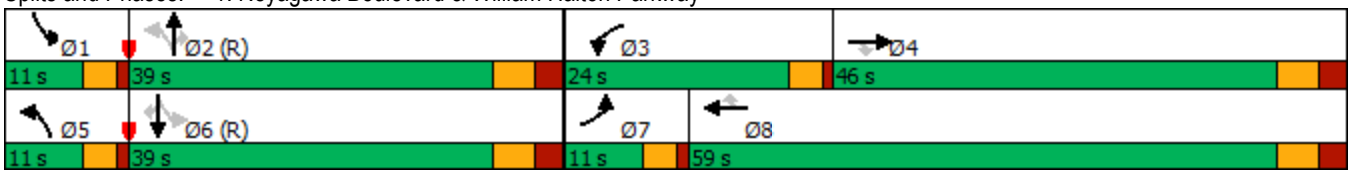
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 42.2		Intersection LOS: D	

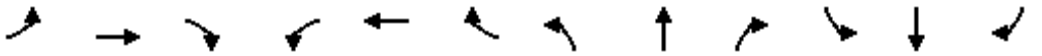
Intersection Capacity Utilization 78.3% ICU Level of Service D

Analysis Period (min) 15

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

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

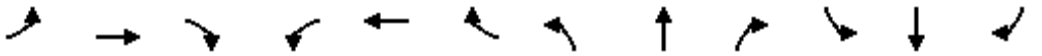




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	883	117	403	1268	81	137	273	213	115	322	17
Future Volume (vph)	40	883	117	403	1268	81	137	273	213	115	322	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	3433	1544	3395	3500	1551	1750	3500	1566	1750	3500	1566
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.46	1.00	1.00	0.52	1.00	1.00
Satd. Flow (perm)	1750	3433	1544	3395	3500	1551	856	3500	1566	964	3500	1566
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	46	1015	134	463	1457	93	157	314	245	132	370	20
RTOR Reduction (vph)	0	0	90	0	0	52	0	0	177	0	0	14
Lane Group Flow (vph)	46	1015	44	463	1457	41	157	314	68	132	370	6
Confl. Peds. (#/hr)			2	2								
Heavy Vehicles (%)	2%	4%	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2	6		6
Actuated Green, G (s)	5.6	39.4	39.4	19.3	53.1	53.1	40.6	33.4	33.4	40.4	33.3	33.3
Effective Green, g (s)	5.6	39.4	39.4	19.3	53.1	53.1	40.6	33.4	33.4	40.4	33.3	33.3
Actuated g/C Ratio	0.05	0.33	0.33	0.16	0.44	0.44	0.34	0.28	0.28	0.34	0.28	0.28
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	81	1127	506	546	1548	686	343	974	435	371	971	434
v/s Ratio Prot	0.03	0.30		c0.14	c0.42		c0.03	0.09		0.02	0.11	
v/s Ratio Perm			0.03			0.03	c0.13		0.04	0.10		0.00
v/c Ratio	0.57	0.90	0.09	0.85	0.94	0.06	0.46	0.32	0.16	0.36	0.38	0.01
Uniform Delay, d1	56.0	38.4	27.9	48.9	32.0	19.2	29.2	34.3	32.7	28.6	35.0	31.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.8	9.9	0.1	11.7	11.7	0.0	1.0	0.9	0.8	0.6	1.1	0.1
Delay (s)	64.8	48.4	27.9	60.6	43.6	19.2	30.2	35.2	33.4	29.2	36.2	31.5
Level of Service	E	D	C	E	D	B	C	D	C	C	D	C
Approach Delay (s)		46.7			46.4			33.5			34.2	
Approach LOS		D			D			C			C	

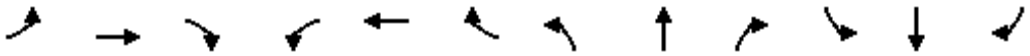
Intersection Summary			
HCM 2000 Control Delay	43.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



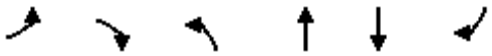
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	860	0	61	1235	30	0	0	12	74	0	8
Future Volume (vph)	64	860	0	61	1235	30	0	0	12	74	0	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.997			0.865			0.987	
Flt Protected		0.997			0.998						0.957	
Satd. Flow (prot)	0	3489	0	0	3468	0	0	1593	0	0	1534	0
Flt Permitted		0.997			0.998						0.957	
Satd. Flow (perm)	0	3489	0	0	3468	0	0	1593	0	0	1534	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		254.1			177.9			328.9			209.4	
Travel Time (s)		15.2			10.7			19.7			12.6	
Confl. Peds. (#/hr)			4	4			4		5	5		4
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	2%	2%	2%	2%	2%	20%	2%	2%	2%	16%	2%	13%
Adj. Flow (vph)	80	1075	0	76	1544	38	0	0	15	93	0	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1155	0	0	1658	0	0	15	0	0	103	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization	84.0%	ICU Level of Service	E
Analysis Period (min)	15		



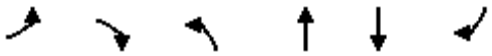
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	64	860	0	61	1235	30	0	0	12	74	0	8
Future Volume (veh/h)	64	860	0	61	1235	30	0	0	12	74	0	8
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	80	1075	0	76	1544	38	0	0	15	92	0	10
Approach Volume (veh/h)		1155			1658			15			102	
Crossing Volume (veh/h)		168			80			1247#			1620#	
High Capacity (veh/h)		1214			1301			508			371	
High v/c (veh/h)		0.95			1.27			0.03			0.27	
Low Capacity (veh/h)		1006			1085			385			272	
Low v/c (veh/h)		1.15			1.53			0.04			0.38	

Intersection Summary				
Maximum v/c High	1.27			
Maximum v/c Low	1.53			
Intersection Capacity Utilization	84.0%	ICU Level of Service	E	
# Crossing flow exceeds 1200, method is not applicable				



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	117	0	174	319	0
Future Volume (vph)	2	117	0	174	319	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1750	1566	0	3500	3500	0
Flt Permitted	0.950					
Satd. Flow (perm)	1750	1566	0	3500	3500	0
Link Speed (k/h)	60			80	80	
Link Distance (m)	260.4			121.6	195.2	
Travel Time (s)	15.6			5.5	8.8	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	2	133	0	198	363	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	133	0	198	363	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.7%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	117	0	174	319	0
Future Volume (Veh/h)	2	117	0	174	319	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	2	133	0	198	362	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	461	181	362			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	461	181	362			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	84	100			
cM capacity (veh/h)	529	831	1193			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	2	133	99	99	181	181
Volume Left	2	0	0	0	0	0
Volume Right	0	133	0	0	0	0
cSH	529	831	1700	1700	1700	1700
Volume to Capacity	0.00	0.16	0.06	0.06	0.11	0.11
Queue Length 95th (m)	0.1	4.3	0.0	0.0	0.0	0.0
Control Delay (s)	11.8	10.2	0.0	0.0	0.0	0.0
Lane LOS	B	B				
Approach Delay (s)	10.2		0.0		0.0	
Approach LOS	B					

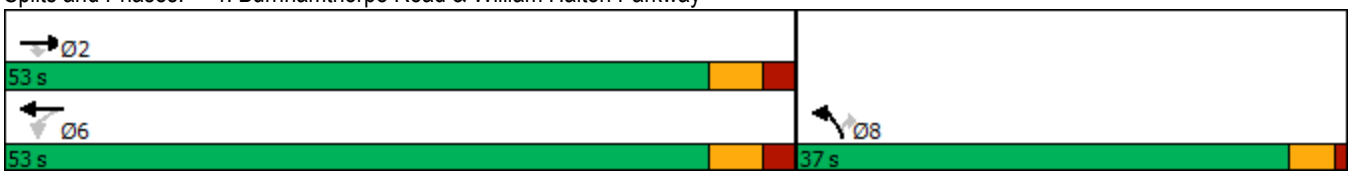
Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	22.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	871	289	6	1450	355	6
Future Volume (vph)	871	289	6	1450	355	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		30.0	30.0		100.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			50.0		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)	3466	1566	1750	3500	1733	1566
Flt Permitted			0.273		0.950	
Satd. Flow (perm)	3466	1566	503	3500	1733	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		261				6
Link Speed (k/h)	60			60	40	
Link Distance (m)	860.0			248.0	359.5	
Travel Time (s)	51.6			14.9	32.4	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	2%	2%	2%	3%	2%
Adj. Flow (vph)	917	304	6	1526	374	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	917	304	6	1526	374	6
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.0			7.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases		2	6			8
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	7.0	7.0
Minimum Split (s)	35.9	35.9	35.9	35.9	37.0	37.0
Total Split (s)	53.0	53.0	53.0	53.0	37.0	37.0
Total Split (%)	58.9%	58.9%	58.9%	58.9%	41.1%	41.1%
Maximum Green (s)	47.1	47.1	47.1	47.1	33.0	33.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.0
All-Red Time (s)	2.2	2.2	2.2	2.2	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.9	4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	Max	Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	23.0	23.0	23.0	23.0	22.0	22.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	47.4	47.4	47.4	47.4	22.0	22.0
Actuated g/C Ratio	0.60	0.60	0.60	0.60	0.28	0.28
v/c Ratio	0.44	0.29	0.02	0.73	0.78	0.01
Control Delay	10.5	2.9	9.2	15.3	38.2	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.5	2.9	9.2	15.3	38.2	11.5
LOS	B	A	A	B	D	B
Approach Delay	8.6			15.3	37.7	
Approach LOS	A			B	D	
Queue Length 50th (m)	35.7	2.4	0.3	77.4	51.4	0.0
Queue Length 95th (m)	64.7	15.0	2.3	137.3	79.8	2.5
Internal Link Dist (m)	836.0			224.0	335.5	
Turn Bay Length (m)		30.0	30.0		100.0	
Base Capacity (vph)	2071	1040	300	2091	724	658
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	0.44	0.29	0.02	0.73	0.52	0.01

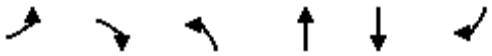
Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 79.3	
Natural Cycle: 80	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 15.4	Intersection LOS: B
Intersection Capacity Utilization 68.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 4: Burnhamthorpe Road & William Halton Parkway



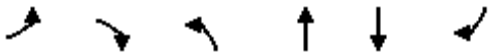
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	871	289	6	1450	355	6
Future Volume (vph)	871	289	6	1450	355	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9	5.9	5.9	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3466	1566	1750	3500	1733	1566
Flt Permitted	1.00	1.00	0.27	1.00	0.95	1.00
Satd. Flow (perm)	3466	1566	503	3500	1733	1566
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	917	304	6	1526	374	6
RTOR Reduction (vph)	0	105	0	0	0	4
Lane Group Flow (vph)	917	199	6	1526	374	2
Heavy Vehicles (%)	3%	2%	2%	2%	3%	2%
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	47.4	47.4	47.4	47.4	22.0	22.0
Effective Green, g (s)	47.4	47.4	47.4	47.4	22.0	22.0
Actuated g/C Ratio	0.60	0.60	0.60	0.60	0.28	0.28
Clearance Time (s)	5.9	5.9	5.9	5.9	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2071	936	300	2092	480	434
v/s Ratio Prot	0.26			c0.44	c0.22	
v/s Ratio Perm		0.13	0.01			0.00
v/c Ratio	0.44	0.21	0.02	0.73	0.78	0.00
Uniform Delay, d1	8.7	7.4	6.5	11.4	26.4	20.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.5	0.1	2.3	7.8	0.0
Delay (s)	9.4	7.9	6.6	13.7	34.2	20.7
Level of Service	A	A	A	B	C	C
Approach Delay (s)	9.0			13.6	34.0	
Approach LOS	A			B	C	

Intersection Summary			
HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	79.3	Sum of lost time (s)	9.9
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	51	0	395	404	32
Future Volume (vph)	0	51	0	395	404	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.989	
Flt Protected						
Satd. Flow (prot)	0	1593	0	3500	3461	0
Flt Permitted						
Satd. Flow (perm)	0	1593	0	3500	3461	0
Link Speed (k/h)	50			80	80	
Link Distance (m)	152.4			177.4	111.7	
Travel Time (s)	11.0			8.0	5.0	
Confl. Peds. (#/hr)		5				5
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	57	0	439	449	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	57	0	439	485	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

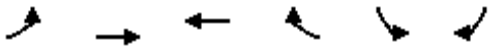
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	24.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	51	0	395	404	32
Future Volume (Veh/h)	0	51	0	395	404	32
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	57	0	439	449	36
Pedestrians	5			5		
Lane Width (m)	3.5			3.5		
Walking Speed (m/s)	1.0			1.0		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				177		
pX, platoon unblocked	0.94					
vC, conflicting volume	692	252	490			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	533	252	490			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	92	100			
cM capacity (veh/h)	444	740	1064			

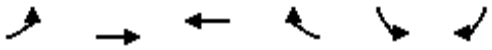
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	57	220	220	299	186
Volume Left	0	0	0	0	0
Volume Right	57	0	0	0	36
cSH	740	1700	1700	1700	1700
Volume to Capacity	0.08	0.13	0.13	0.18	0.11
Queue Length 95th (m)	1.9	0.0	0.0	0.0	0.0
Control Delay (s)	10.3	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	10.3	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	24.2%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1040	1325	96	0	29
Future Volume (vph)	0	1040	1325	96	0	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.990			0.865
Flt Protected						
Satd. Flow (prot)	0	3500	3465	0	0	1593
Flt Permitted						
Satd. Flow (perm)	0	3500	3465	0	0	1593
Link Speed (k/h)		60	60		50	
Link Distance (m)		177.9	132.5		186.6	
Travel Time (s)		10.7	8.0		13.4	
Confl. Peds. (#/hr)				5		5
Confl. Bikes (#/hr)				5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1156	1472	107	0	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1156	1579	0	0	32
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	51.3%	ICU Level of Service	A
Analysis Period (min)	15		



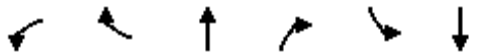
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1040	1325	96	0	29
Future Volume (Veh/h)	0	1040	1325	96	0	29
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1156	1472	107	0	32
Pedestrians		5			5	
Lane Width (m)		3.5			3.5	
Walking Speed (m/s)		1.0			1.0	
Percent Blockage		0			0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			133			
pX, platoon unblocked	0.60				0.60	0.60
vC, conflicting volume	1584				2108	800
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	624				1504	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	95
cM capacity (veh/h)	565				66	640

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	578	578	981	598	32
Volume Left	0	0	0	0	0
Volume Right	0	0	0	107	32
cSH	1700	1700	1700	1700	640
Volume to Capacity	0.34	0.34	0.58	0.35	0.05
Queue Length 95th (m)	0.0	0.0	0.0	0.0	1.2
Control Delay (s)	0.0	0.0	0.0	0.0	10.9
Lane LOS					B
Approach Delay (s)	0.0		0.0		10.9
Approach LOS					B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	58	0	30	64	0	24
Future Volume (vph)	58	0	30	64	0	24
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			0.908			
Flt Protected	0.950					
Satd. Flow (prot)	1750	0	1673	0	0	1842
Flt Permitted	0.950					
Satd. Flow (perm)	1750	0	1673	0	0	1842
Link Speed (k/h)	50		60			60
Link Distance (m)	162.7		209.4			121.5
Travel Time (s)	11.7		12.6			7.3
Confl. Peds. (#/hr)	5	5		5	5	
Confl. Bikes (#/hr)		5		5		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	64	0	33	71	0	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	64	0	104	0	0	27
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.5		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

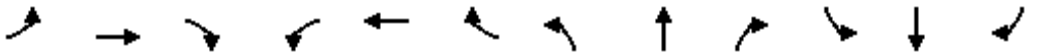
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	18.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	58	0	30	64	0	24
Future Volume (Veh/h)	58	0	30	64	0	24
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)	64	0	33	71	0	27
Pedestrians	5		5			5
Lane Width (m)	3.5		3.5			3.5
Walking Speed (m/s)	1.0		1.0			1.0
Percent Blockage	0		0			0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	106	78			109	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	106	78			109	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	100			100	
cM capacity (veh/h)	884	973			1474	

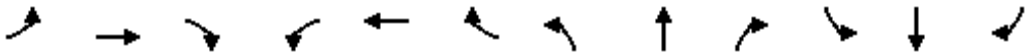
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	64	104	27
Volume Left	64	0	0
Volume Right	0	71	0
cSH	884	1700	1474
Volume to Capacity	0.07	0.06	0.00
Queue Length 95th (m)	1.8	0.0	0.0
Control Delay (s)	9.4	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.4	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	18.6%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	7	22	21	12	5	14	21	29	15	7	22
Future Volume (vph)	21	7	22	21	12	5	14	21	29	15	7	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.941			0.981			0.939			0.934	
Flt Protected		0.980			0.973			0.989			0.983	
Satd. Flow (prot)	0	1699	0	0	1758	0	0	1711	0	0	1691	0
Flt Permitted		0.980			0.973			0.989			0.983	
Satd. Flow (perm)	0	1699	0	0	1758	0	0	1711	0	0	1691	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		162.7			152.4			186.6			102.7	
Travel Time (s)		11.7			11.0			13.4			7.4	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	23	8	24	23	13	6	16	23	32	17	8	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	55	0	0	42	0	0	71	0	0	49	0
Enter Blocked Intersection	No	No	No	No	No	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		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.5%		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)	21	7	22	21	12	5	14	21	29	15	7	22
Future Volume (Veh/h)	21	7	22	21	12	5	14	21	29	15	7	22
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	23	8	24	23	13	6	16	23	32	17	8	24
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	24			37			166	141	30	182	150	26
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	24			37			166	141	30	182	150	26
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			98	97	97	98	99	98
cM capacity (veh/h)	1583			1566			743	721	1034	709	713	1040

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	55	42	71	49
Volume Left	23	23	16	17
Volume Right	24	6	32	24
cSH	1583	1566	842	841
Volume to Capacity	0.01	0.01	0.08	0.06
Queue Length 95th (m)	0.3	0.3	2.1	1.4
Control Delay (s)	3.1	4.1	9.7	9.5
Lane LOS	A	A	A	A
Approach Delay (s)	3.1	4.1	9.7	9.5
Approach LOS			A	A

Intersection Summary				
Average Delay	6.9			
Intersection Capacity Utilization	17.5%	ICU Level of Service	A	
Analysis Period (min)	15			

MOVEMENT SUMMARY

Site: 1 [Burnhamthorpe Road at Fourth Line - 2028 FT AM]

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: Fourth Line												
1	L2	2	2.0	0.078	15.5	LOS C	0.2	1.8	0.78	0.78	0.78	46.0
2	T1	2	2.0	0.078	15.5	LOS C	0.2	1.8	0.78	0.78	0.78	45.8
3	R2	15	29.0	0.078	17.3	LOS C	0.2	1.8	0.78	0.78	0.78	44.2
Approach		19	23.6	0.078	16.9	LOS C	0.2	1.8	0.78	0.78	0.78	44.5
East: William Halton Parkway												
4	L2	319	6.0	0.848	23.5	LOS C	15.9	116.8	0.74	0.35	0.74	42.0
5	T1	1411	6.0	0.848	23.5	LOS C	15.9	116.9	0.74	0.35	0.74	42.4
6	R2	19	2.0	0.848	23.5	LOS C	15.9	116.9	0.74	0.35	0.74	41.7
Approach		1748	6.0	0.848	23.5	LOS C	15.9	116.9	0.74	0.35	0.74	42.4
North: Fourth Line												
7	L2	154	2.0	0.830	72.0	LOS F	4.5	32.1	0.96	1.31	2.39	27.0
8	T1	2	2.0	0.830	72.0	LOS F	4.5	32.1	0.96	1.31	2.39	26.9
9	R2	19	2.0	0.830	72.0	LOS F	4.5	32.1	0.96	1.31	2.39	26.6
Approach		174	2.0	0.830	72.0	LOS F	4.5	32.1	0.96	1.31	2.39	27.0
West: William Halton Parkway												
10	L2	43	2.0	0.981	56.7	LOS F	26.1	194.8	1.00	2.02	3.79	31.1
11	T1	1183	8.0	0.981	56.9	LOS F	26.1	194.8	1.00	2.02	3.79	31.0
12	R2	2	2.0	0.981	56.8	LOS F	26.1	195.0	1.00	2.03	3.79	30.5
Approach		1228	7.8	0.981	56.9	LOS F	26.1	195.0	1.00	2.02	3.79	31.0
All Vehicles		3169	6.6	0.981	39.1	LOS E	26.1	195.0	0.85	1.05	2.01	36.1

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: 1 [Burnhamthorpe Road at Fourth Line - 2028 FT PM]

Site Category: (None)
Roundabout

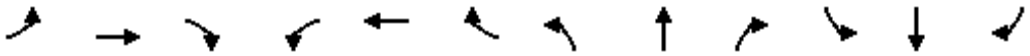
Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Fourth Line												
1	L2	1	2.0	0.041	9.7	LOS A	0.1	0.8	0.66	0.66	0.66	50.7
2	T1	1	2.0	0.041	9.7	LOS A	0.1	0.8	0.66	0.66	0.66	50.4
3	R2	14	2.0	0.041	9.7	LOS A	0.1	0.8	0.66	0.66	0.66	49.0
Approach		16	2.0	0.041	9.7	LOS A	0.1	0.8	0.66	0.66	0.66	49.3
East: William Halton Parkway												
4	L2	69	2.0	0.755	17.4	LOS C	9.1	64.5	0.65	0.38	0.65	46.0
5	T1	1423	2.0	0.755	17.4	LOS C	9.1	64.5	0.65	0.38	0.65	45.9
6	R2	36	20.0	0.755	17.7	LOS C	8.9	64.1	0.64	0.37	0.64	44.5
Approach		1528	2.4	0.755	17.4	LOS C	9.1	64.5	0.65	0.38	0.65	45.9
North: Fourth Line												
7	L2	90	16.0	0.378	23.4	LOS C	1.2	9.7	0.82	0.91	1.14	40.8
8	T1	1	2.0	0.378	22.5	LOS C	1.2	9.7	0.82	0.91	1.14	40.9
9	R2	10	13.0	0.378	23.2	LOS C	1.2	9.7	0.82	0.91	1.14	39.9
Approach		101	15.5	0.378	23.3	LOS C	1.2	9.7	0.82	0.91	1.14	40.7
West: William Halton Parkway												
10	L2	80	2.0	0.597	12.5	LOS B	4.5	31.9	0.58	0.44	0.60	48.7
11	T1	1019	2.0	0.597	12.5	LOS B	4.5	31.9	0.58	0.44	0.60	48.8
12	R2	1	2.0	0.597	12.5	LOS B	4.5	31.9	0.58	0.44	0.60	47.6
Approach		1100	2.0	0.597	12.5	LOS B	4.5	31.9	0.58	0.44	0.60	48.7
All Vehicles		2745	2.7	0.755	15.6	LOS C	9.1	64.5	0.63	0.42	0.64	46.8

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 O

2033 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)	62	796	230	262	849	42	164	396	341	94	173	56
Future Volume (vph)	62	796	230	262	849	42	164	396	341	94	173	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		70.0	85.0		80.0	80.0		70.0	80.0		75.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	100.0			100.0			60.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor			0.99	1.00		0.99						
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3305	1479	3206	3368	1566	1668	3500	1566	1750	3433	1566
Flt Permitted	0.950			0.950			0.601			0.363		
Satd. Flow (perm)	1750	3305	1459	3205	3368	1546	1055	3500	1566	669	3433	1566
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			254			104			284			140
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		132.5			860.0			440.5			177.4	
Travel Time (s)		8.0			51.6			26.4			10.6	
Confl. Peds. (#/hr)			1	1								
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	2%	8%	8%	8%	6%	2%	7%	2%	2%	2%	4%	2%
Adj. Flow (vph)	81	1034	299	340	1103	55	213	514	443	122	225	73
Shared Lane Traffic (%)												
Lane Group Flow (vph)	81	1034	299	340	1103	55	213	514	443	122	225	73
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												



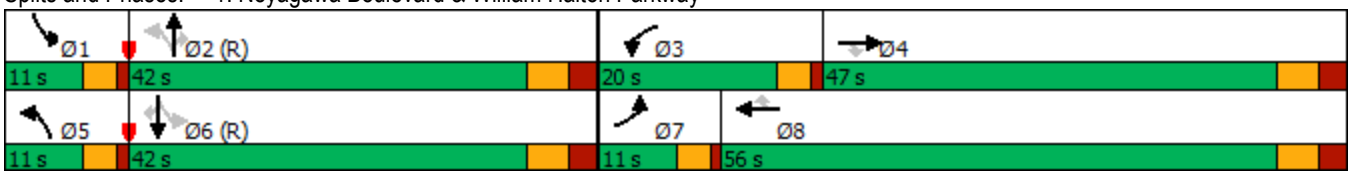
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	15.0	15.0	7.0	15.0	15.0
Minimum Split (s)	11.0	40.4	40.4	11.0	40.4	40.4	11.0	37.4	37.4	11.0	37.4	37.4
Total Split (s)	11.0	47.0	47.0	20.0	56.0	56.0	11.0	42.0	42.0	11.0	42.0	42.0
Total Split (%)	9.2%	39.2%	39.2%	16.7%	46.7%	46.7%	9.2%	35.0%	35.0%	9.2%	35.0%	35.0%
Maximum Green (s)	7.0	40.6	40.6	16.0	49.6	49.6	7.0	35.6	35.6	7.0	35.6	35.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		27.0	27.0		27.0	27.0		24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		1	1		0	0		0	0		0	0
Act Effct Green (s)	7.0	40.0	40.0	15.5	48.5	48.5	46.7	36.6	36.6	45.5	36.0	36.0
Actuated g/C Ratio	0.06	0.33	0.33	0.13	0.40	0.40	0.39	0.30	0.30	0.38	0.30	0.30
v/c Ratio	0.79	0.94	0.46	0.82	0.81	0.08	0.47	0.48	0.66	0.39	0.22	0.13
Control Delay	102.0	54.9	8.3	67.6	37.1	0.5	29.6	36.1	17.9	26.7	32.3	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	102.0	54.9	8.3	67.6	37.1	0.5	29.6	36.1	17.9	26.7	32.3	0.5
LOS	F	D	A	E	D	A	C	D	B	C	C	A
Approach Delay		47.7			42.7			28.0			25.1	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	19.2	122.7	7.2	40.5	117.3	0.0	33.5	52.5	31.8	18.0	21.0	0.0
Queue Length 95th (m)	#36.2	120.0	15.9	47.3	113.8	0.0	43.3	57.2	43.5	26.0	26.2	0.0
Internal Link Dist (m)		108.5			836.0			416.5			153.4	
Turn Bay Length (m)	70.0		70.0	85.0		80.0	80.0		70.0	80.0		75.0
Base Capacity (vph)	102	1118	661	427	1392	700	449	1068	675	316	1031	568
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.92	0.45	0.80	0.79	0.08	0.47	0.48	0.66	0.39	0.22	0.13

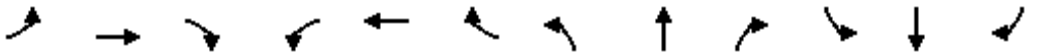
Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.94	

Intersection Signal Delay: 38.8	Intersection LOS: D
Intersection Capacity Utilization 68.6%	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.

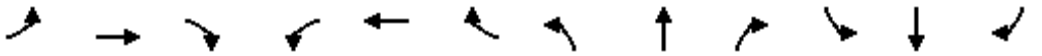
Splits and Phases: 1: Neyagawa Boulevard & William Halton Parkway





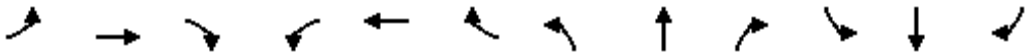
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	796	230	262	849	42	164	396	341	94	173	56
Future Volume (vph)	62	796	230	262	849	42	164	396	341	94	173	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	3305	1459	3206	3368	1546	1668	3500	1566	1750	3433	1566
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.60	1.00	1.00	0.36	1.00	1.00
Satd. Flow (perm)	1750	3305	1459	3206	3368	1546	1056	3500	1566	669	3433	1566
Peak-hour factor, PHF	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Adj. Flow (vph)	81	1034	299	340	1103	55	213	514	443	122	225	73
RTOR Reduction (vph)	0	0	169	0	0	33	0	0	197	0	0	51
Lane Group Flow (vph)	81	1034	130	340	1103	22	213	514	246	122	225	22
Confl. Peds. (#/hr)			1	1								
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	2%	8%	8%	8%	6%	2%	7%	2%	2%	2%	4%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2	6		6
Actuated Green, G (s)	7.0	40.0	40.0	15.5	48.5	48.5	44.3	36.7	36.7	43.1	36.1	36.1
Effective Green, g (s)	7.0	40.0	40.0	15.5	48.5	48.5	44.3	36.7	36.7	43.1	36.1	36.1
Actuated g/C Ratio	0.06	0.33	0.33	0.13	0.40	0.40	0.37	0.31	0.31	0.36	0.30	0.30
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	102	1101	486	414	1361	624	428	1070	478	303	1032	471
v/s Ratio Prot	0.05	c0.31		c0.11	0.33		c0.03	0.15		0.02	0.07	
v/s Ratio Perm			0.09			0.01	0.15		c0.16	0.12		0.01
v/c Ratio	0.79	0.94	0.27	0.82	0.81	0.04	0.50	0.48	0.51	0.40	0.22	0.05
Uniform Delay, d1	55.8	38.8	29.3	50.9	31.7	21.6	27.8	33.9	34.3	26.8	31.4	29.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	33.3	14.6	0.3	12.3	3.8	0.0	0.9	1.5	3.9	0.9	0.5	0.2
Delay (s)	89.1	53.4	29.6	63.2	35.4	21.6	28.7	35.4	38.2	27.7	31.9	29.9
Level of Service	F	D	C	E	D	C	C	D	D	C	C	C
Approach Delay (s)		50.4			41.2			35.3			30.3	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	41.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	68.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



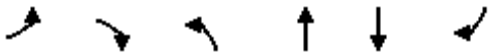
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	732	0	190	819	10	0	0	9	84	0	10
Future Volume (vph)	23	732	0	190	819	10	0	0	9	84	0	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.998			0.865			0.985	
Flt Protected		0.998			0.991						0.957	
Satd. Flow (prot)	0	3304	0	0	3332	0	0	1260	0	0	1736	0
Flt Permitted		0.998			0.991						0.957	
Satd. Flow (perm)	0	3304	0	0	3332	0	0	1260	0	0	1736	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		254.1			177.9			328.9			209.4	
Travel Time (s)		15.2			10.7			19.7			12.6	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Heavy Vehicles (%)	2%	8%	2%	6%	6%	2%	2%	2%	29%	2%	2%	2%
Adj. Flow (vph)	43	1356	0	352	1517	19	0	0	17	156	0	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1399	0	0	1888	0	0	17	0	0	175	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		



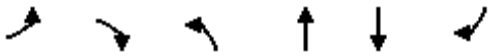
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	23	732	0	190	819	10	0	0	9	84	0	10
Future Volume (veh/h)	23	732	0	190	819	10	0	0	9	84	0	10
Peak Hour Factor	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Hourly flow rate (vph)	43	1356	0	352	1517	19	0	0	17	156	0	19
Approach Volume (veh/h)		1399			1888			17			175	
Crossing Volume (veh/h)		508			43			1555#			1869#	
High Capacity (veh/h)		927			1339			392			300	
High v/c (veh/h)		1.51			1.41			0.04			0.58	
Low Capacity (veh/h)		749			1120			289			214	
Low v/c (veh/h)		1.87			1.69			0.06			0.82	

Intersection Summary				
Maximum v/c High	1.51			
Maximum v/c Low	1.87			
Intersection Capacity Utilization	71.4%	ICU Level of Service	C	
# Crossing flow exceeds 1200, method is not applicable				



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	112	0	79	156	0
Future Volume (vph)	0	112	0	79	156	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected						
Satd. Flow (prot)	1842	1551	0	3500	3466	0
Flt Permitted						
Satd. Flow (perm)	1842	1551	0	3500	3466	0
Link Speed (k/h)	60			80	80	
Link Distance (m)	260.4			118.3	195.2	
Travel Time (s)	15.6			5.3	8.8	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%
Adj. Flow (vph)	0	126	0	89	175	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	126	0	89	175	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	112	0	79	156	0
Future Volume (Veh/h)	0	112	0	79	156	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	0	126	0	89	175	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	220	88	175			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	220	88	175			
tC, single (s)	6.8	7.0	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	87	100			
cM capacity (veh/h)	749	950	1399			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	0	126	44	44	88	88
Volume Left	0	0	0	0	0	0
Volume Right	0	126	0	0	0	0
cSH	1700	950	1700	1700	1700	1700
Volume to Capacity	0.00	0.13	0.03	0.03	0.05	0.05
Queue Length 95th (m)	0.0	3.5	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	9.4	0.0	0.0	0.0	0.0
Lane LOS	A	A				
Approach Delay (s)	9.4		0.0		0.0	
Approach LOS	A					

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	17.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1131	207	2	731	439	12
Future Volume (vph)	1131	207	2	731	439	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		30.0	30.0		100.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			50.0		15.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor					0.81	
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3400	1413	1750	3336	1653	799
Flt Permitted			0.117		0.950	
Satd. Flow (perm)	3400	1413	216	3336	1345	799
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		119				14
Link Speed (k/h)	60			60	40	
Link Distance (m)	860.0			249.1	359.5	
Travel Time (s)	51.6			14.9	32.4	
Confl. Peds. (#/hr)					200	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	5%	13%	2%	7%	8%	100%
Adj. Flow (vph)	1300	238	2	840	505	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1300	238	2	840	505	14
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.0			7.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	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		

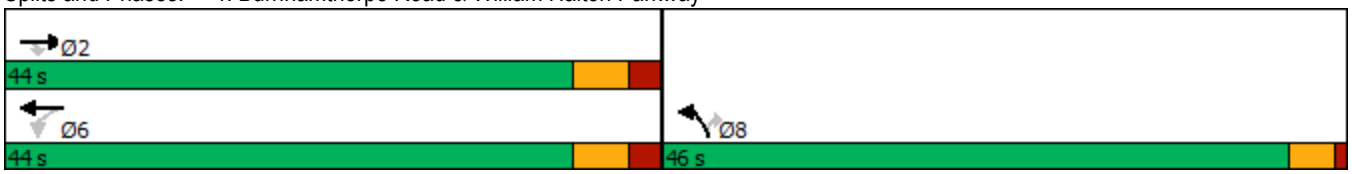
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	7.0	7.0
Minimum Split (s)	35.9	35.9	35.9	35.9	37.0	37.0
Total Split (s)	44.0	44.0	44.0	44.0	46.0	46.0
Total Split (%)	48.9%	48.9%	48.9%	48.9%	51.1%	51.1%
Maximum Green (s)	38.1	38.1	38.1	38.1	42.0	42.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.0
All-Red Time (s)	2.2	2.2	2.2	2.2	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.9	4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	Max	Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	23.0	23.0	23.0	23.0	22.0	22.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	38.5	38.5	38.5	38.5	28.0	28.0
Actuated g/C Ratio	0.50	0.50	0.50	0.50	0.37	0.37
v/c Ratio	0.76	0.31	0.02	0.50	0.84	0.05
Control Delay	21.0	8.2	14.0	15.4	34.8	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.0	8.2	14.0	15.4	34.8	7.2
LOS	C	A	B	B	C	A
Approach Delay	19.0			15.4	34.0	
Approach LOS	B			B	C	
Queue Length 50th (m)	73.8	8.7	0.1	39.4	64.6	0.0
Queue Length 95th (m)	#130.0	26.9	1.6	71.3	93.6	3.0
Internal Link Dist (m)	836.0			225.1	335.5	
Turn Bay Length (m)		30.0	30.0		100.0	
Base Capacity (vph)	1711	770	108	1679	917	449
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	0.76	0.31	0.02	0.50	0.55	0.03

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 76.5			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 20.7		Intersection LOS: C	
Intersection Capacity Utilization 63.8%		ICU Level of Service B	

Analysis Period (min) 15

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

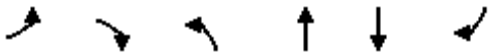
Splits and Phases: 4: Burnhamthorpe Road & William Halton Parkway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1131	207	2	731	439	12
Future Volume (vph)	1131	207	2	731	439	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9	5.9	5.9	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	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
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)	3400	1413	1750	3336	1653	799
Flt Permitted	1.00	1.00	0.12	1.00	0.95	1.00
Satd. Flow (perm)	3400	1413	215	3336	1653	799
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	1300	238	2	840	505	14
RTOR Reduction (vph)	0	59	0	0	0	9
Lane Group Flow (vph)	1300	179	2	840	505	5
Confl. Peds. (#/hr)					200	
Heavy Vehicles (%)	5%	13%	2%	7%	8%	100%
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	38.5	38.5	38.5	38.5	28.0	28.0
Effective Green, g (s)	38.5	38.5	38.5	38.5	28.0	28.0
Actuated g/C Ratio	0.50	0.50	0.50	0.50	0.37	0.37
Clearance Time (s)	5.9	5.9	5.9	5.9	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1713	712	108	1681	605	292
v/s Ratio Prot	c0.38			0.25	c0.31	
v/s Ratio Perm		0.13	0.01			0.01
v/c Ratio	0.76	0.25	0.02	0.50	0.83	0.02
Uniform Delay, d1	15.2	10.8	9.5	12.6	22.1	15.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.2	0.8	0.3	1.1	9.7	0.0
Delay (s)	18.4	11.6	9.8	13.6	31.8	15.5
Level of Service	B	B	A	B	C	B
Approach Delay (s)	17.4			13.6	31.3	
Approach LOS	B			B	C	

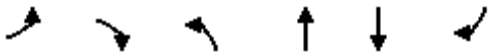
Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	76.4	Sum of lost time (s)	9.9
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	70	0	499	253	11
Future Volume (vph)	0	70	0	499	253	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.994	
Flt Protected						
Satd. Flow (prot)	0	1593	0	3500	3479	0
Flt Permitted						
Satd. Flow (perm)	0	1593	0	3500	3479	0
Link Speed (k/h)	50			80	80	
Link Distance (m)	152.4			177.4	115.0	
Travel Time (s)	11.0			8.0	5.2	
Confl. Peds. (#/hr)		5				5
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	78	0	554	281	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	78	0	554	293	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

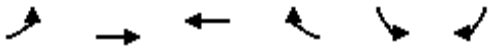
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	70	0	499	253	11
Future Volume (Veh/h)	0	70	0	499	253	11
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	78	0	554	281	12
Pedestrians	5			5		
Lane Width (m)	3.5			3.5		
Walking Speed (m/s)	1.0			1.0		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				177		
pX, platoon unblocked	0.89					
vC, conflicting volume	569	156	298			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	280	156	298			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	91	100			
cM capacity (veh/h)	611	853	1254			

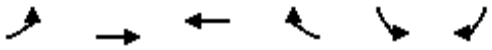
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	78	277	277	187	106
Volume Left	0	0	0	0	0
Volume Right	78	0	0	0	12
cSH	853	1700	1700	1700	1700
Volume to Capacity	0.09	0.16	0.16	0.11	0.06
Queue Length 95th (m)	2.3	0.0	0.0	0.0	0.0
Control Delay (s)	9.6	0.0	0.0	0.0	0.0
Lane LOS	A				
Approach Delay (s)	9.6	0.0		0.0	
Approach LOS	A				

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	25.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1088	1036	34	0	40
Future Volume (vph)	0	1088	1036	34	0	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.995			0.865
Flt Protected						
Satd. Flow (prot)	0	3500	3482	0	0	1593
Flt Permitted						
Satd. Flow (perm)	0	3500	3482	0	0	1593
Link Speed (k/h)		60	60		50	
Link Distance (m)		177.9	132.5		186.6	
Travel Time (s)		10.7	8.0		13.4	
Confl. Peds. (#/hr)				5		5
Confl. Bikes (#/hr)				5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1209	1151	38	0	44
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1209	1189	0	0	44
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	41.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1088	1036	34	0	40
Future Volume (Veh/h)	0	1088	1036	34	0	40
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1209	1151	38	0	44
Pedestrians		5			5	
Lane Width (m)		3.5			3.5	
Walking Speed (m/s)		1.0			1.0	
Percent Blockage		0			0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			133			
pX, platoon unblocked	0.72				0.72	0.72
vC, conflicting volume	1194				1780	604
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	499				1310	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	94
cM capacity (veh/h)	763				108	775

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	604	604	767	422	44
Volume Left	0	0	0	0	0
Volume Right	0	0	0	38	44
cSH	1700	1700	1700	1700	775
Volume to Capacity	0.36	0.36	0.45	0.25	0.06
Queue Length 95th (m)	0.0	0.0	0.0	0.0	1.4
Control Delay (s)	0.0	0.0	0.0	0.0	9.9
Lane LOS					A
Approach Delay (s)	0.0		0.0		9.9
Approach LOS					A

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	41.6%	ICU Level of Service	A
Analysis Period (min)	15		

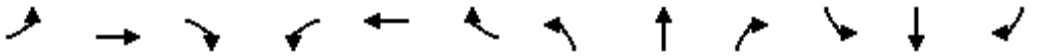
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	80	0	10	23	0	14
Future Volume (vph)	80	0	10	23	0	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.905			
Flt Protected	0.950					
Satd. Flow (prot)	1750	0	1667	0	0	1842
Flt Permitted	0.950					
Satd. Flow (perm)	1750	0	1667	0	0	1842
Link Speed (k/h)	50		60			60
Link Distance (m)	162.7		209.4			128.1
Travel Time (s)	11.7		12.6			7.7
Confl. Peds. (#/hr)	5	5		5	5	
Confl. Bikes (#/hr)		5		5		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	89	0	11	26	0	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	89	0	37	0	0	16
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.5		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	17.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	80	0	10	23	0	14
Future Volume (Veh/h)	80	0	10	23	0	14
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)	89	0	11	26	0	16
Pedestrians	5		5			5
Lane Width (m)	3.5		3.5			3.5
Walking Speed (m/s)	1.0		1.0			1.0
Percent Blockage	0		0			0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	50	34			42	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	50	34			42	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	100			100	
cM capacity (veh/h)	950	1029			1559	

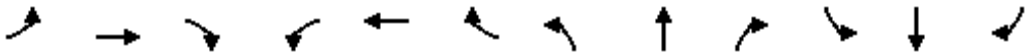
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	89	37	16
Volume Left	89	0	0
Volume Right	0	26	0
cSH	950	1700	1559
Volume to Capacity	0.09	0.02	0.00
Queue Length 95th (m)	2.4	0.0	0.0
Control Delay (s)	9.2	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.2	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	5.8		
Intersection Capacity Utilization	17.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	10	10	8	12	2	13	8	40	20	10	30
Future Volume (vph)	8	10	10	8	12	2	13	8	40	20	10	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		0.952			0.989			0.911			0.932	
Flt Protected		0.986			0.982			0.990			0.984	
Satd. Flow (prot)	0	1729	0	0	1789	0	0	1661	0	0	1689	0
Flt Permitted		0.986			0.982			0.990			0.984	
Satd. Flow (perm)	0	1729	0	0	1789	0	0	1661	0	0	1689	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		162.7			152.4			186.6			102.7	
Travel Time (s)		11.7			11.0			13.4			7.4	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	11	11	9	13	2	14	9	44	22	11	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	31	0	0	24	0	0	67	0	0	66	0
Enter Blocked Intersection	No	No	No	No	No	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		Free			Free			Stop			Stop	

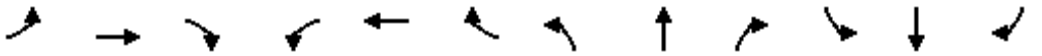
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	18.6%	ICU Level of Service	A
Analysis Period (min)	15		



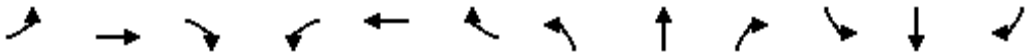
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	10	10	8	12	2	13	8	40	20	10	30
Future Volume (Veh/h)	8	10	10	8	12	2	13	8	40	20	10	30
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	9	11	11	9	13	2	14	9	44	22	11	33
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	20			27			115	78	26	125	82	24
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	20			27			115	78	26	125	82	24
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			98	99	96	97	99	97
cM capacity (veh/h)	1588			1579			805	796	1039	785	791	1042

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	31	24	67	66
Volume Left	9	9	14	22
Volume Right	11	2	44	33
cSH	1588	1579	943	897
Volume to Capacity	0.01	0.01	0.07	0.07
Queue Length 95th (m)	0.1	0.1	1.7	1.8
Control Delay (s)	2.1	2.8	9.1	9.3
Lane LOS	A	A	A	A
Approach Delay (s)	2.1	2.8	9.1	9.3
Approach LOS			A	A

Intersection Summary				
Average Delay	7.2			
Intersection Capacity Utilization	18.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	883	117	403	1268	81	137	273	213	115	322	17
Future Volume (vph)	40	883	117	403	1268	81	137	273	213	115	322	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0		70.0	85.0		80.0	80.0		70.0	80.0		75.0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (m)	100.0			100.0			60.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor			0.99	1.00								
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3433	1566	3395	3500	1551	1750	3500	1566	1750	3500	1566
Flt Permitted	0.950			0.950			0.464			0.523		
Satd. Flow (perm)	1750	3433	1544	3392	3500	1551	855	3500	1566	963	3500	1566
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			140			104			245			140
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		132.5			860.0			440.5			177.4	
Travel Time (s)		8.0			51.6			26.4			10.6	
Confl. Peds. (#/hr)			2	2								
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	2%	4%	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	46	1015	134	463	1457	93	157	314	245	132	370	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	1015	134	463	1457	93	157	314	245	132	370	20
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	15.0	15.0	7.0	15.0	15.0
Minimum Split (s)	11.0	40.4	40.4	11.0	40.4	40.4	11.0	37.4	37.4	11.0	37.4	37.4
Total Split (s)	11.0	46.0	46.0	24.0	59.0	59.0	11.0	39.0	39.0	11.0	39.0	39.0
Total Split (%)	9.2%	38.3%	38.3%	20.0%	49.2%	49.2%	9.2%	32.5%	32.5%	9.2%	32.5%	32.5%
Maximum Green (s)	7.0	39.6	39.6	20.0	52.6	52.6	7.0	32.6	32.6	7.0	32.6	32.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		27.0	27.0		27.0	27.0		24.0	24.0		24.0	24.0
Pedestrian Calls (#/hr)		2	2		0	0		0	0		0	0
Act Effct Green (s)	7.0	38.7	38.7	19.3	53.1	53.1	43.8	34.2	34.2	43.5	34.0	34.0
Actuated g/C Ratio	0.06	0.32	0.32	0.16	0.44	0.44	0.36	0.28	0.28	0.36	0.28	0.28
v/c Ratio	0.45	0.92	0.23	0.85	0.94	0.12	0.43	0.32	0.40	0.33	0.37	0.04
Control Delay	69.1	52.8	5.2	64.4	45.0	3.5	29.8	35.4	6.2	27.5	36.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.1	52.8	5.2	64.4	45.0	3.5	29.8	35.4	6.2	27.5	36.3	0.1
LOS	E	D	A	E	D	A	C	D	A	C	D	A
Approach Delay		48.0			47.5			24.2			32.7	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	10.7	119.1	0.0	54.8	170.4	0.0	24.8	31.2	0.0	20.5	37.4	0.0
Queue Length 95th (m)	22.2	#139.9	11.0	#71.3	#206.3	7.1	39.0	42.2	16.6	33.4	49.3	0.0
Internal Link Dist (m)		108.5			836.0			416.5			153.4	
Turn Bay Length (m)	70.0		70.0	85.0		80.0	80.0		70.0	80.0		75.0
Base Capacity (vph)	102	1134	604	565	1550	744	365	996	620	395	992	544
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.90	0.22	0.82	0.94	0.13	0.43	0.32	0.40	0.33	0.37	0.04

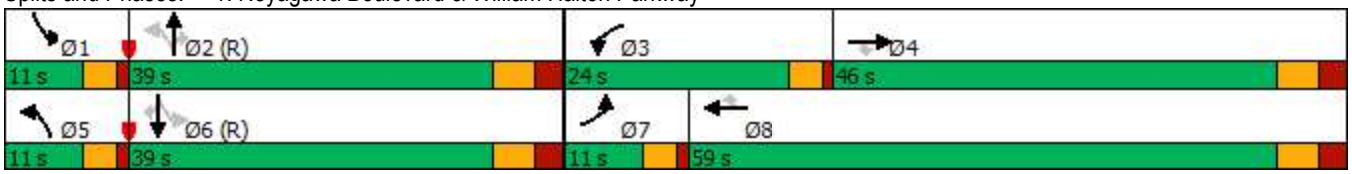
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 42.2		Intersection LOS: D	

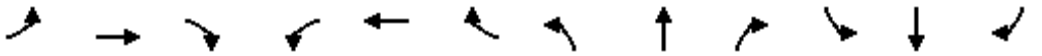
Intersection Capacity Utilization 78.3% ICU Level of Service D

Analysis Period (min) 15

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

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

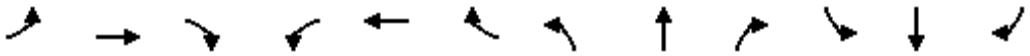




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	883	117	403	1268	81	137	273	213	115	322	17
Future Volume (vph)	40	883	117	403	1268	81	137	273	213	115	322	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	3433	1544	3395	3500	1551	1750	3500	1566	1750	3500	1566
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.46	1.00	1.00	0.52	1.00	1.00
Satd. Flow (perm)	1750	3433	1544	3395	3500	1551	856	3500	1566	964	3500	1566
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	46	1015	134	463	1457	93	157	314	245	132	370	20
RTOR Reduction (vph)	0	0	90	0	0	52	0	0	177	0	0	14
Lane Group Flow (vph)	46	1015	44	463	1457	41	157	314	68	132	370	6
Confl. Peds. (#/hr)			2	2								
Heavy Vehicles (%)	2%	4%	2%	2%	2%	3%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2	6		6
Actuated Green, G (s)	5.6	39.4	39.4	19.3	53.1	53.1	40.6	33.4	33.4	40.4	33.3	33.3
Effective Green, g (s)	5.6	39.4	39.4	19.3	53.1	53.1	40.6	33.4	33.4	40.4	33.3	33.3
Actuated g/C Ratio	0.05	0.33	0.33	0.16	0.44	0.44	0.34	0.28	0.28	0.34	0.28	0.28
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	81	1127	506	546	1548	686	343	974	435	371	971	434
v/s Ratio Prot	0.03	0.30		c0.14	c0.42		c0.03	0.09		0.02	0.11	
v/s Ratio Perm			0.03			0.03	c0.13		0.04	0.10		0.00
v/c Ratio	0.57	0.90	0.09	0.85	0.94	0.06	0.46	0.32	0.16	0.36	0.38	0.01
Uniform Delay, d1	56.0	38.4	27.9	48.9	32.0	19.2	29.2	34.3	32.7	28.6	35.0	31.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.8	9.9	0.1	11.7	11.7	0.0	1.0	0.9	0.8	0.6	1.1	0.1
Delay (s)	64.8	48.4	27.9	60.6	43.6	19.2	30.2	35.2	33.4	29.2	36.2	31.5
Level of Service	E	D	C	E	D	B	C	D	C	C	D	C
Approach Delay (s)		46.7			46.4			33.5			34.2	
Approach LOS		D			D			C			C	

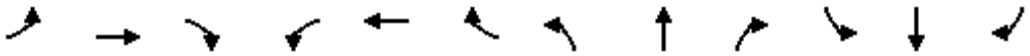
Intersection Summary			
HCM 2000 Control Delay	43.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	860	0	61	1235	30	0	0	12	74	0	8
Future Volume (vph)	64	860	0	61	1235	30	0	0	12	74	0	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.997			0.865			0.987	
Flt Protected		0.997			0.998						0.957	
Satd. Flow (prot)	0	3489	0	0	3468	0	0	1593	0	0	1534	0
Flt Permitted		0.997			0.998						0.957	
Satd. Flow (perm)	0	3489	0	0	3468	0	0	1593	0	0	1534	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		254.1			177.9			328.9			209.4	
Travel Time (s)		15.2			10.7			19.7			12.6	
Confl. Peds. (#/hr)			4	4			4		5	5		4
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	2%	2%	2%	2%	2%	20%	2%	2%	2%	16%	2%	13%
Adj. Flow (vph)	80	1075	0	76	1544	38	0	0	15	93	0	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1155	0	0	1658	0	0	15	0	0	103	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

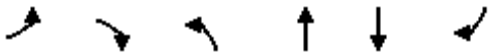
Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization	84.0%	ICU Level of Service	E
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	64	860	0	61	1235	30	0	0	12	74	0	8
Future Volume (veh/h)	64	860	0	61	1235	30	0	0	12	74	0	8
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	80	1075	0	76	1544	38	0	0	15	92	0	10
Approach Volume (veh/h)		1155			1658			15			102	
Crossing Volume (veh/h)		168			80			1247#			1620#	
High Capacity (veh/h)		1214			1301			508			371	
High v/c (veh/h)		0.95			1.27			0.03			0.27	
Low Capacity (veh/h)		1006			1085			385			272	
Low v/c (veh/h)		1.15			1.53			0.04			0.38	

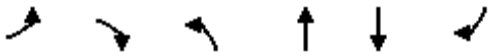
Intersection Summary				
Maximum v/c High	1.27			
Maximum v/c Low	1.53			
Intersection Capacity Utilization	84.0%	ICU Level of Service	E	

Crossing flow exceeds 1200, method is not applicable



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	117	0	174	319	0
Future Volume (vph)	2	117	0	174	319	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1750	1566	0	3500	3500	0
Flt Permitted	0.950					
Satd. Flow (perm)	1750	1566	0	3500	3500	0
Link Speed (k/h)	60			80	80	
Link Distance (m)	260.4			121.6	195.2	
Travel Time (s)	15.6			5.5	8.8	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	2	133	0	198	363	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	133	0	198	363	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.7%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	117	0	174	319	0
Future Volume (Veh/h)	2	117	0	174	319	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	2	133	0	198	362	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	461	181	362			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	461	181	362			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	84	100			
cM capacity (veh/h)	529	831	1193			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	2	133	99	99	181	181
Volume Left	2	0	0	0	0	0
Volume Right	0	133	0	0	0	0
cSH	529	831	1700	1700	1700	1700
Volume to Capacity	0.00	0.16	0.06	0.06	0.11	0.11
Queue Length 95th (m)	0.1	4.3	0.0	0.0	0.0	0.0
Control Delay (s)	11.8	10.2	0.0	0.0	0.0	0.0
Lane LOS	B	B				
Approach Delay (s)	10.2		0.0		0.0	
Approach LOS	B					

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	22.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	871	289	6	1450	355	6
Future Volume (vph)	871	289	6	1450	355	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		30.0	30.0		100.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			50.0		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)	3466	1566	1750	3500	1733	1566
Flt Permitted			0.273		0.950	
Satd. Flow (perm)	3466	1566	503	3500	1733	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		261				6
Link Speed (k/h)	60			60	40	
Link Distance (m)	860.0			248.0	359.5	
Travel Time (s)	51.6			14.9	32.4	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	2%	2%	2%	3%	2%
Adj. Flow (vph)	917	304	6	1526	374	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	917	304	6	1526	374	6
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.0			7.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	

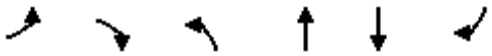
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases		2	6			8
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	7.0	7.0
Minimum Split (s)	35.9	35.9	35.9	35.9	37.0	37.0
Total Split (s)	53.0	53.0	53.0	53.0	37.0	37.0
Total Split (%)	58.9%	58.9%	58.9%	58.9%	41.1%	41.1%
Maximum Green (s)	47.1	47.1	47.1	47.1	33.0	33.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	3.0
All-Red Time (s)	2.2	2.2	2.2	2.2	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.9	4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	Max	Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	23.0	23.0	23.0	23.0	22.0	22.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	47.4	47.4	47.4	47.4	22.0	22.0
Actuated g/C Ratio	0.60	0.60	0.60	0.60	0.28	0.28
v/c Ratio	0.44	0.29	0.02	0.73	0.78	0.01
Control Delay	10.5	2.9	9.2	15.3	38.2	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.5	2.9	9.2	15.3	38.2	11.5
LOS	B	A	A	B	D	B
Approach Delay	8.6			15.3	37.7	
Approach LOS	A			B	D	
Queue Length 50th (m)	35.7	2.4	0.3	77.4	51.4	0.0
Queue Length 95th (m)	64.7	15.0	2.3	137.3	79.8	2.5
Internal Link Dist (m)	836.0			224.0	335.5	
Turn Bay Length (m)		30.0	30.0		100.0	
Base Capacity (vph)	2071	1040	300	2091	724	658
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	0.44	0.29	0.02	0.73	0.52	0.01

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 79.3			
Natural Cycle: 80			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 15.4		Intersection LOS: B	
Intersection Capacity Utilization 68.0%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 4: Burnhamthorpe Road & William Halton Parkway

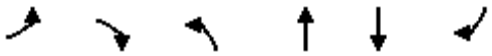
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	871	289	6	1450	355	6
Future Volume (vph)	871	289	6	1450	355	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9	5.9	5.9	4.0	4.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3466	1566	1750	3500	1733	1566
Flt Permitted	1.00	1.00	0.27	1.00	0.95	1.00
Satd. Flow (perm)	3466	1566	503	3500	1733	1566
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	917	304	6	1526	374	6
RTOR Reduction (vph)	0	105	0	0	0	4
Lane Group Flow (vph)	917	199	6	1526	374	2
Heavy Vehicles (%)	3%	2%	2%	2%	3%	2%
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	47.4	47.4	47.4	47.4	22.0	22.0
Effective Green, g (s)	47.4	47.4	47.4	47.4	22.0	22.0
Actuated g/C Ratio	0.60	0.60	0.60	0.60	0.28	0.28
Clearance Time (s)	5.9	5.9	5.9	5.9	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2071	936	300	2092	480	434
v/s Ratio Prot	0.26			c0.44	c0.22	
v/s Ratio Perm		0.13	0.01			0.00
v/c Ratio	0.44	0.21	0.02	0.73	0.78	0.00
Uniform Delay, d1	8.7	7.4	6.5	11.4	26.4	20.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.5	0.1	2.3	7.8	0.0
Delay (s)	9.4	7.9	6.6	13.7	34.2	20.7
Level of Service	A	A	A	B	C	C
Approach Delay (s)	9.0			13.6	34.0	
Approach LOS	A			B	C	

Intersection Summary			
HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	79.3	Sum of lost time (s)	9.9
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	51	0	395	404	32
Future Volume (vph)	0	51	0	395	404	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.989	
Flt Protected						
Satd. Flow (prot)	0	1593	0	3500	3461	0
Flt Permitted						
Satd. Flow (perm)	0	1593	0	3500	3461	0
Link Speed (k/h)	50			80	80	
Link Distance (m)	152.4			177.4	111.7	
Travel Time (s)	11.0			8.0	5.0	
Confl. Peds. (#/hr)		5				5
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	57	0	439	449	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	57	0	439	485	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

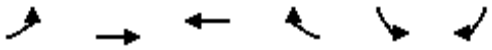
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	24.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	51	0	395	404	32
Future Volume (Veh/h)	0	51	0	395	404	32
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	57	0	439	449	36
Pedestrians	5			5		
Lane Width (m)	3.5			3.5		
Walking Speed (m/s)	1.0			1.0		
Percent Blockage	0			0		
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				177		
pX, platoon unblocked	0.94					
vC, conflicting volume	692	252	490			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	533	252	490			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	92	100			
cM capacity (veh/h)	444	740	1064			

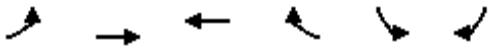
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	57	220	220	299	186
Volume Left	0	0	0	0	0
Volume Right	57	0	0	0	36
cSH	740	1700	1700	1700	1700
Volume to Capacity	0.08	0.13	0.13	0.18	0.11
Queue Length 95th (m)	1.9	0.0	0.0	0.0	0.0
Control Delay (s)	10.3	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	10.3	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	24.2%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1040	1325	96	0	29
Future Volume (vph)	0	1040	1325	96	0	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.990			0.865
Flt Protected						
Satd. Flow (prot)	0	3500	3465	0	0	1593
Flt Permitted						
Satd. Flow (perm)	0	3500	3465	0	0	1593
Link Speed (k/h)		60	60		50	
Link Distance (m)		177.9	132.5		186.6	
Travel Time (s)		10.7	8.0		13.4	
Confl. Peds. (#/hr)				5		5
Confl. Bikes (#/hr)				5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1156	1472	107	0	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1156	1579	0	0	32
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	51.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1040	1325	96	0	29
Future Volume (Veh/h)	0	1040	1325	96	0	29
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1156	1472	107	0	32
Pedestrians		5			5	
Lane Width (m)		3.5			3.5	
Walking Speed (m/s)		1.0			1.0	
Percent Blockage		0			0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			133			
pX, platoon unblocked	0.60				0.60	0.60
vC, conflicting volume	1584				2108	800
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	624				1504	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	95
cM capacity (veh/h)	565				66	640

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	578	578	981	598	32
Volume Left	0	0	0	0	0
Volume Right	0	0	0	107	32
cSH	1700	1700	1700	1700	640
Volume to Capacity	0.34	0.34	0.58	0.35	0.05
Queue Length 95th (m)	0.0	0.0	0.0	0.0	1.2
Control Delay (s)	0.0	0.0	0.0	0.0	10.9
Lane LOS					B
Approach Delay (s)	0.0		0.0		10.9
Approach LOS					B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		

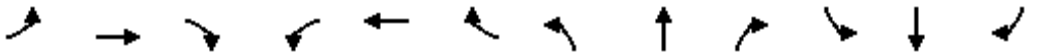
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	58	0	30	64	0	24
Future Volume (vph)	58	0	30	64	0	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.908			
Flt Protected	0.950					
Satd. Flow (prot)	1750	0	1673	0	0	1842
Flt Permitted	0.950					
Satd. Flow (perm)	1750	0	1673	0	0	1842
Link Speed (k/h)	50		60			60
Link Distance (m)	162.7		209.4			121.5
Travel Time (s)	11.7		12.6			7.3
Confl. Peds. (#/hr)	5	5		5	5	
Confl. Bikes (#/hr)		5		5		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	64	0	33	71	0	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	64	0	104	0	0	27
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.5		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	18.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	58	0	30	64	0	24
Future Volume (Veh/h)	58	0	30	64	0	24
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)	64	0	33	71	0	27
Pedestrians	5		5			5
Lane Width (m)	3.5		3.5			3.5
Walking Speed (m/s)	1.0		1.0			1.0
Percent Blockage	0		0			0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	106	78			109	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	106	78			109	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	100			100	
cM capacity (veh/h)	884	973			1474	

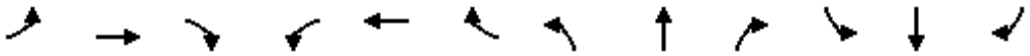
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	64	104	27
Volume Left	64	0	0
Volume Right	0	71	0
cSH	884	1700	1474
Volume to Capacity	0.07	0.06	0.00
Queue Length 95th (m)	1.8	0.0	0.0
Control Delay (s)	9.4	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.4	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	18.6%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	7	22	21	12	5	14	21	29	15	7	22
Future Volume (vph)	21	7	22	21	12	5	14	21	29	15	7	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.941			0.981			0.939			0.934	
Flt Protected		0.980			0.973			0.989			0.983	
Satd. Flow (prot)	0	1699	0	0	1758	0	0	1711	0	0	1691	0
Flt Permitted		0.980			0.973			0.989			0.983	
Satd. Flow (perm)	0	1699	0	0	1758	0	0	1711	0	0	1691	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		162.7			152.4			186.6			102.7	
Travel Time (s)		11.7			11.0			13.4			7.4	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	23	8	24	23	13	6	16	23	32	17	8	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	55	0	0	42	0	0	71	0	0	49	0
Enter Blocked Intersection	No	No	No	No	No	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		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.5%		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)	21	7	22	21	12	5	14	21	29	15	7	22
Future Volume (Veh/h)	21	7	22	21	12	5	14	21	29	15	7	22
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	23	8	24	23	13	6	16	23	32	17	8	24
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	24			37			166	141	30	182	150	26
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	24			37			166	141	30	182	150	26
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			98	97	97	98	99	98
cM capacity (veh/h)	1583			1566			743	721	1034	709	713	1040

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	55	42	71	49
Volume Left	23	23	16	17
Volume Right	24	6	32	24
cSH	1583	1566	842	841
Volume to Capacity	0.01	0.01	0.08	0.06
Queue Length 95th (m)	0.3	0.3	2.1	1.4
Control Delay (s)	3.1	4.1	9.7	9.5
Lane LOS	A	A	A	A
Approach Delay (s)	3.1	4.1	9.7	9.5
Approach LOS			A	A

Intersection Summary				
Average Delay	6.9			
Intersection Capacity Utilization	17.5%	ICU Level of Service	A	
Analysis Period (min)	15			

MOVEMENT SUMMARY

Site: 1 [Burnhamthorpe Road at Fourth Line - 2033 FT AM]

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: Fourth Line												
1	L2	2	2.0	0.082	14.6	LOS B	0.2	1.9	0.77	0.77	0.77	46.5
2	T1	2	2.0	0.082	14.6	LOS B	0.2	1.9	0.77	0.77	0.77	46.3
3	R2	17	29.0	0.082	16.4	LOS C	0.2	1.9	0.77	0.77	0.77	44.7
Approach		20	24.1	0.082	16.1	LOS C	0.2	1.9	0.77	0.77	0.77	45.0
East: William Halton Parkway												
4	L2	352	6.0	0.907	30.1	LOS D	23.3	171.8	0.93	0.41	0.93	39.2
5	T1	1517	6.0	0.907	30.1	LOS D	23.4	172.0	0.93	0.41	0.93	39.5
6	R2	19	2.0	0.907	30.1	LOS D	23.4	172.0	0.93	0.41	0.93	38.9
Approach		1887	6.0	0.907	30.1	LOS D	23.4	172.0	0.93	0.41	0.93	39.4
North: Fourth Line												
7	L2	156	2.0	1.112	162.6	LOS F	12.0	85.2	1.00	1.82	4.45	16.5
8	T1	2	2.0	1.112	162.6	LOS F	12.0	85.2	1.00	1.82	4.45	16.5
9	R2	19	2.0	1.112	162.6	LOS F	12.0	85.2	1.00	1.82	4.45	16.3
Approach		176	2.0	1.112	162.6	LOS F	12.0	85.2	1.00	1.82	4.45	16.5
West: William Halton Parkway												
10	L2	43	2.0	1.179	120.8	LOS F	54.0	403.1	1.00	3.08	6.76	20.3
11	T1	1356	8.0	1.179	121.0	LOS F	54.0	403.1	1.00	3.08	6.76	20.3
12	R2	2	2.0	1.179	120.8	LOS F	54.0	403.6	1.00	3.08	6.76	20.1
Approach		1400	7.8	1.179	121.0	LOS F	54.0	403.6	1.00	3.08	6.76	20.3
All Vehicles		3483	6.6	1.179	73.3	LOS F	54.0	403.6	0.96	1.56	3.45	27.2

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: 1 [Burnhamthorpe Road at Fourth Line - 2033 FT PM]

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: Fourth Line												
1	L2	1	2.0	0.048	10.6	LOS B	0.1	1.0	0.68	0.68	0.68	50.1
2	T1	1	2.0	0.048	10.6	LOS B	0.1	1.0	0.68	0.68	0.68	49.8
3	R2	15	2.0	0.048	10.6	LOS B	0.1	1.0	0.68	0.68	0.68	48.5
Approach		18	2.0	0.048	10.6	LOS B	0.1	1.0	0.68	0.68	0.68	48.7
East: William Halton Parkway												
4	L2	76	2.0	0.820	21.5	LOS C	12.1	86.4	0.80	0.47	0.80	43.8
5	T1	1544	2.0	0.820	21.6	LOS C	12.1	86.4	0.80	0.47	0.80	43.7
6	R2	37	20.0	0.820	21.9	LOS C	11.9	85.7	0.79	0.46	0.79	42.4
Approach		1658	2.4	0.820	21.6	LOS C	12.1	86.4	0.80	0.47	0.80	43.7
North: Fourth Line												
7	L2	93	16.0	0.481	33.8	LOS D	1.7	13.2	0.88	1.00	1.37	36.7
8	T1	1	2.0	0.481	32.7	LOS D	1.7	13.2	0.88	1.00	1.37	36.8
9	R2	10	13.0	0.481	33.6	LOS D	1.7	13.2	0.88	1.00	1.37	36.0
Approach		104	15.5	0.481	33.8	LOS D	1.7	13.2	0.88	1.00	1.37	36.6
West: William Halton Parkway												
10	L2	80	2.0	0.635	13.7	LOS B	6.7	47.9	0.63	0.56	0.78	48.0
11	T1	1075	2.0	0.635	13.7	LOS B	6.7	47.9	0.63	0.56	0.78	48.0
12	R2	1	2.0	0.635	13.7	LOS B	6.7	47.9	0.63	0.56	0.78	46.8
Approach		1156	2.0	0.635	13.7	LOS B	6.7	47.9	0.63	0.56	0.78	48.0
All Vehicles		2935	2.7	0.820	18.9	LOS C	12.1	86.4	0.73	0.52	0.81	45.0

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.