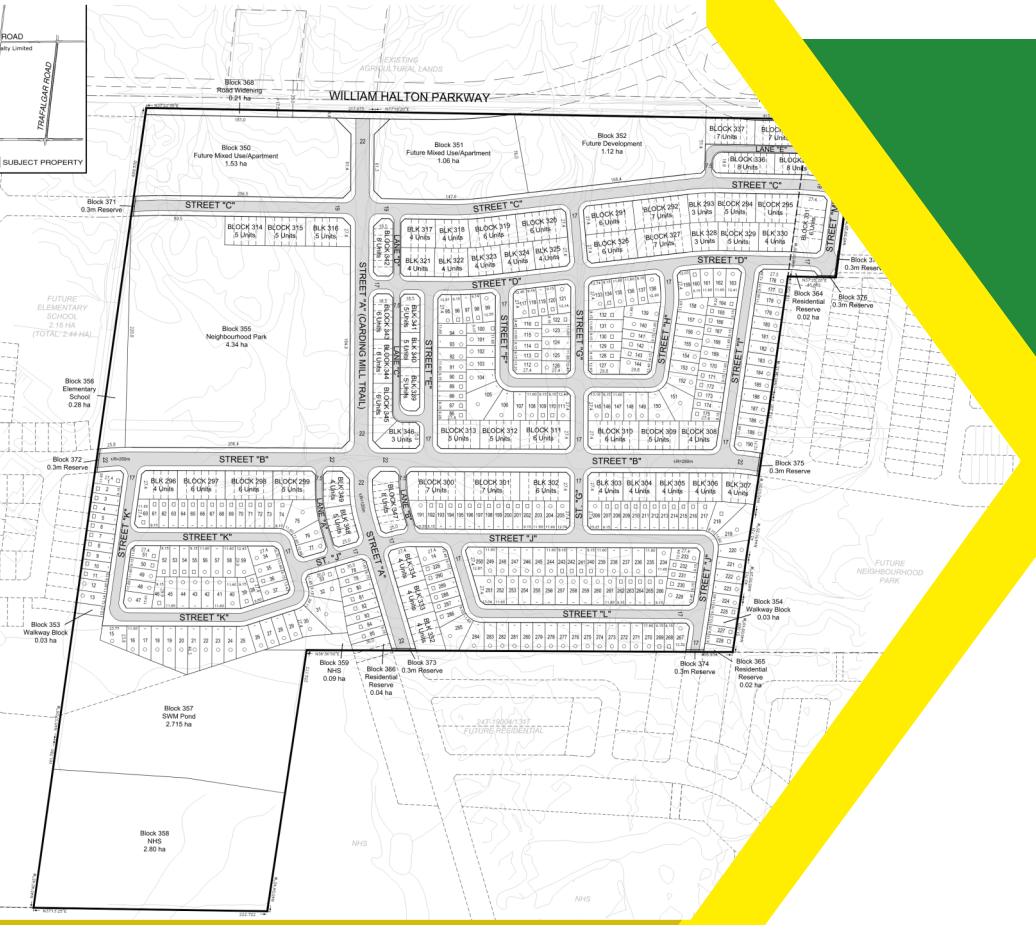
Eno Investments Limited

Remington Eno



Transportation Impact Study

C|G|H TRANSPORTATION

Remington Eno Transportation Impact Study

Prepared for:

Eno Investments Limited

Prepared by:

628 Haines Road
Newmarket, ON
L3Y 6V5

June 2023

PN: 2020-60

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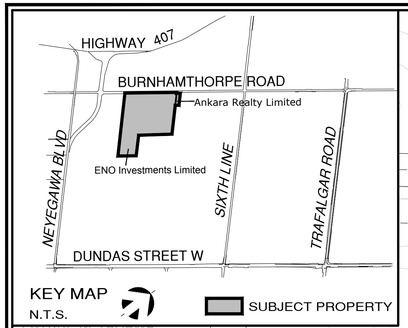
1 Introduction

This Transportation Impact Study (TIS) has been prepared to support the proposed development in North Oakville, located approximately 400 metres east of Burnhamthorpe Road at Neyagawa Boulevard. This area is being developed by Eno Investments. The proposed development includes a mix of 290 single detached houses, 307 townhouses, and several multi-storey mid-rise buildings with a total of approximately 1700 apartment units and a total of approximately 15,000 square feet of retail space. However, the landowner of this property is contemplating moving forward with only one building (295 units) within the buildout horizon of this report, based on the Regional allocation available for these lands. For the purposes of this TIS, all other apartment buildings will be considered beyond the horizons of this study and will be further studied at the time that allotment is received, and those buildings can proceed. The property is currently a greenfield area that is bordered by Burnhamthorpe Road to the north. This section of Burnhamthorpe Road will ultimately become part of the future William Halton Parkway. For the purposes of this TIS, the projected full build-out and occupancy horizon is 2026, and the plus five-year horizon is 2031. Figure 1 illustrates the site context. Figure 2 illustrates the proposed site plan.

Figure 1: Site Context

Access to the site will be accommodated via Carding Mill Trail, which runs north-south and connects to Burnhamthorpe Road (future William Halton Parkway), as well as Settlers Road West, which runs east-west and will connect the proposed site to Neyagawa Boulevard, and Sixth Line once the adjacent developments are built. Currently, there are no turn restrictions at the Carding Mill Trail at Burnhamthorpe Road intersection, and it is anticipated that a full movement access will remain upon completion of William Halton Parkway. Additionally, one intersection within the proposed development (Carding Mill Trail at Settlers Road West) will be analyzed and is proposed as full-movement intersection with no turn restrictions. The scope of this TIS has been confirmed with transportation staff from the Town of Oakville and the Halton Region. E-mail correspondence discussing the scope is included in Appendix A.

Figure 2: Concept Plan



DRAFT PLAN OF SUBDIVISION FILE 24T-

PART OF LOTS 17, 18 and 19
CONCESSION 1, N.D.S.
(GEOGRAPHIC TOWNSHIP OF TRAFALGAR, COUNTY OF HALTON)
NOW IN THE
TOWN OF OAKVILLE
REGIONAL MUNICIPALITY OF HALTON

OWNER'S AUTHORIZATION

I HEREBY AUTHORIZE KORSIAK URBAN PLANNING TO PREPARE AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION TO THE TOWN OF OAKVILLE FOR APPROVAL.

SIGNED _____ DATE September 10, 2021

Christopher Bratty, ASO
ENO INVESTMENTS LIMITED &
ANKARA REALTY LIMITED
7501 KEELE STREET, SUITE 100
VAUGHAN, ONTARIO L4K 1Y2

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AS SHOWN ON THIS PLAN AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE CORRECTLY AND ACCURATELY SHOWN.

SIGNED _____ DATE September 14, 2021

Dan Dzaldov, Ontario Land Surveyor
SCHAEFFER DZALDOV BENNETT LTD.
ONTARIO LAND SURVEYORS
64 JARDIN DRIVE, UNIT 1, CONCORD, ONTARIO L4K 3P3
Tel. (416)987-0101 Fax (905)761-0119

ADDITIONAL INFORMATION (UNDER SECTION 51 (17) OF THE PLANNING ACT)

A) SHOWN ON PLAN
B) SHOWN ON PLAN
C) SHOWN ON PLAN
D) SHOWN ON PLAN
E) SHOWN ON PLAN
F) SHOWN ON PLAN
G) SHOWN ON PLAN
H) MUNICIPAL AND PIPED WATER TO BE PROVIDED
I) CLAY LOAM
J) SHOWN ON PLAN
K) SANITARY AND STORM SEWERS TO BE PROVIDED
L) SHOWN ON PLAN

LAND USE SCHEDULE

Land Use	Lots/Blocks	Lot/ Block Total	Area (ha)	Units
☐ Single Detached (9.15m)	1-11, 32, 33, 36, 38, 39, 46, 50-55, 60-74, 78-90, 96-98, 100, 109, 110, 113, 114, 116, 118-120, 122, 128-130, 132, 134, 137, 141-143, 146, 160, 164-167, 171-175, 177, 192-202, 207-218, 225-228, 230-232, 240-243, 262-266, 268, 269, 286-290	131	3.54	131
○ Single Detached (11.6m)	12-31, 34, 35, 37, 40-45, 47-49, 56-59, 75-77, 91-95, 99, 101-108, 111, 112, 115, 117, 121,123-127, 131, 133, 135, 136, 138-140, 144, 145, 147-159, 161-163, 168-170, 176, 178-191, 203-206, 219-224, 229, 233-239, 244-261, 267, 270-285	159	5.85	159
Street Townhouses (7.01m)	291-334	44	4.73	216
Lane Based Townhouses (6.05m)	335-345	12	1.00	71
Live/Rent Townhouses (6.10m)	346-349	4	0.40	20
Future Mixed Use/Apartment	350, 351	2	2.59	
Future Development	352	1	1.12	
Walkway	353, 354	2	0.06	
Neighbourhood Park	355	1	4.34	
Elementary School	356	1	0.28	
SWM Pond	357	1	2.71	
Natural Heritage System (NHS)	358, 359	2	2.89	
Residential Reserve	360-366	7	0.15	
Road Widening	367, 368	2	0.22	
0.3m Reserve	369-377	9	0.00	
7.5m ROW (457 m)			0.37	
17m ROW (2,737 m)			4.72	
19m ROW (643 m)			1.23	
22m ROW (1,125 m)			2.51	
Total	378	378	38.71	597

Unit Type	Lots/Blocks	Units	SDE*
Single Detached	1-290	290	290.0
Townhouse	291-334	216	164.2
Lane-Based Townhouse	335-349	91	69.2
Total		597	523.3

* SDE Factors:
Detached - 1.00
Street Townhouse - 0.76
Lane-Based Townhouse - 0.76

NOTES:
- Pavement illustration is diagrammatic
- Local to Local or Local to Connector or Avenue daylight triangle = 3.5 m
- Connector or Avenue to Connector or Avenue daylight triangle = 7.5 m
- Connector or Avenue to Arterial daylight triangle = 15 m

DATE [D.M.Y]	REVISION	DWG	BY
17/04/23	Revisions to SWM pond and walkway blocks	G	KC
31/10/22	ROW and lotting revisions	G	KC
06/10/21	Resubmission	F	KC
21/07/21	Resubmission	E	SE
29/04/20	General Revisions	D	EC
22/03/16	General Revisions	C	LC
09/10/15	General Revisions	C	LC
20/04/15	General Revisions	C	KC
20/10/10	General Revisions	B	TK
12/07/10	General Revisions	B	MP
25/02/05	Original submission (By others)	A	

SCALE 1:1500 | April 17, 2023 | G
DRAWN BY: KC | CHECKED BY:

KORSIAK Urban Planning
206-277 Lakeshore Road East
Oakville, Ontario L6J 1H9
T: 905-257-0227
info@korsiak.com

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2 Existing Conditions

2.1 Area Road Network

Sixth Line

Sixth Line is a Town of Oakville minor arterial road with a two-lane rural cross-section. The Town of Oakville Official Plan protects a 26-metre right-of-way for minor arterial roads. Left turn lanes are included at major intersections. An 80 km/h posted speed limit applies. Sixth Line is anticipated to be widened from two to four-lanes. As part of this widening, the right-of-way will increase to 31 metres. It has been indicated through discussions with the Town of Oakville that this upgrade is anticipated to be completed by 2024 and has been considered in the analysis herein.

Burnhamthorpe Road

Burnhamthorpe Road is a regional road with a two-lane rural cross-section. The Halton Region Official Plan protects for a 24-metre right of way for this road. A 60 km/h posted speed limit applies. It has been indicated that, within five years of the study date and upon completion of the future William Halton Parkway, responsibility for this roadway will transfer from the Region to the Town of Oakville. According to the Burnhamthorpe Road Character Study and Municipal Class Environmental Assessment (MMM Group, 2014), Burnhamthorpe Road will range between two and four lanes within the Study Area in future horizons and include sidewalks, bike lanes, and potential on-street parking areas.

Neyagawa Boulevard

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

Carding Mill Trail (Street 'A')

Carding Mill Trail is a proposed north-south avenue/transit corridor according to the North Oakville East Secondary Plan and has a right-of-way of 22 metres. This road provides access to the site on Burnhamthorpe Road (future William Halton Parkway). The unposted speed limit is assumed to be 50 km/hr.

Settlers Road West (Street 'B')

Settlers Road West is an east-west avenue/transit corridor according to the North Oakville East Secondary Plan and has a right-of-way of 22 metres. This road will provide east-west connections to the proposed development once the neighboring communities to the east and to the west are built out. The unposted speed limit is assumed to be 50 km/hr.

William Halton Parkway (Future Arterial Road Corridor)

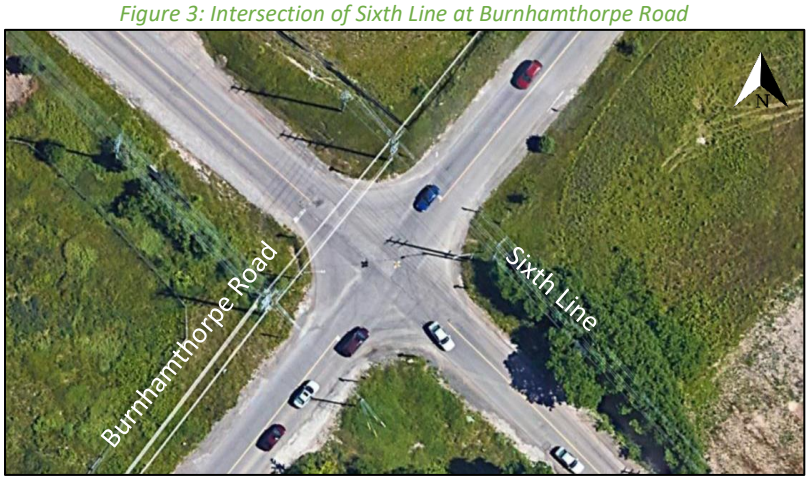
North of, and parallel to, Burnhamthorpe Road is the corridor protection for the future William Halton Parkway, a regional arterial road. This is shown in the Halton Region Official Plan as a Proposed Major Arterial Road. It has been indicated that this facility will be constructed between Neyagawa Boulevard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

2.2 Existing Intersections

Sixth Line at Burnhamthorpe Road

The intersection of Sixth Line at Burnhamthorpe Road is an all-way stop controlled intersection. No auxiliary lanes or sidewalks are provided on any of the legs. An overhead flashing red beacon has been installed over the centre of the intersection. Figure 3 illustrates the intersection of Sixth Line at Burnhamthorpe Road.

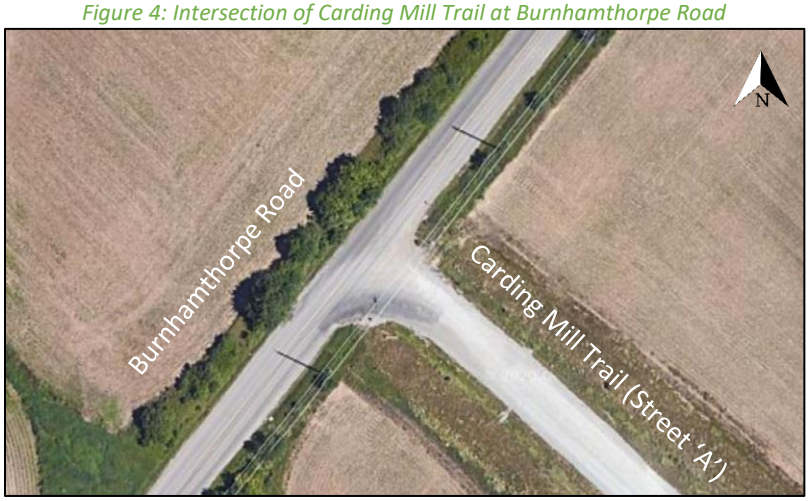
Figure 3: Intersection of Sixth Line at Burnhamthorpe Road



Carding Mill Trail at Burnhamthorpe Road

The intersection of Carding Mill Trail at Burnhamthorpe Road is an unsignalized T-intersection. No auxiliary lanes, shoulders or sidewalks are provided on any of the legs. Figure 4 illustrates the intersection of Carding Mill Trail at Burnhamthorpe Road.

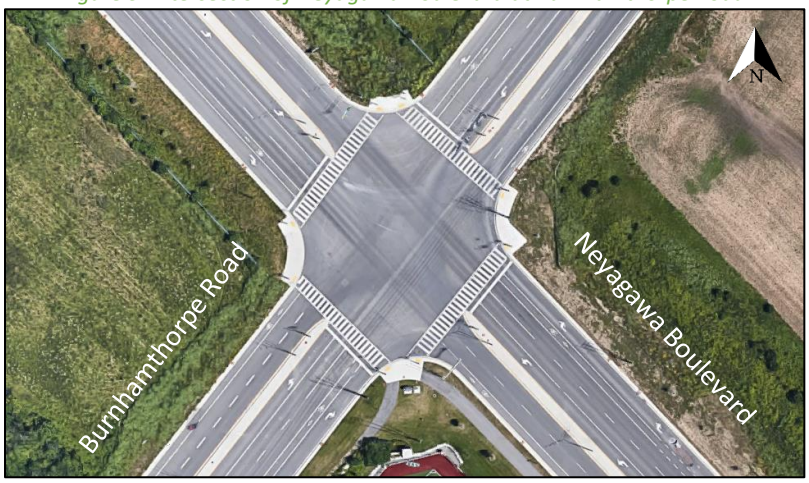
Figure 4: Intersection of Carding Mill Trail at Burnhamthorpe Road



Neyagawa Boulevard at Burnhamthorpe Road

The intersection of Neyagawa Boulevard at Burnhamthorpe Road is a signalized intersection with auxiliary left and right turn lanes on all approaches. Crosswalks are present on all legs with pedestrian signal heads and call buttons. The sidewalks are not continuous beyond the intersection, with the exception of the west side of Neyagawa Boulevard, south of the intersection, where an asphalt multi-use path is provided. Curbside cycling lanes are provided throughout the intersection, however, these cycling lanes end just past the intersection to the north, east, and west, transitioning to gravel shoulders. South of the intersection the cycling lanes continue south, along both sides of the road, to Dundas Street. Figure 5 illustrates the intersection of Neyagawa Boulevard at Burnhamthorpe Road.

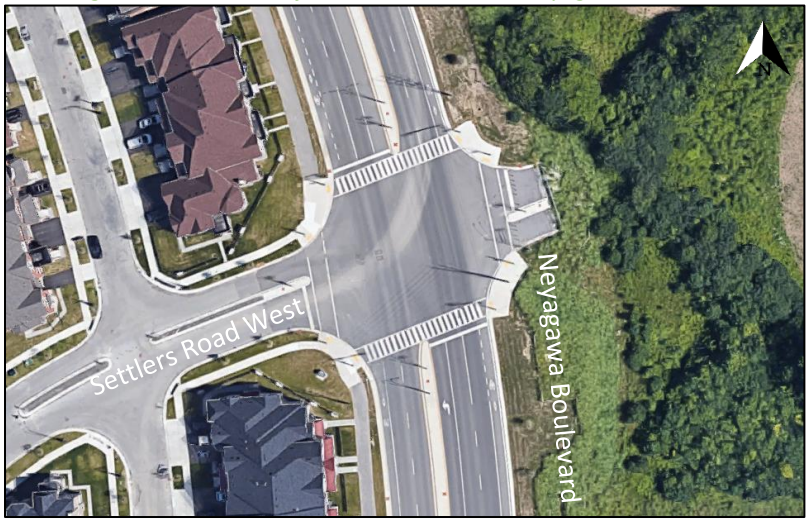
Figure 5: Intersection of Neyagawa Boulevard at Burnhamthorpe Road



Settlers Road West at Neyagawa Boulevard

The intersection of Settlers Road West at Neyagawa Boulevard is a signalized T-intersection with auxiliary left-turn lane on northbound approach. A paved area for a future southbound left-turn lane has been reserved on the southbound approach of Neyagawa Boulevard to accommodate the extension of Settlers Road to the west. During a site visit, a painted left-turn lane was also noticed on the eastbound approach of the intersection. Crosswalks are present on all legs with pedestrian signal heads and call buttons. The sidewalks run along Settlers Road West, and the west side of Neyagawa Boulevard. Curbside cycling lanes are provided along Neyagawa Boulevard. North of the intersection the cycling lanes continue to Burnhamthorpe Road. South of the intersection the cycling lanes continue to Dundas Street. Figure 6 illustrates the intersection of Settlers Road West at Neyagawa Boulevard.

Figure 6: Intersection of Settlers Road West at Neyagawa Boulevard



2.3 Cycling and Pedestrian Facilities

The proposed developments are in an area of North Oakville that is currently not developed and therefore there is minimal cycling and pedestrian infrastructure in the vicinity of the proposed development. As noted in Section 2.2, the signalized intersection of Neyagawa Boulevard at Burnhamthorpe Road has some pedestrian infrastructure (crosswalks and pedestrian signal heads) and cycling (cycling lanes) infrastructure but there are limited connections beyond this intersection. Sidewalks and bike lanes south of this intersection lead to the intersection of Neyagawa Boulevard at Settlers Road West and are continued to the south towards Dundas Street.

The Town of Oakville and Halton Region Active Transportation Master Plans (ATMPs) outline the proposed cycling and pedestrian network. Map 8 and Map 9 from the Town's ATMP, as well as Map 3 and Map 4 from the Regional ATMP have been included in Appendix B for reference. Generally, sidewalks will be provided along the local and collector roads throughout the proposed development as is appropriate based on the proposed cross-sections. Additionally, paths will be included in the green spaces that will be reserved as part of the proposed development. Bike lanes, a sidewalk, and a multi-use trail are also proposed along William Halton Parkway.

2.4 Transit

Currently, Oakville Transit is providing a Home to Hub on-demand transit service for select communities in North Oakville. One such community is the subdivision located at the south-western quadrant of Neyagawa Boulevard and Burnhamthorpe Road intersection, approximately 300 metres west of the proposed development. It is also expected that as the area builds out, interim bus routes will be provided along arterials and connector roads. The frequency and path of interim routes will be determined by Oakville Transit.

2.5 Existing Peak Hour Travel Demand

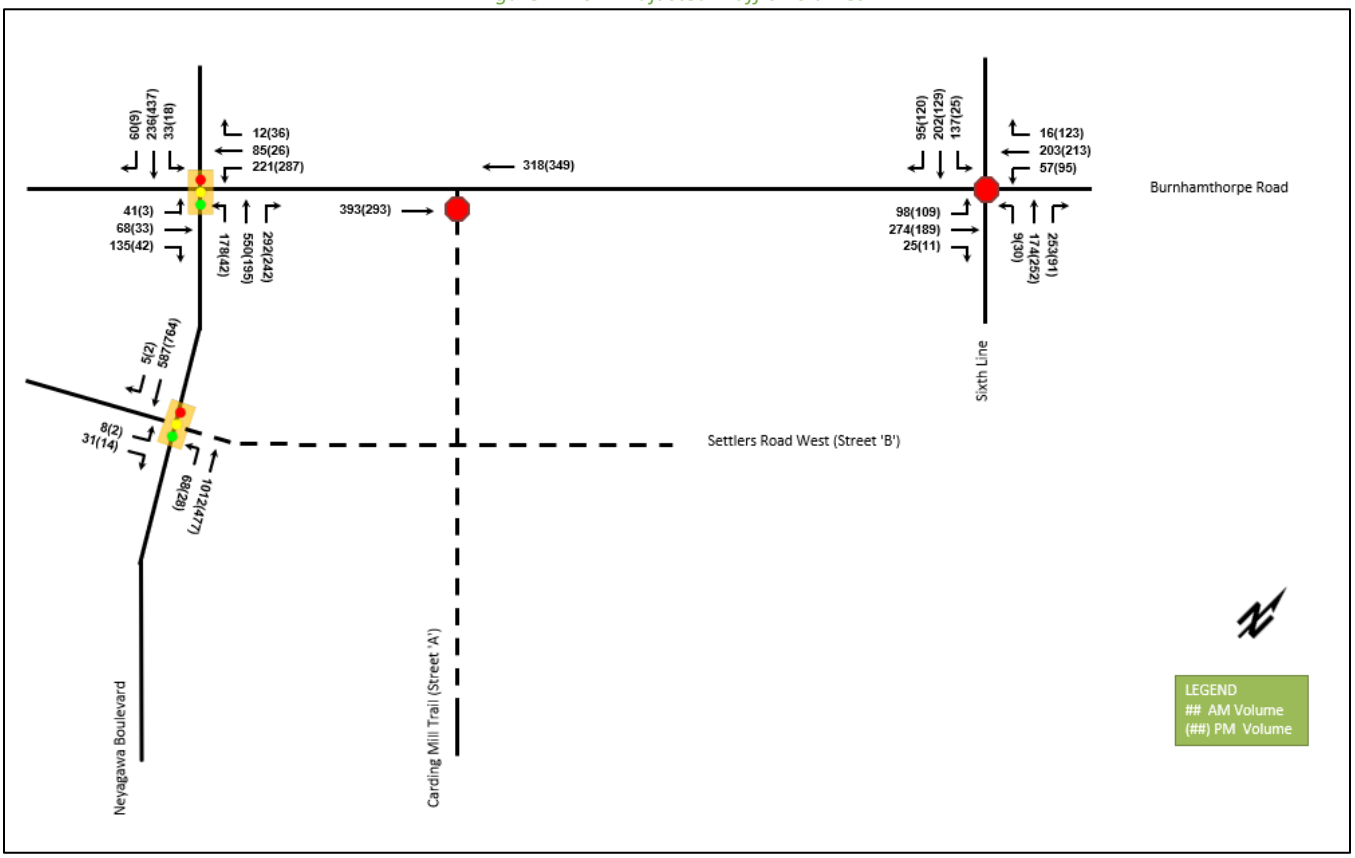
To understand the existing AM and PM peak hour traffic volumes, turning movement counts (TMC) for the Study Area intersections have been acquired from the Halton Region. As no traffic count data was available for the intersection of Settlers Road and Neyagawa Boulevard, the TMCs for this intersection were collected by Ontario Traffic Inc. To account for abnormal traffic patterns during COVID 19 lockdown measures, the southbound and northbound traffic counted in 2020 at Settlers Road and Neyagawa Boulevard intersection was increased (balanced) to align with the 2019 traffic volumes at Burnhamthorpe Road and Neyagawa Road intersection. Table 1 summarizes the date of the most recent turning movement count at each Study Area intersection.

Table 1: Turning Movement Count Data Dates and Data Source

Intersection	Count Date	Data Source
Burnhamthorpe Road at Neyagawa Boulevard	December 4, 2019	Halton Region
Burnhamthorpe Road at Sixth Line	December 4, 2019	Halton Region
Settlers Road at Neyagawa Boulevard	November 17, 2020	Ontario Traffic Inc.

A 2% per annum compound annual growth rate was applied to the turning movement counts to reflect a 2021 analysis horizon. This is consistent with the Transportation Impact Studies of nearby sites (Neighborhood 9/10/11 and Sherborne Lodge) prepared by CGH Transportation. The turning movement count volumes, grown to reflect a 2021 horizon, and balanced to account for traffic abnormalities during COVID 19 lockdown measures, are illustrated in Figure 7. Turning movement count data is included in Appendix C.

Figure 7: 2021 Adjusted Traffic Volumes



3 Future Background Conditions

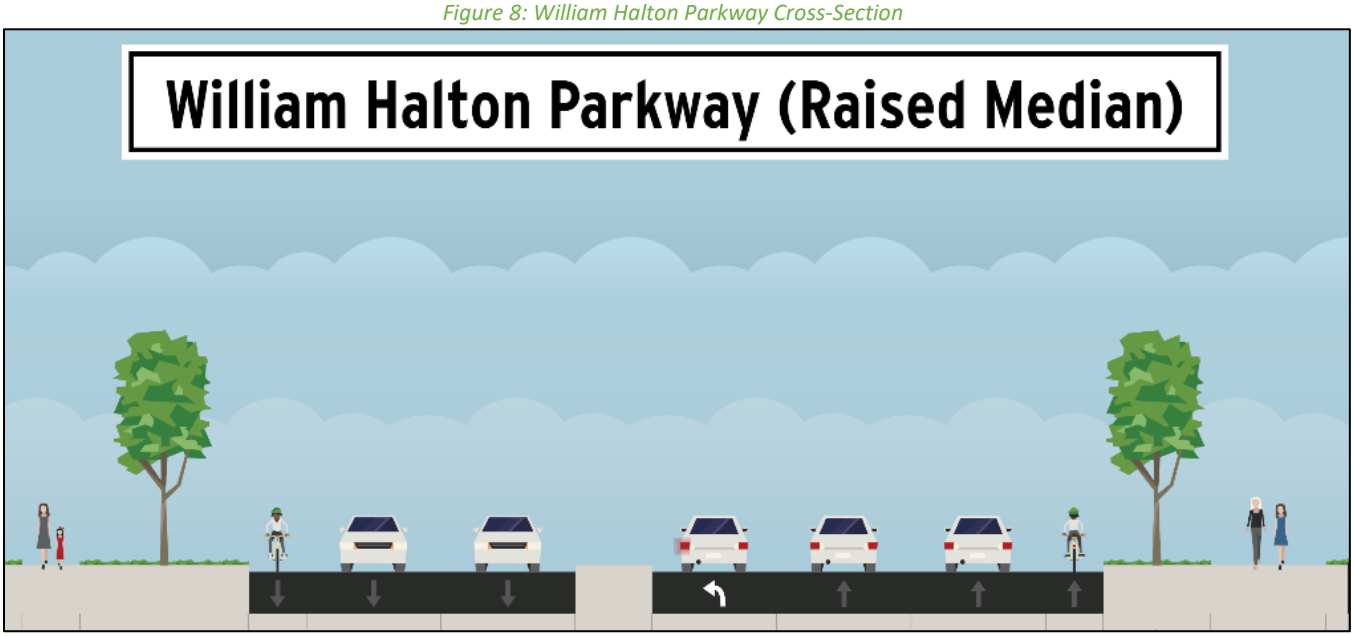
3.1 Planned Conditions

3.1.1 William Halton Parkway

North of, and parallel to, the existing Burnhamthorpe Road corridor is a planned arterial roadway corridor. This corridor, referred to as William Halton Parkway, is to be constructed in multiple phases and will ultimately connect from Bronte Road in the west to Ninth Line in the east. The section relevant to this TIS, Neyagawa Boulevard to Sixth Line, is anticipated to be completed by Winter 2022. The proposed cross-section has been recreated using Streetmix.net, illustrated in Figure 8, and includes the following elements (from left to right):

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

Figure 8: William Halton Parkway Cross-Section



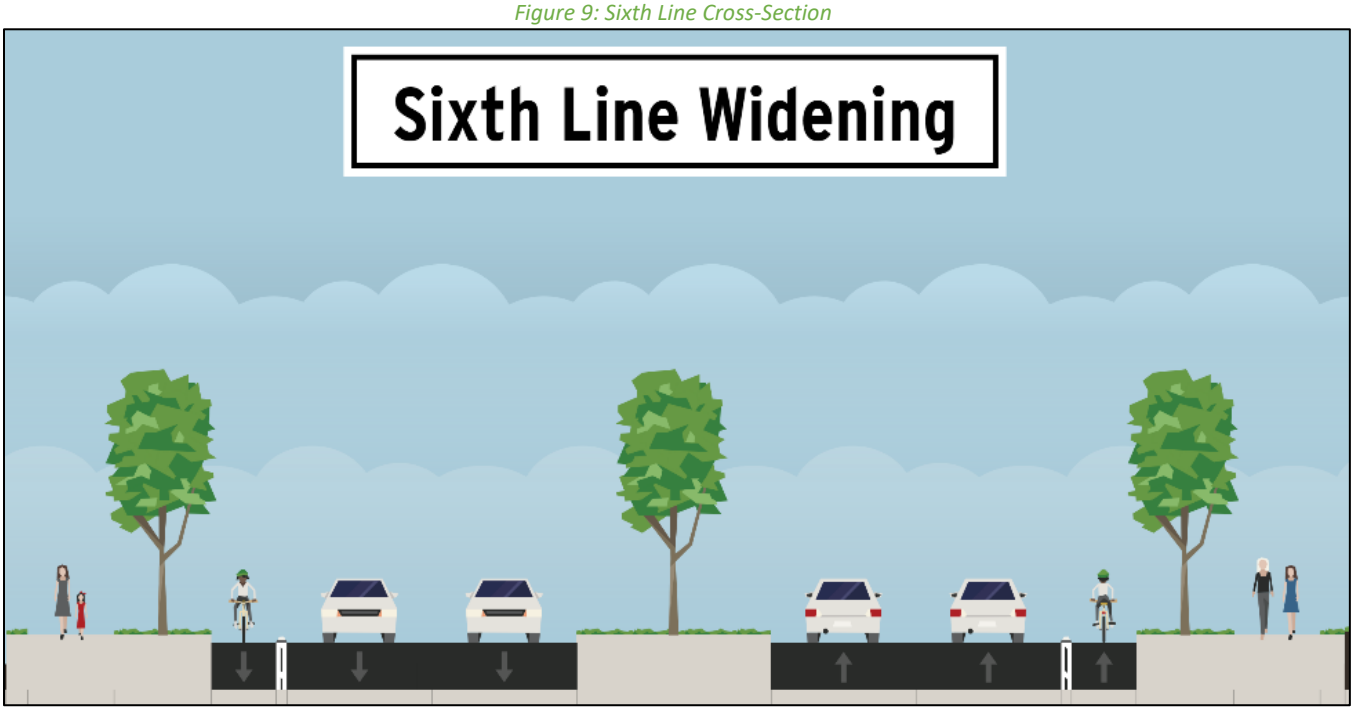
The Region of Halton has indicated that a peak hour volume of 2100 vehicles per hour in each direction should be assumed for William Halton Parkway for a neighboring site (Neighborhood 9/10/11 Landowner's Group) TIS, prepared by CGH Transportation in 2020. The email confirming the volumes along William Halton Parkway is attached in Appendix D.

3.1.2 Sixth Line Widening

Sixth Line is the main north-south corridor\ in the Study Area. This corridor has been the subject of an Environmental Assessment to examine widening Sixth Line from two-lanes to four-lanes between Dundas Street and just south of Highway 407. The proposed cross-section has been recreated using Streetmix.net, illustrated in Figure 9 and includes the following elements (from left to right):

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

Figure 9: Sixth Line Cross-Section

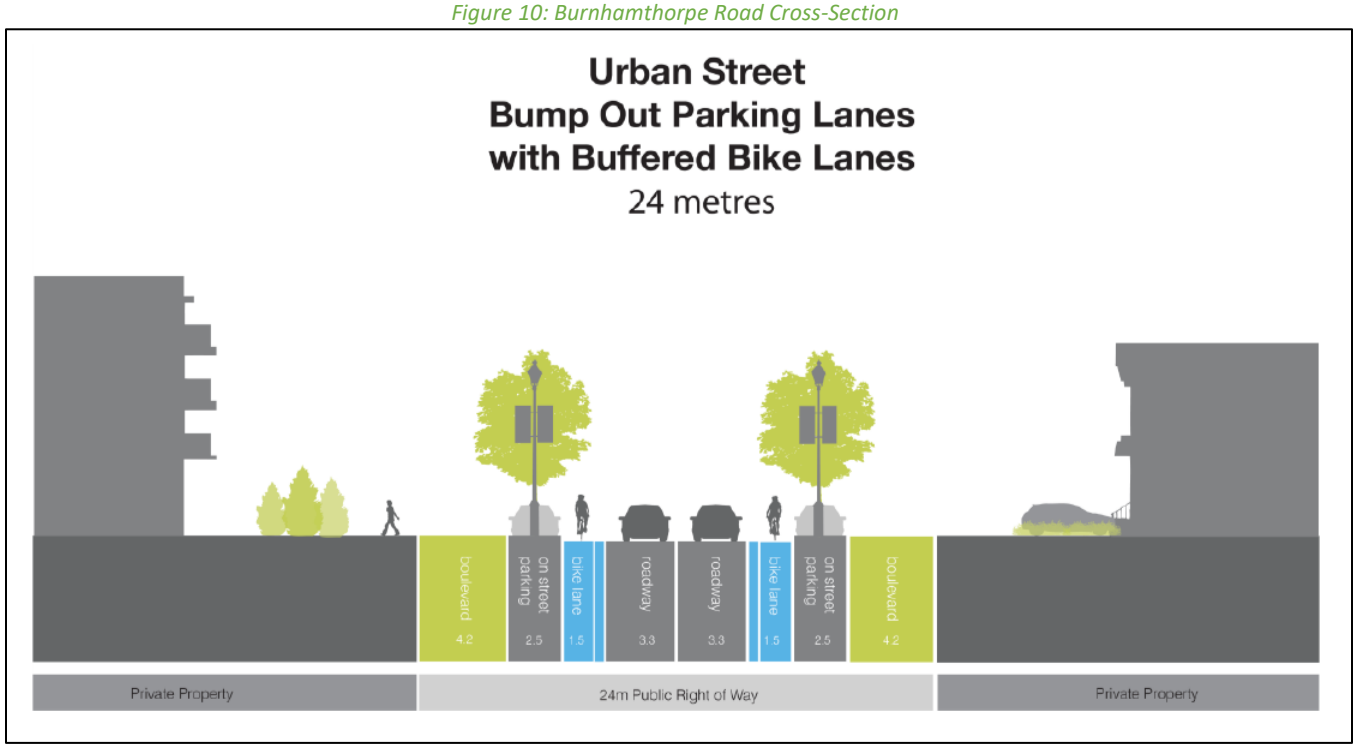


3.1.3 Burnhamthorpe Road

Burnhamthorpe Road is currently a Halton Region arterial road. After the construction of William Halton Parkway, which will serve as an east-west corridor of a regional importance, Burnhamthorpe Road will transition to the Town of Oakville jurisdiction and serve as a multi-modal roadway. The Burnhamthorpe Road Character Study and Municipal Class Environmental Assessment (MMM Group, 2014) indicates that within the Study Area, Burnhamthorpe Road will range between a total of two and four lanes. The proposed cross-section can be seen in Figure 10 and is excerpt from Burnhamthorpe Road Character Study and Municipal Class EA. The cross-section includes the following elements (from left to right):

- 4.2 metre boulevard
- 2.5 metre planting strip or on-street parking
- 1.5 metre like lane
- 3.3 metre drive lane
- 3.3 metre drive lane
- 1.5 metre like lane
- 2.5 metre planting strip or on-street parking
- 4.2 metre boulevard

Figure 10: Burnhamthorpe Road Cross-Section



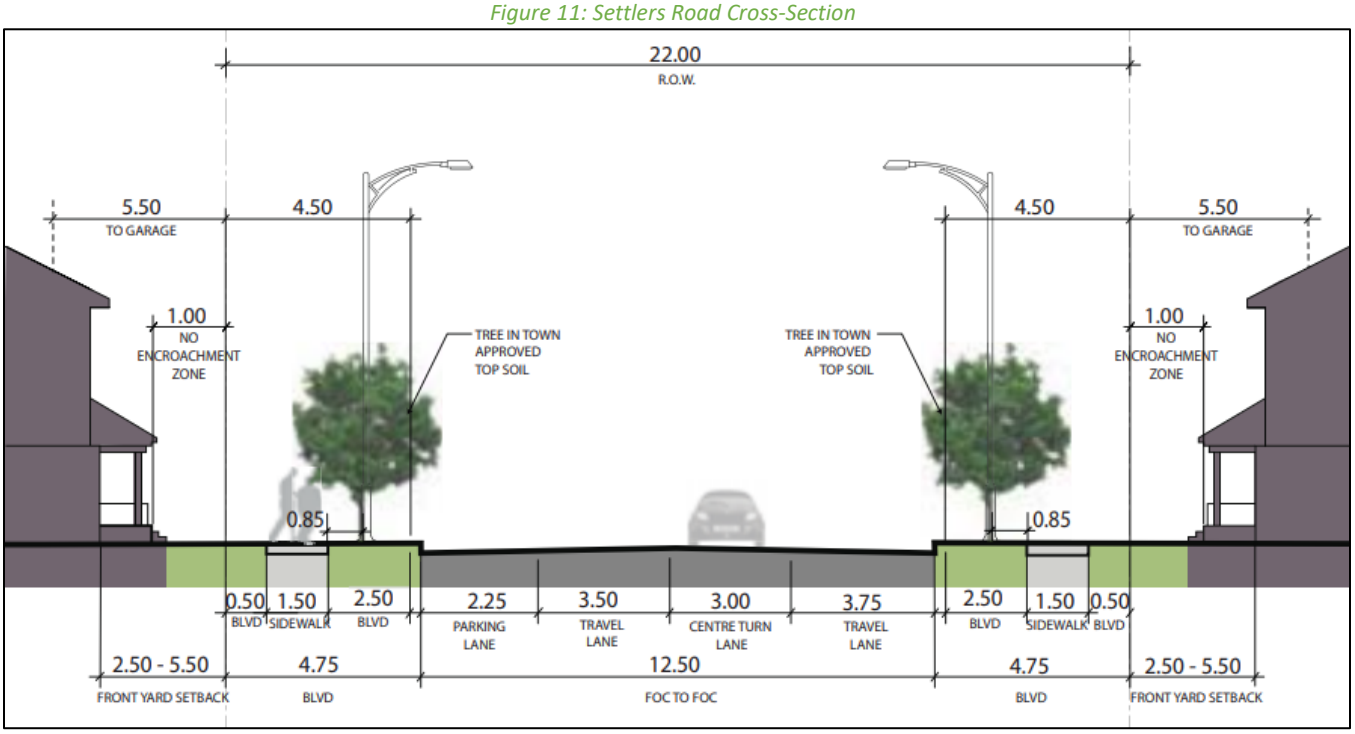
Reference: Burnhamthorpe Road Character Study and Municipal Class EA; MMM Group; December 2014

3.1.4 Settlers Road West

Settlers Road West is a Town of Oakville proposed east/west avenue/transit corridor according to the North Oakville East Secondary Plan. Settlers Road West is currently built from Fourth Line to Neyagawa Boulevard. In future horizons, this road will extend east, passing through the subject development and future adjacent developments, connecting the proposed community to Neyagawa Boulevard and beyond to the west, and Sixth Line and beyond to the east. The section relevant to this TIS is anticipated to be completed by the 2025 future horizon. The proposed cross-section can be seen in Figure 11, and is excerpt from North Oakville Urban Design and Open Space Guidelines. The cross-section includes the following elements (from left to right):

- 0.5 metre buffer
- 1.5 metre sidewalk
- 2.5 metre planting strip
- 2.25 metre parking lane
- 3.5 metre drive lane
- 3.0 metre centre turn lane
- 3.75 metre drive lane
- 2.5 metre planting strip
- 1.5 metre sidewalk
- 0.5 metre buffer

Figure 11: Settlers Road Cross-Section



Reference: North Oakville Urban Design and Open Space Guidelines; November 2009

3.1.5 North Oakville East Secondary Plan – Transportation Plan

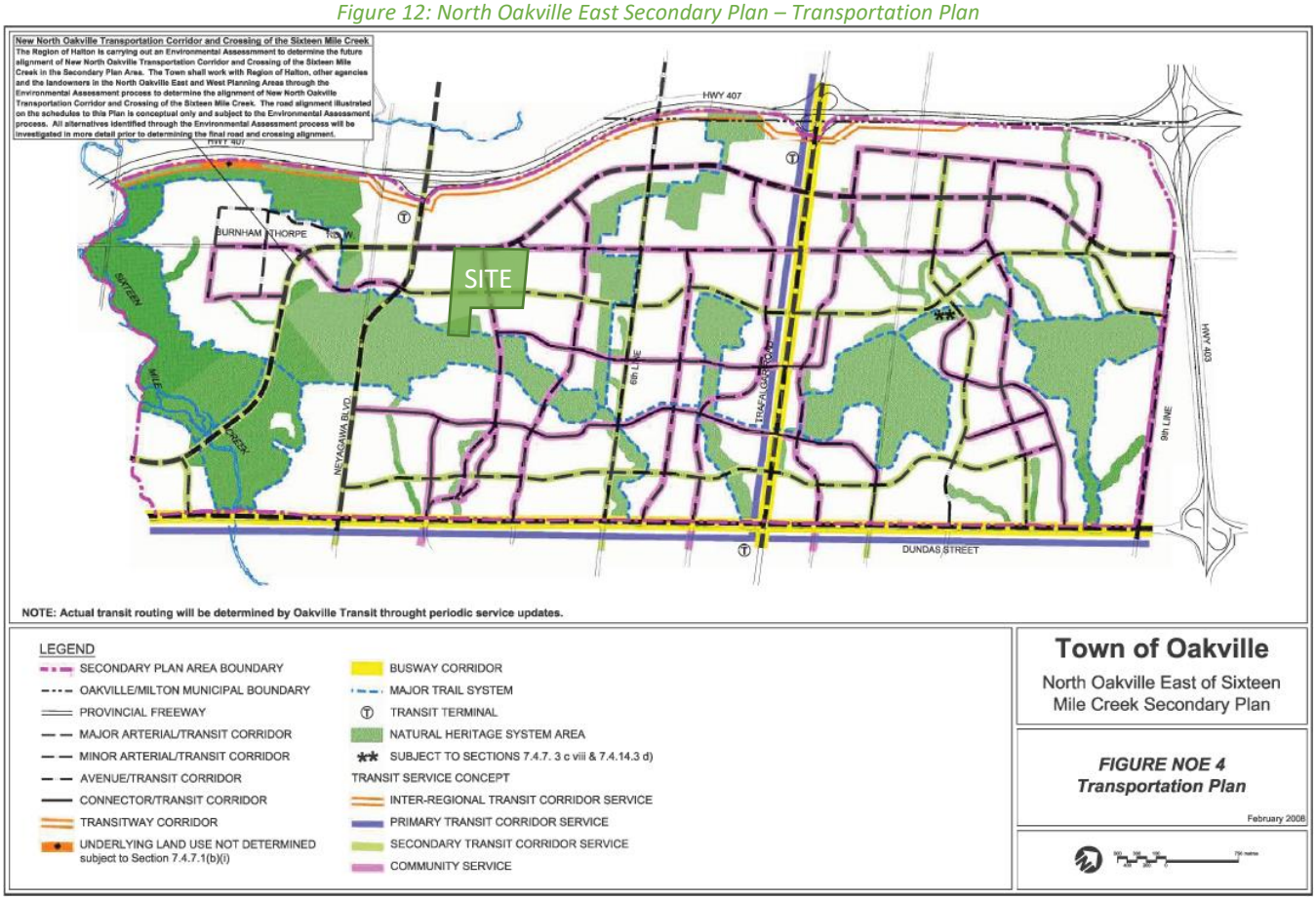
The North Oakville East Secondary Plan includes transit routes along key corridors within the proposed developments. Figure 12 illustrates the North Oakville East Secondary Plan Transportation Plan. Within the Study Area the following roads are noted as Secondary Transit Corridor Service:

- Sixth Line
- Neyagawa Boulevard
- Settler's Road

The following Study Area roads are noted as Community Service Transit corridors:

- William Halton Parkway
- Burnhamthorpe Road

Figure 12: North Oakville East Secondary Plan – Transportation Plan



3.2 Other Study Area Developments

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

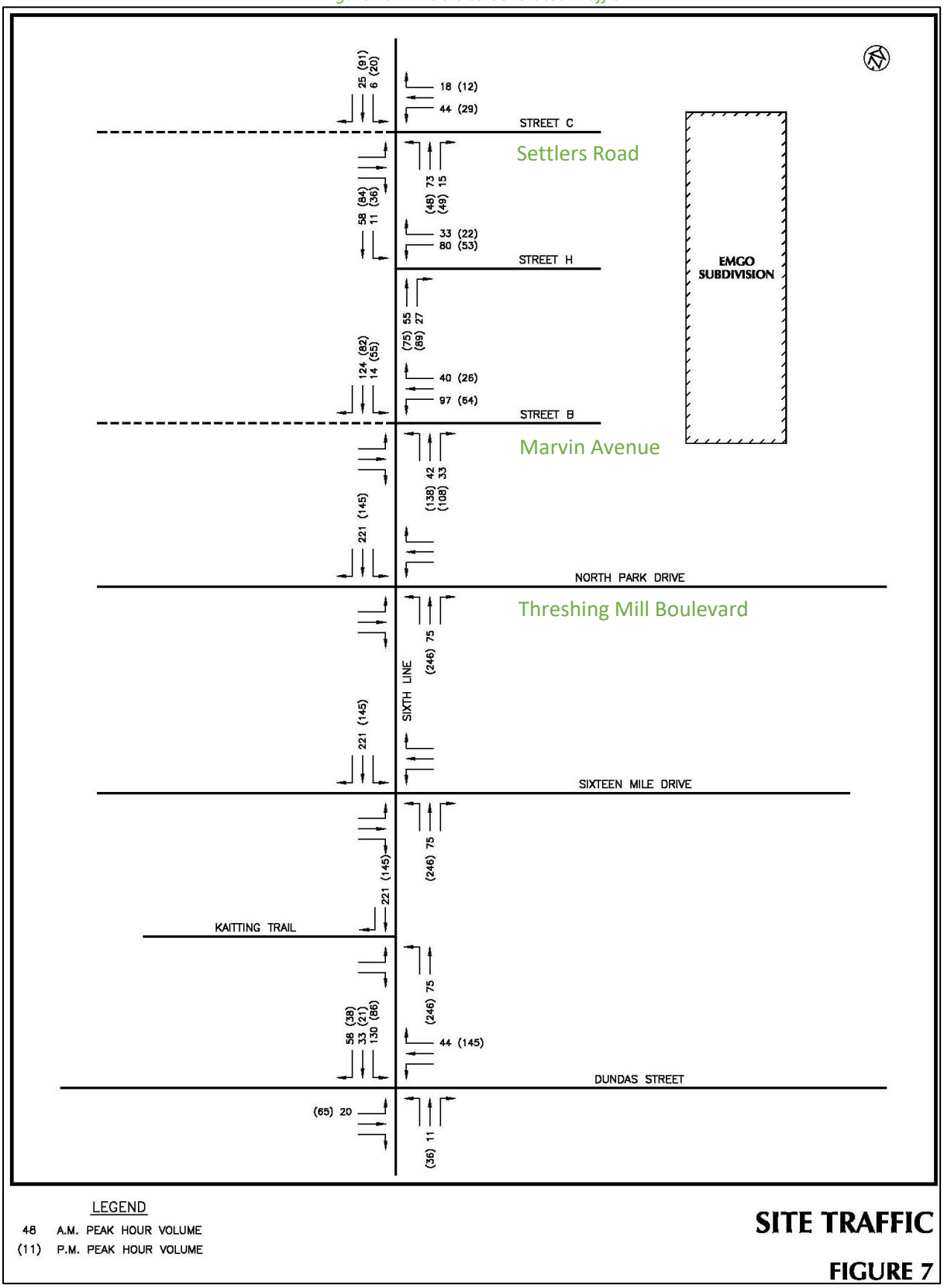
- EMGO North Oakville
- Petgor
- Sixth Line Corporation (NE Corner of Sixth Line at Dundas Street)
- Star Oak (NE Corner of Burnhamthorpe Road at Sixth Line)
- Landowner's Group Neighborhood 9/10/11
- Sherborne Lodge

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

3.2.1 EMGO North Oakville

The EMGO North Oakville development is located along Sixth Line between Dundas Street and Burnhamthorpe Road. This development includes 618 residential units with a mix of detached single-family units, and townhouse type units. Access to this development will be via three accesses on Sixth Line. The traffic generated by the EMGO development is summarized in Figure 13, commentary in green has been added to denote the updated name of the streets for ease of reference.

Figure 13: EMGO Site Generated Traffic

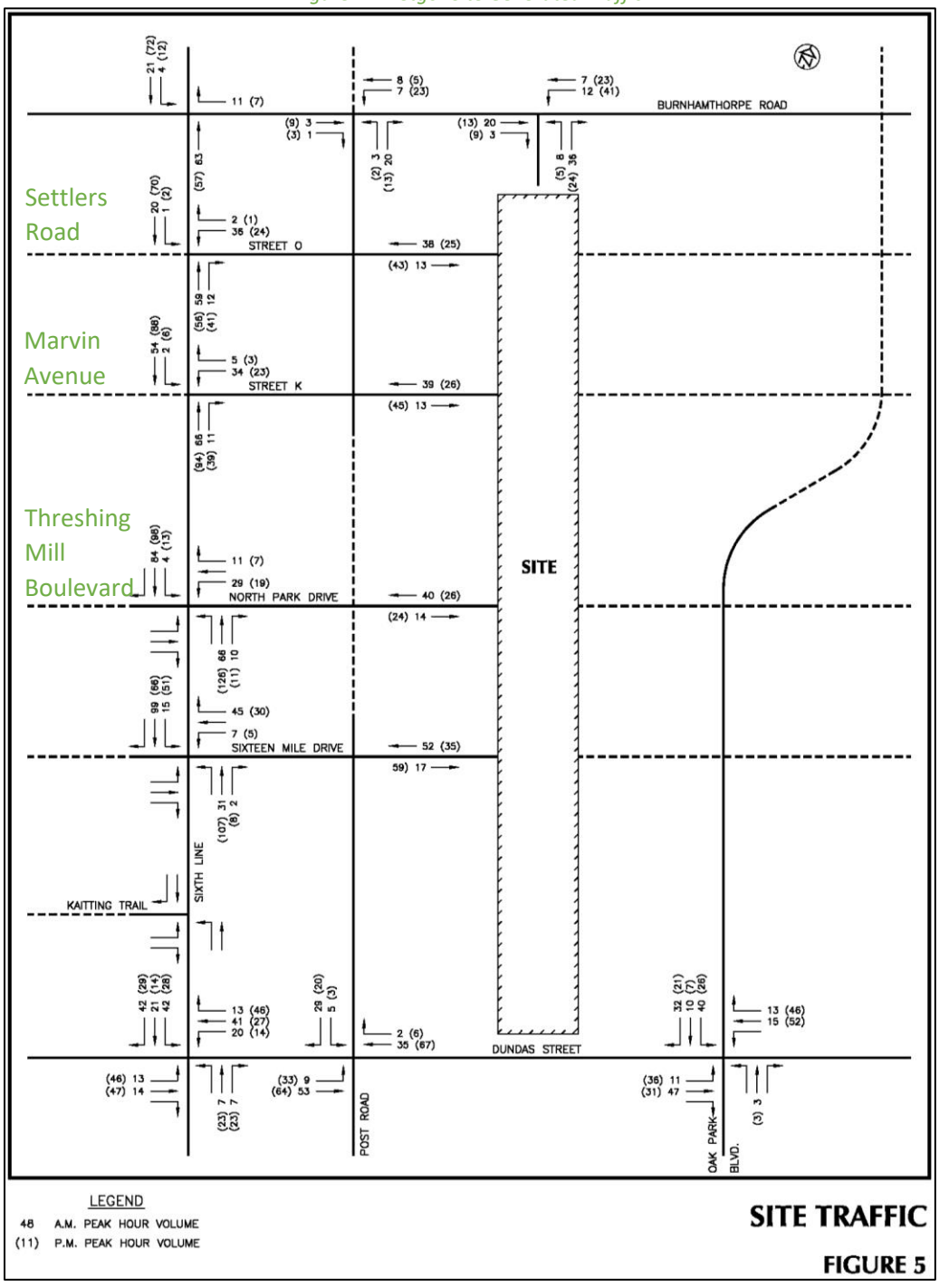


Reference: Traffic Impact Study EMGO Draft Plan North Oakville; Reed, Voorhees & Associates; September 2012

3.2.2 Petgor Draft Plan North Oakville

The Petgor Draft Plan North Oakville development is located between Sixth Line and Trafalgar Road, approximately halfway between the two roads. This development includes 780 residential units with a mix of detached single-family units, and townhouse units. Access to this development will be via roads through the adjacent developments to both Sixth Line and Trafalgar Road and direct access onto Burnhamthorpe Road. The traffic generated by the Petgor development is summarized in Figure 14, commentary in green has been added to denote the updated name of the streets for ease of reference.

Figure 14: Petgor Site Generated Traffic

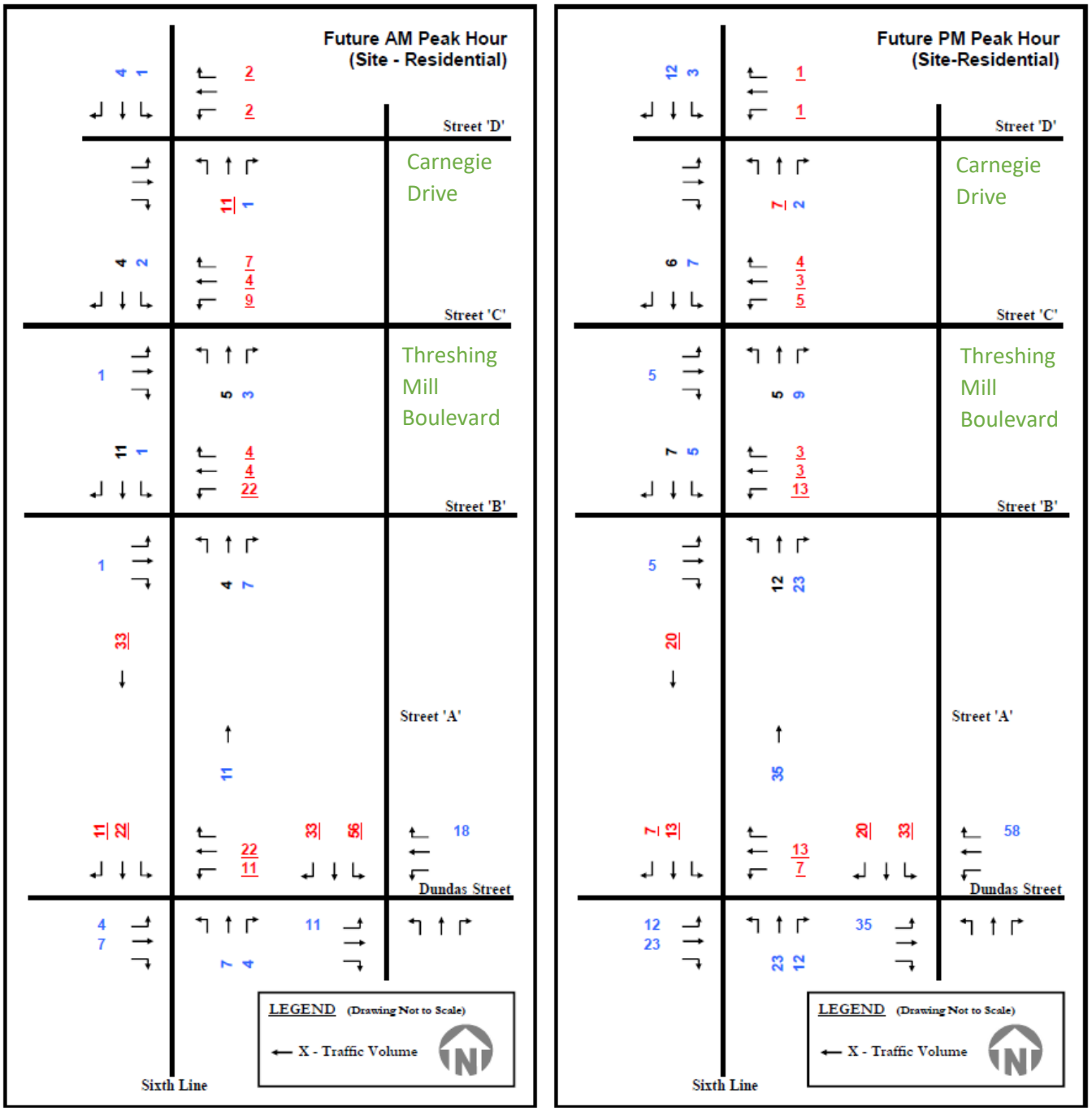


Reference: Traffic Impact Study Petgor Draft Plan North Oakville; Reed, Voorhees & Associates; December 2012

3.2.3 Sixth Line Corporation

The Sixth Line Corporation development is located at the northeast quadrant of Sixth Line at Dundas Street. This development includes 530 residential units with a mix of detached single-family units, and townhouse type units. Access to this development will be via three accesses on Sixth Line. The traffic generated by the Sixth Line Corporation is summarized in Figure 15, commentary in green has been added to denote the updated name of the streets for ease of reference.

Figure 15: Sixth Line Corporation Site Generated Traffic

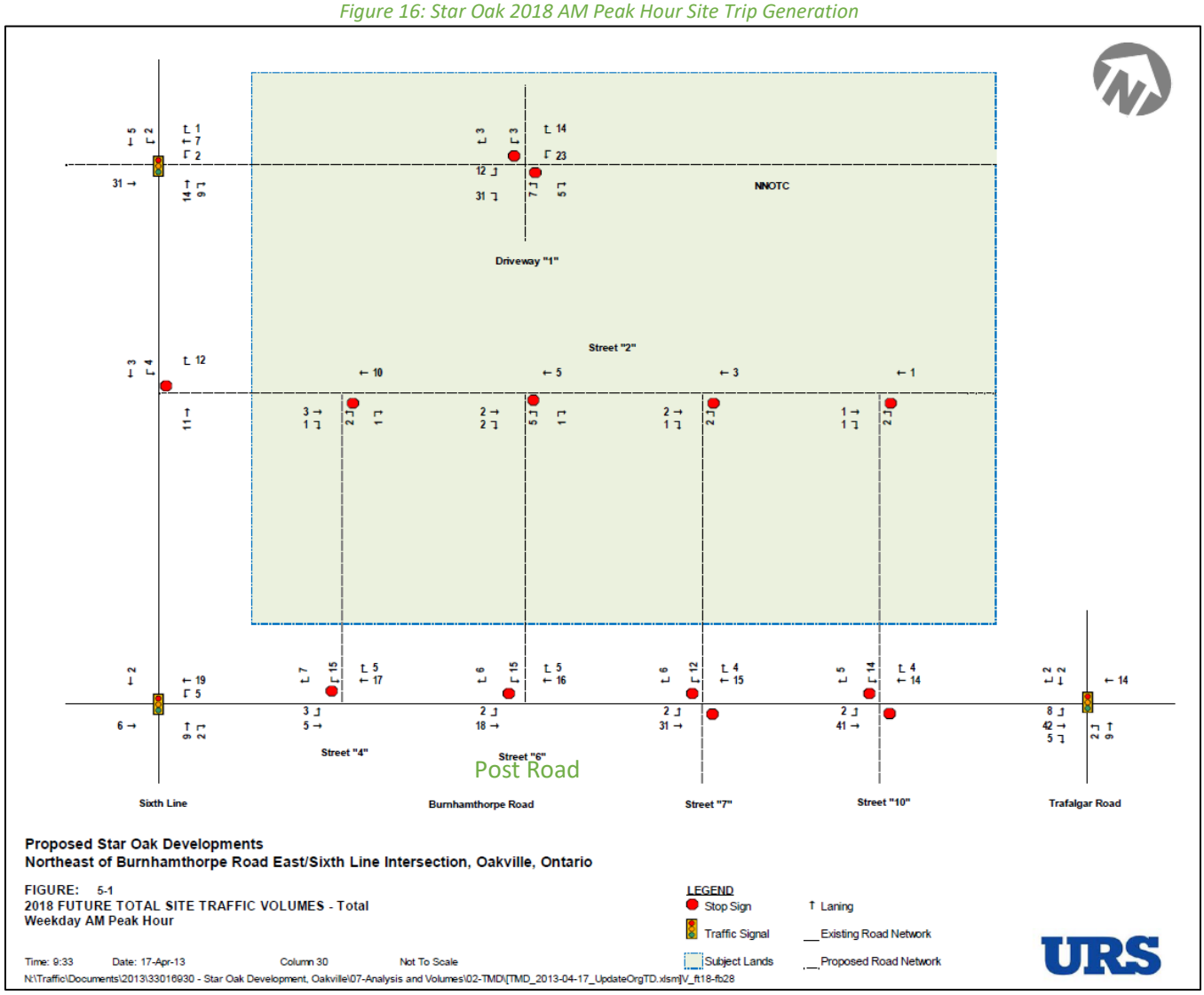


Reference: Traffic Impact Study Sixth Line Development Town of Oakville; URS Canada; November 2012

3.2.4 Star Oak (Northeast Corner of Burnhamthorpe at Sixth Line)

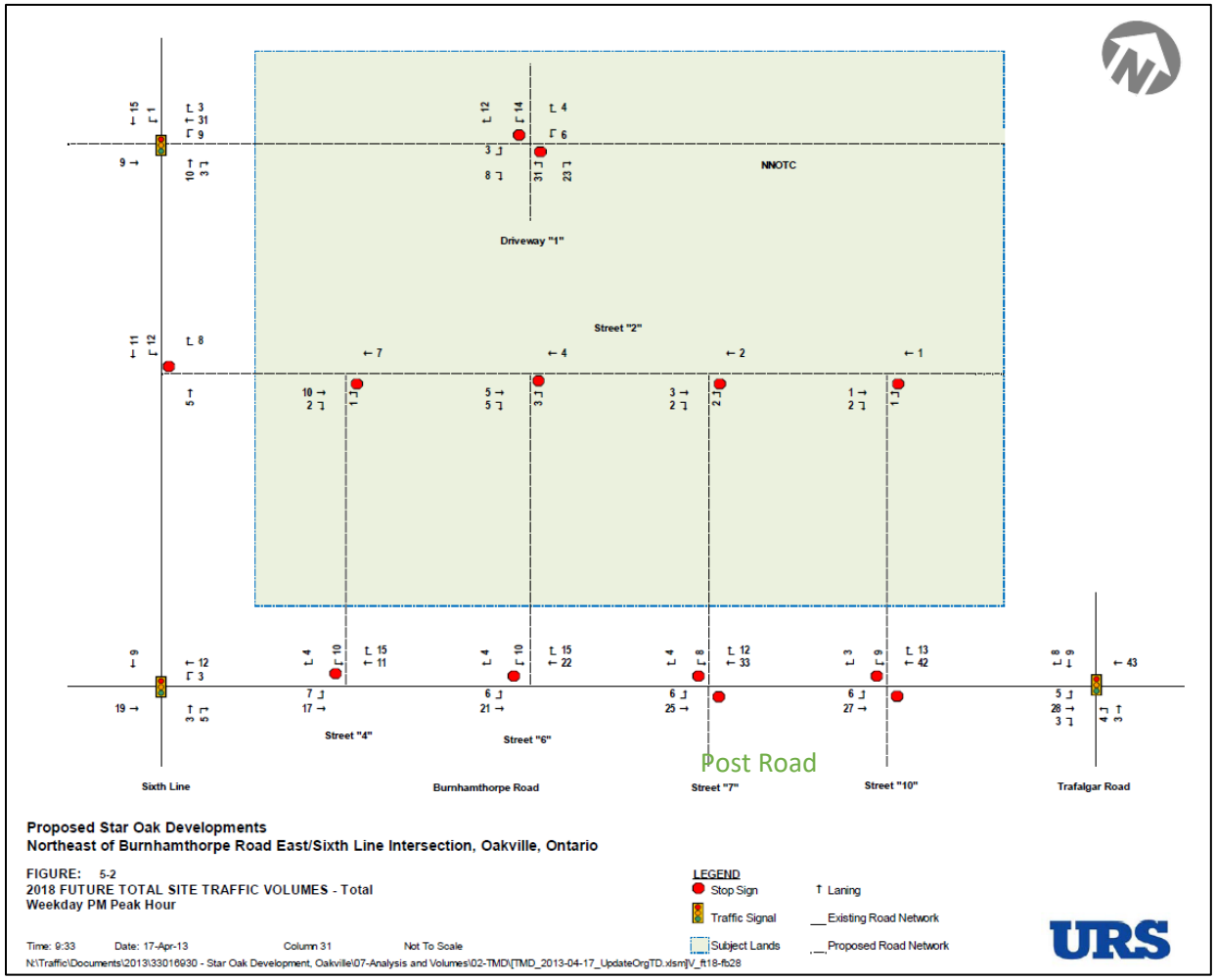
The Star Oak development is located at the northeast quadrant of Burnhamthorpe Road at Sixth Line. This development includes 217 residential units with a mix of detached single-family units, and townhouse type units and 154,000 square metres of employment uses. The residential portion of the development is anticipated to completed prior to the 2025 horizon of this study. The employment uses are not anticipated to be completed until 2028, prior to the 2030 horizon of this study. This development will connect to the road network via accesses on Sixth Line, Burnhamthorpe Road, and William Halton Parkway. The traffic generated by the Star Oak Development is summarized in Figure 16 and Figure 17 for the residential portion of the development. Figure 18 and Figure 19 illustrate the total trips generated by the Star Oak Development. Commentary in green has been added to denote the updated name of the streets for ease of reference.

Figure 16: Star Oak 2018 AM Peak Hour Site Trip Generation



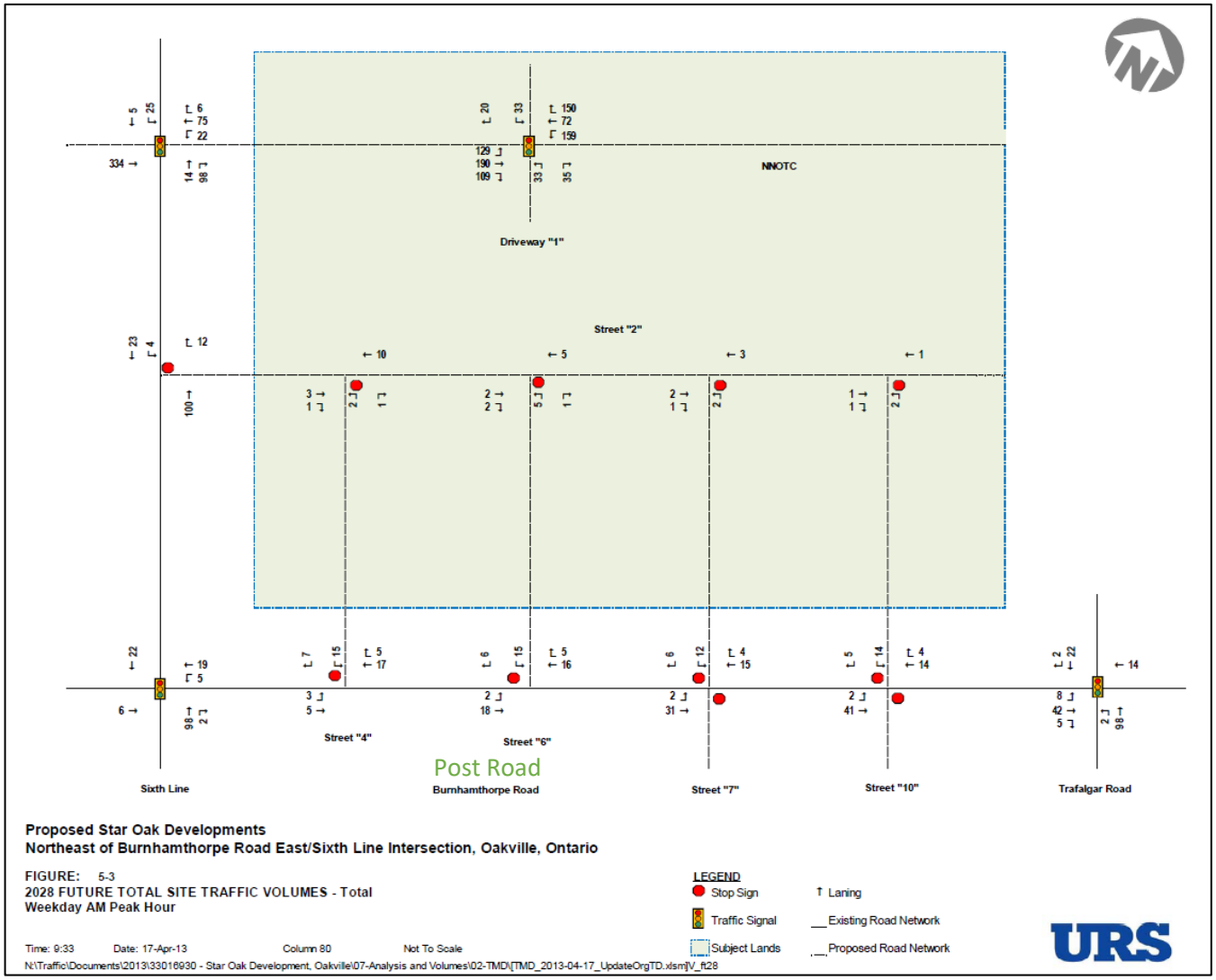
Reference: Traffic Impact Study Star Oak Developments Town of Oakville; URS Canada; April 2013

Figure 17: Star Oak 2018 PM Peak Hour Site Trip Generation



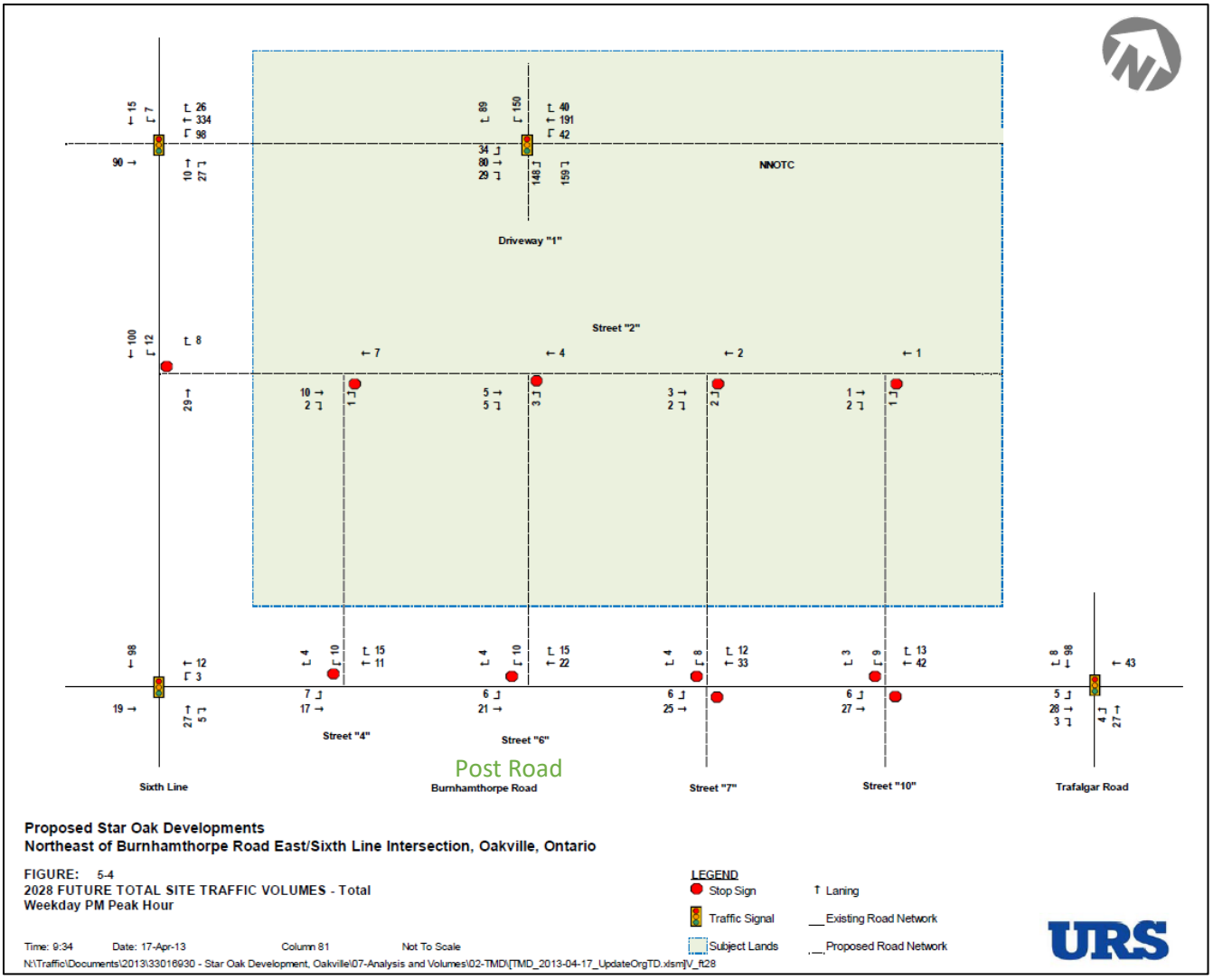
Reference: Traffic Impact Study Star Oak Developments Town of Oakville; URS Canada; April 2013

Figure 18: Star Oak 2028 AM Peak Hour Site Trip Generation



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

Figure 19: Star Oak 2028 PM Peak Hour Site Trip Generation



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

Landowner's Group Neighborhood 9/10/11

Neighborhoods 9/10/11 of North Oakville are being developed by a group of companies. The combined development will include a total of 788 single detached homes, 1003 townhouses, and 175 mid-rise units. This development will connect to the road network via four accesses on Sixth Line, five accesses on Burnhamthorpe Road, and a single access onto the future William Halton Parkway. The 2024 and 2030 Neighborhood 9/10/11 trip generation is illustrated through the Study Area intersections in Figure 20 and Figure 21 respectively. The original traffic generation figures from the Landowner's Group Neighborhood 9/10/11 TIS can be seen in Appendix E.

Figure 20: Neighborhood 9/10/11 2024 Site Trip Generation

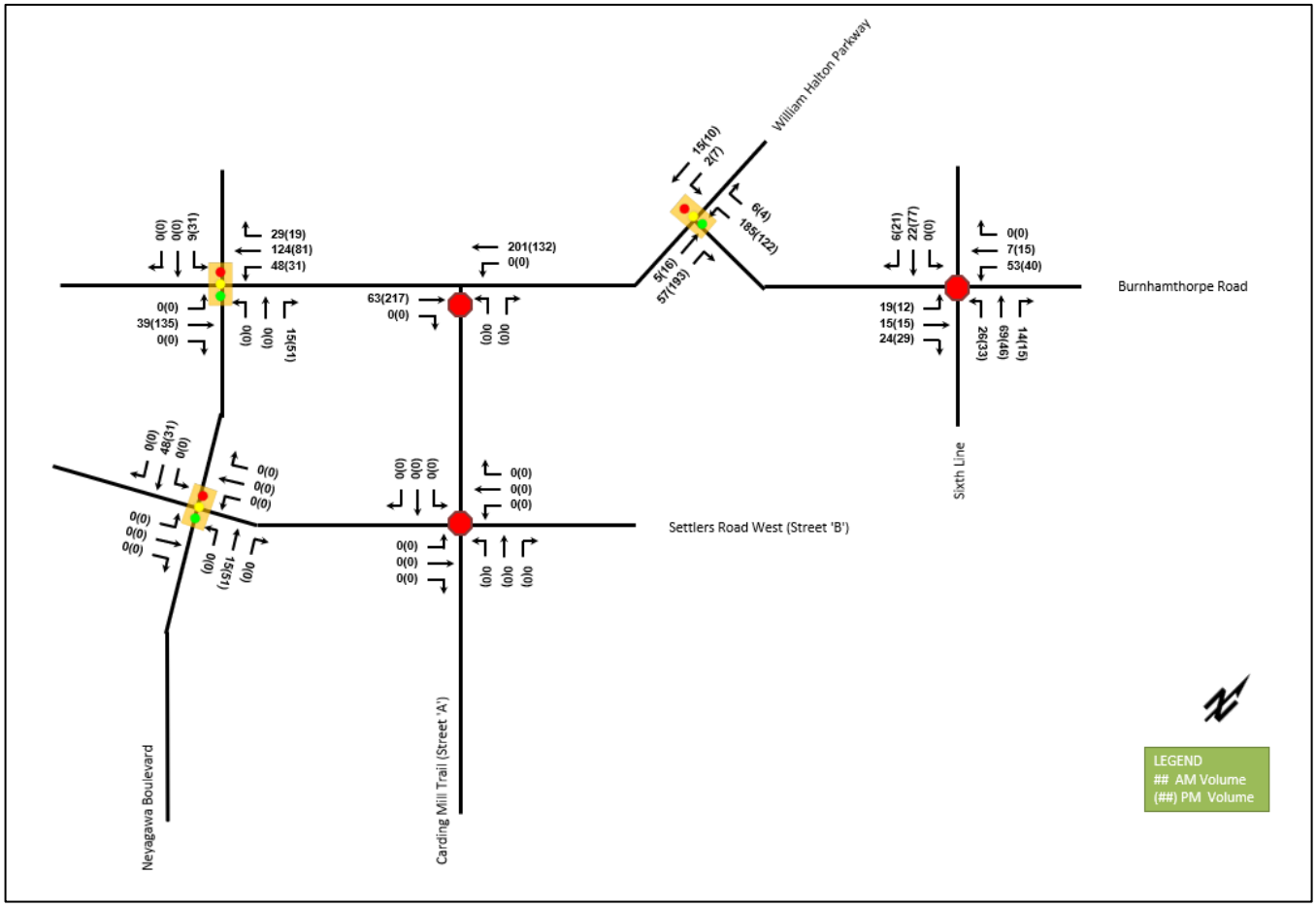
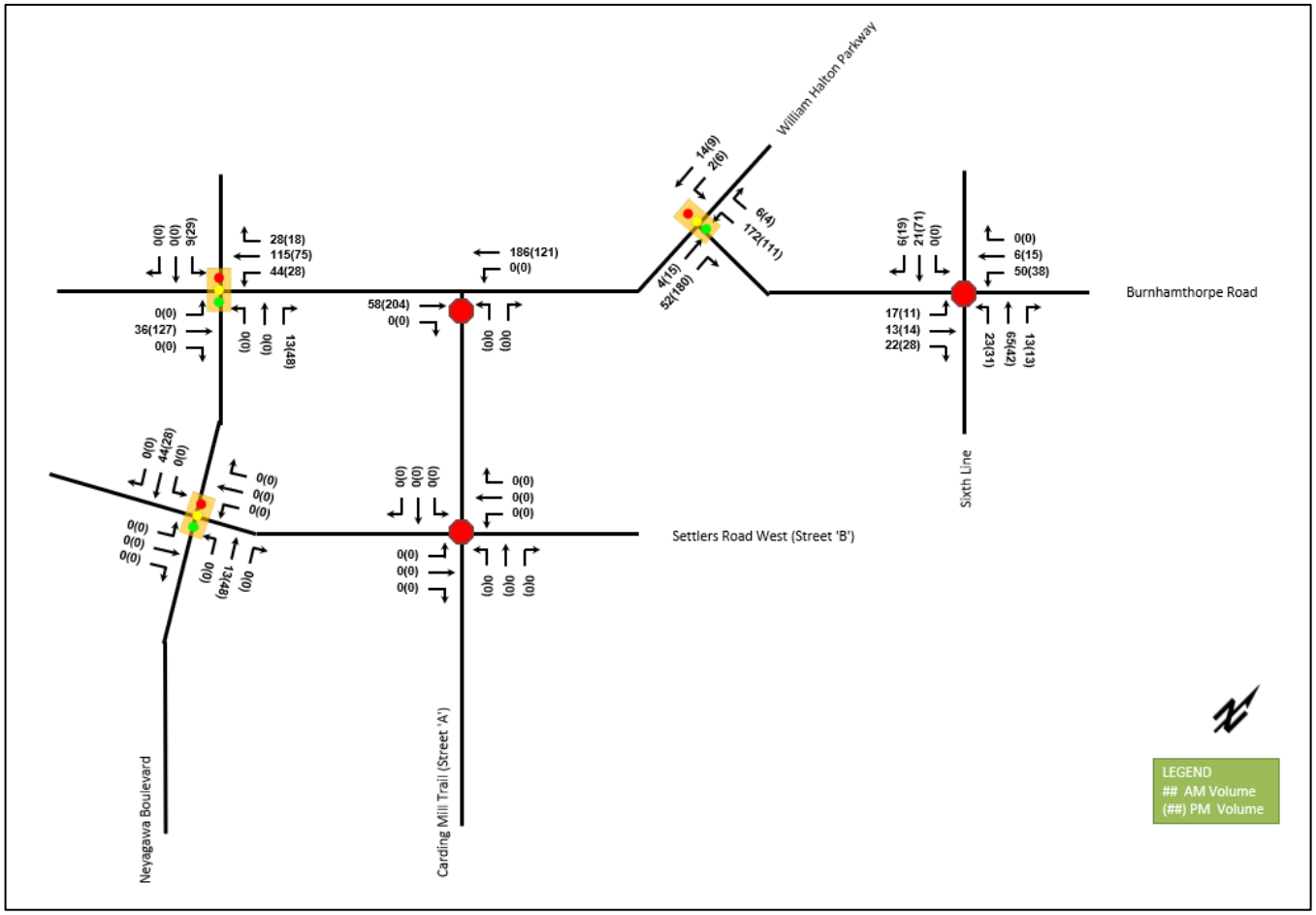


Figure 21: Neighborhood 9/10/11 2030 Site Trip Generation



3.2.5 Sherborne Lodge

North Oakville Sherborne Lodge Development is bordering the subject development to the west. This development includes an apartment block with anticipated 296 units, a low-rise subdivision with 84 single detached homes, and 128 townhouses, a commercial block, and an elementary school. This development will connect to the road network via one access on William Halton Parkway, and one access on Settlers Road West. The 2026 and 2031 Sherborne Lodge trip generation is illustrated in Figure 22 and Figure 23, respectively.

Figure 22: Sherborne Lodge 2026 Site Trip Generation

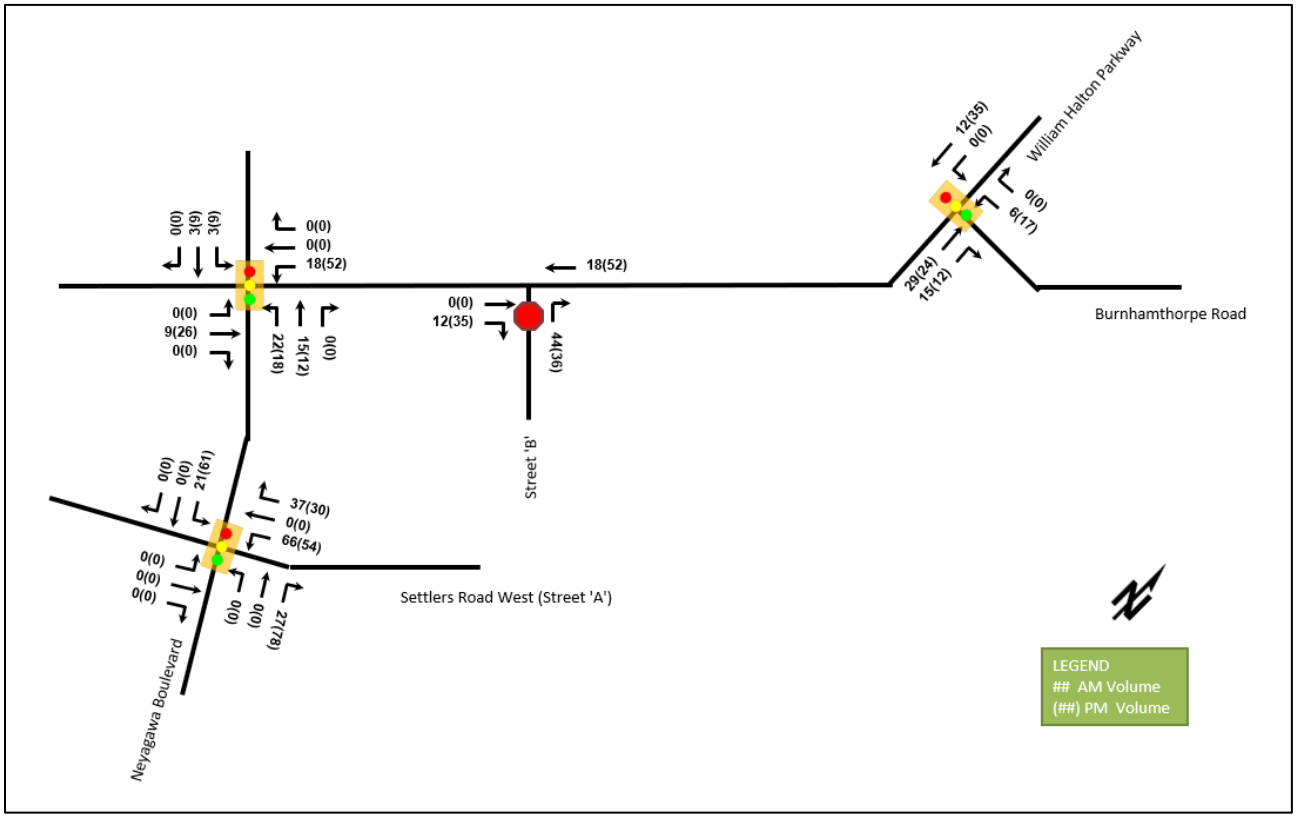
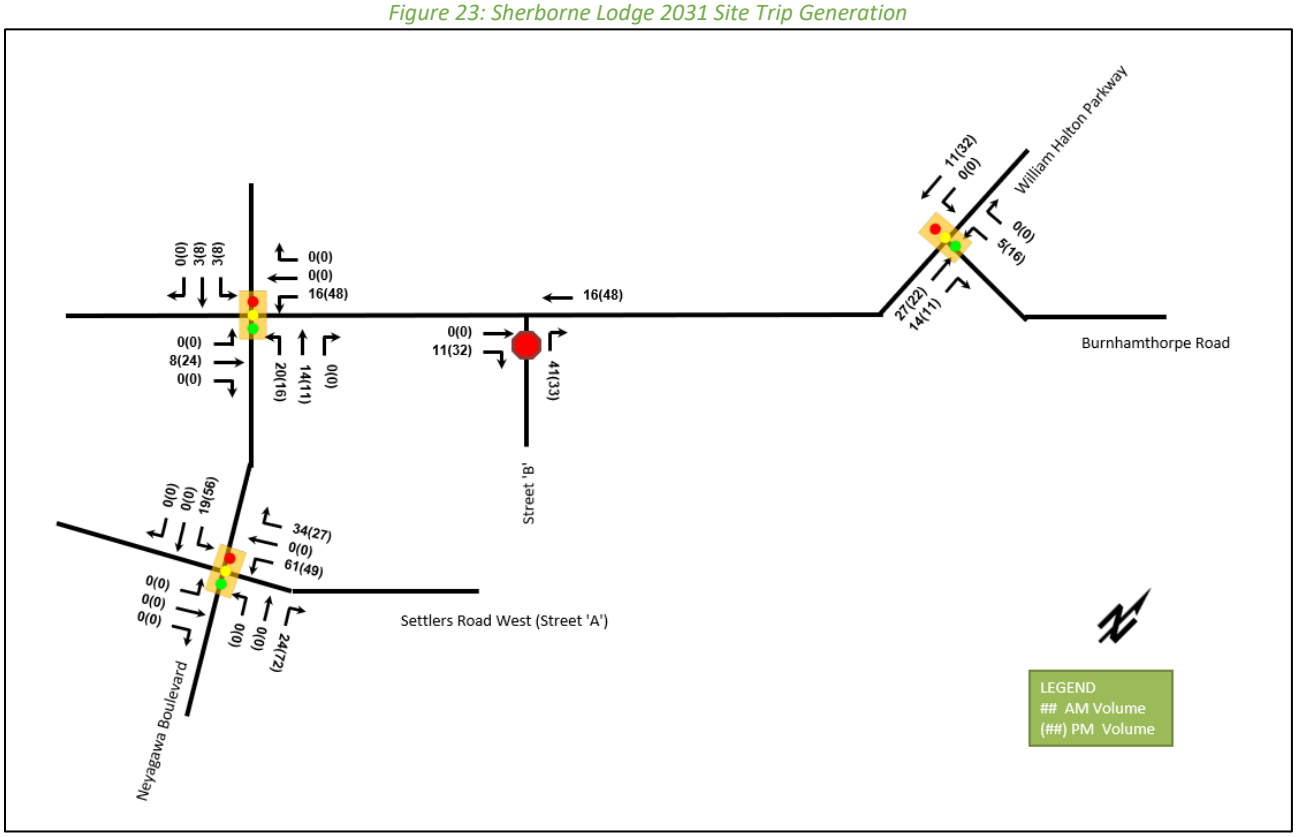


Figure 23: Sherborne Lodge 2031 Site Trip Generation



3.3 Background Growth

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

3.4 Future Background Traffic Volumes

Using the background growth rate, the balanced turning movement volumes were grown along Neyagawa Boulevard, Burnhamthorpe Road, and Sixth Line to reflect the 2026 and 2031 Future Background traffic volumes. Additionally, at Neyagawa Boulevard and Burnhamthorpe Road the volumes have been increased to reflect the future eastbound and westbound volumes on William Halton Parkway. As discussed in Section 3.1.1, future anticipated volumes along WHP were provided by Halton Region. It was assumed that these volumes account for growth in through traffic in the Study Area, and therefore, background growth rate was not applied along William Halton Parkway. To reflect that William Halton Parkway will replace the functionality of Burnhamthorpe Road, the eastbound and westbound traffic volumes on Burnhamthorpe Road have been reduced as the new facility will carry that traffic. This was done by assuming that traffic that is eastbound and westbound through Neyagawa Boulevard would utilize the new William Halton Parkway whereas most traffic that is turning at any of the intersections along Burnhamthorpe Road, including Neyagawa Boulevard, would remain on Burnhamthorpe Road. Using these assumptions, traffic from Burnhamthorpe Road was reassigned and layered onto the background growth. Figure 24 illustrates the 2025 Future Background traffic volumes. Figure 25 illustrates the 2030 Future Background traffic volumes.

Figure 24: 2026 Future Background Traffic Volumes

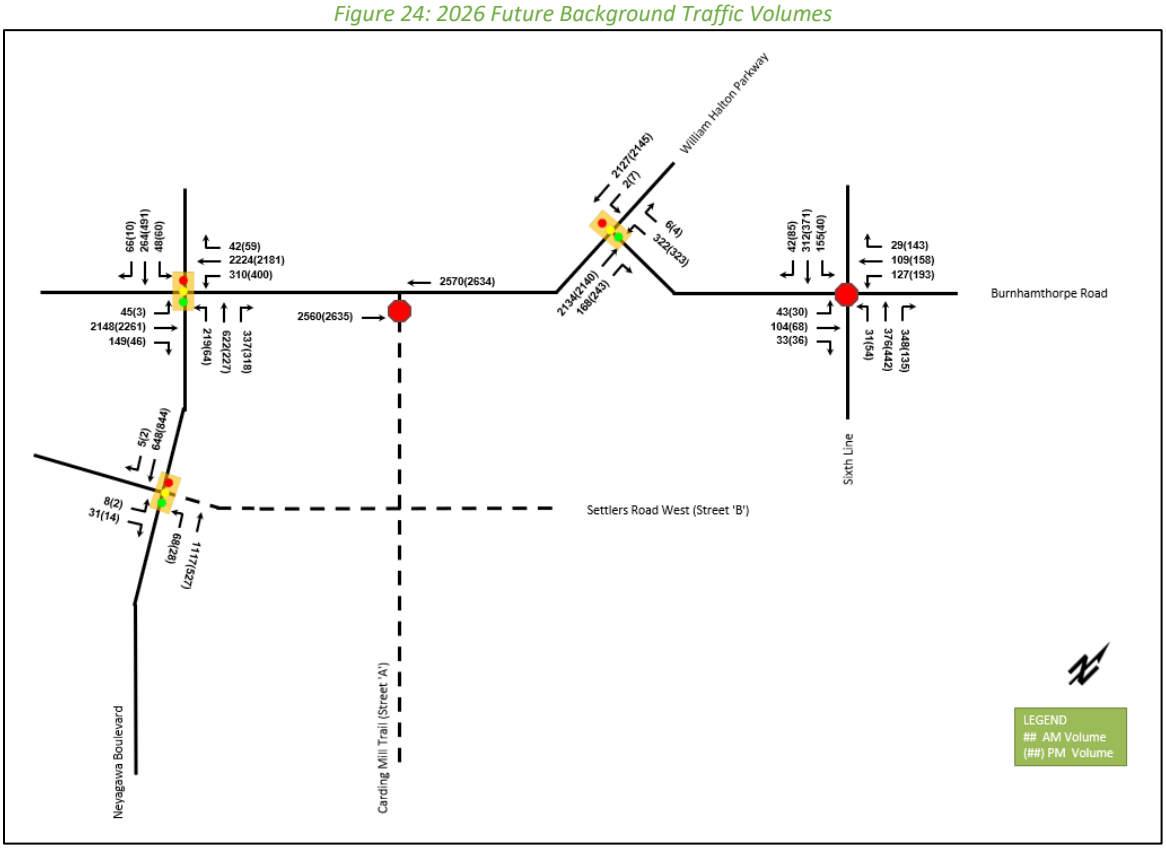
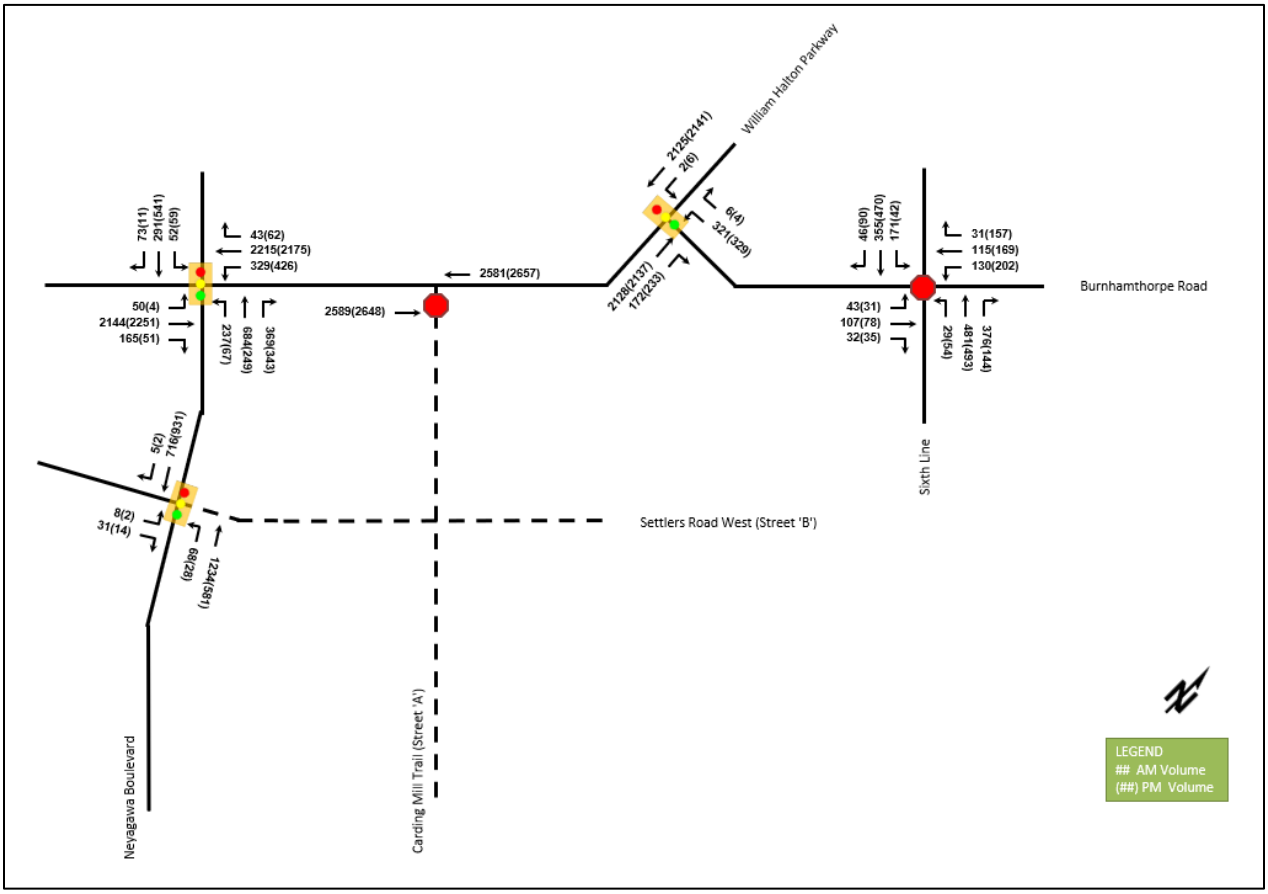


Figure 25: 2031 Future Background Traffic Volumes



4 Forecasting

4.1 Trip Generation and Mode Shares

The ITE Trip Generation Manual 10th Edition has been reviewed to determine the appropriate trip generation rate equations for the proposed land uses. The rate equations were used to determine appropriate vehicle trip generation rates for the residential portion of the development, and average trip rates were used for the commercial component. The Multifamily Housing (Low-Rise) is used to estimate trips for street townhouses and lane-based townhouses. Table 2 summarizes the ITE Trip Generation Equations and directional splits for each land use.

Table 2: ITE Equations and Directional Splits

Land Use (LUC)	AM Peak hour			PM Peak Hour		
	Equation	In %	Out %	Equation	In %	Out %
Single Family Detached (210)	$T = 0.71(X) + 4.8$	25%	75%	$\ln(T) = 0.96\ln(T) + 0.20$	63%	37%
Multifamily Housing (Low-Rise) (220)	$\ln(T) = 0.95\ln(T) - 0.51$	23%	77%	$\ln(T) = 0.89\ln(T) - 0.02$	63%	37%
Multifamily Housing (Mid-Rise) (221)	$\ln(T) = 0.98\ln(T) - 0.98$	26%	74%	$\ln(T) = 0.96\ln(T) - 0.63$	61%	39%
Shopping Centre (820)	-	62%	38%	-	48%	52%

Using the above equations, the base vehicle trip rates for each development were calculated. These are converted to person trips using the 1.28 factor. Table 3 summarizes the person trip rates for the proposed land uses.

Table 3: ITE Trip Generation Person Trip Rates

Property	Dwelling Type	ITE LUC	Unit Count / GFA (s.f)	Peak Hour	Vehicle Trip Rate	Person Trip Rates
Remington Eno	Single Family Detached	210	290	AM	0.73	0.93
				PM	0.97	1.24
	Multifamily Housing (Low-Rise)	220	307	AM	0.45	0.58
				PM	0.52	0.67
	Multifamily Housing (Mid-Rise)	221	295	AM	0.34	0.44
				PM	0.43	0.55
	Shopping Centre	820	15,000	AM	0.94	1.2
				PM	3.81	4.88

LUC – Land Use Code

Using the above Person Trip rates, the total person trip generation has been estimated. Table 4 below illustrates the total person trip generation by land use.

Table 4: Total Person Trip Generation

Land Use	Units/GFA (s.f.)	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Single Family Detached	292	68	204	272	228	134	362
Multifamily Housing (Low-Rise)	309	41	138	179	130	77	207
Multifamily Housing (Mid-Rise)	295	32	92	124	97	62	159
Shopping Centre	15,000	11	7	18	35	38	73
Total Person Trips		152	441	593	490	311	801

To account for trips that are made within the proposed Mid-Rise Building (i.e. a building resident using retail portion of the mid-rise before coming home from work), an internal capture rate has been applied to the total person trip generation of the Retail land use. The ITE Trip Generation Handbook (3^{d} Edition) provides the internal trip capture rates for trip origins and destinations within a mixed-use development and can be found in Appendix F.

The Residential portion is the largest use of the Mid-Rise Apartment Building. Therefore, this land use is treated as the anchor for this part of the development and is not reduced based on the multi-use capture rate. The commercial portion of the development, which generates a lower number of trips, has been reduced to reflect building residents utilizing the on-site retail stores. The internal capture rates for the Residential and Retail uses are summarized in Table 5. The total net person trip generation can be seen in Table 6.

Table 5: Internal Capture Rates

Land Use	AM Peak Hour		PM Peak Hour	
	In	Out	In	Out
Residential to/from Retail	17%	14%	10%	26%

Table 6: Total Net Person Trip Generation

Land Use	Units/GFA (s.f.)	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Single Family Detached	290	68	204	272	228	134	362
Multifamily Housing (Low-Rise)	307	41	138	179	130	77	207
Multifamily Housing (Mid-Rise)	295	32	92	124	97	62	159
Shopping Centre	15,000	11	7	18	35	38	73
Shopping Centre Internal Capture Reduction	-	*-2*	*-1*	*-3*	*-4*	*-10*	*-14*
Shopping Centre (Net)	15,000	9	6	15	31	28	59
Total Person Trips		**150**	**440**	**590**	**486**	**301**	**787**

Mode share information for transit and active trips has been provided by Halton Region staff for 2026 and 2031. The total sum of auto and auto passenger mode shares has been calculated using these mode shares and split into two categories using the 2011 TTS auto driver to auto passenger mode ratio. Mode share information for 2026 and 2031 is summarized in Table 7.

Table 7: Mode Share Assumptions

Travel Mode	2026 Mode Share	2031 Mode Share
Auto Driver	65%	60%
Auto Passenger	15%	15%
Transit	15%	20%
Non-Auto	5%	5%
Total	100%	100%

Using the above mode shares and person trip rates, the person trips by mode have been projected. Table 8 summarizes the 2026 trip generation by mode.

Table 8: 2026 Trip Generation by Mode

Travel Mode	Mode Share	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Auto Driver	65%	97	285	383	316	194	510
Auto Passenger	15%	23	67	90	74	45	119
Transit	15%	23	67	90	74	45	119
Non-Auto Modes	5%	8	22	30	25	16	41
Total	**100%**	150	440	590	486	301	787

Table 9 summarizes the 2031 trip generation by mode.

Table 9: 2031 Trip Generation by Mode

Travel Mode	Mode Share	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Auto Driver	60%	90	263	352	292	180	472
Auto Passenger	15%	23	67	90	74	45	119
Transit	20%	30	88	119	97	61	158
Non-Auto Modes	5%	8	22	30	25	16	41
Total	**100%**	150	440	590	486	301	787

As shown above, 590 AM and 787 PM peak hour two-way person trips are projected as a result of the proposed development. With the shift in mode share anticipated between the 2026 horizon and the 2031 horizon, the total number of auto drivers would be reduced. In 2026, the development is expected to generate 383 AM and 510 PM

peak hour two-way vehicle trips, while in 2031, the net new auto trips will be reduced to a total of 352 AM and 472 PM two-way vehicle trips.

4.2 Trip Distribution

To understand the travel patterns of the subject development the 2011 Transportation Tomorrow Survey (TTS) has been reviewed to determine the existing travel patterns for Oakville. This methodology is consistent with the TISs of Neighborhood 9/10/11 and Sherborne Lodge prepared by CGH Transportation in 2020 and 2021, respectively. Table 10 below summarizes the distribution.

Table 10: OD Survey – Oakville

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

4.3 Trip Assignment

Using the distribution outlined above, turning movement splits, and access to major transportation infrastructure that will be in place during the full build-out, the trips generated by the site have been assigned to the Study Area road network. The total 2026 and 2031 site generated traffic volumes for the proposed development are summarized in Figure 26 and Figure 27, respectively.

Figure 26: New Site Generated Auto Volumes - 2026

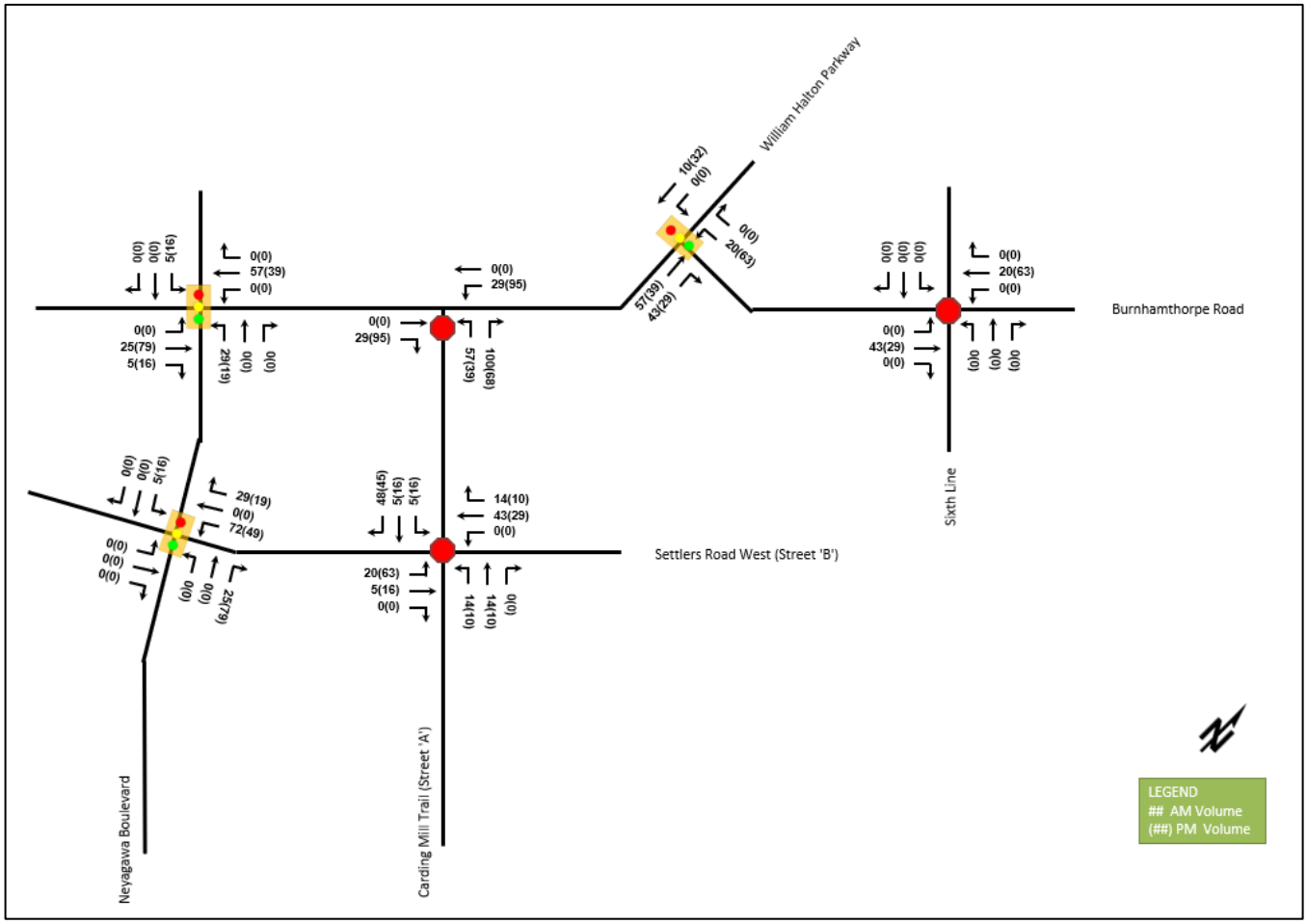
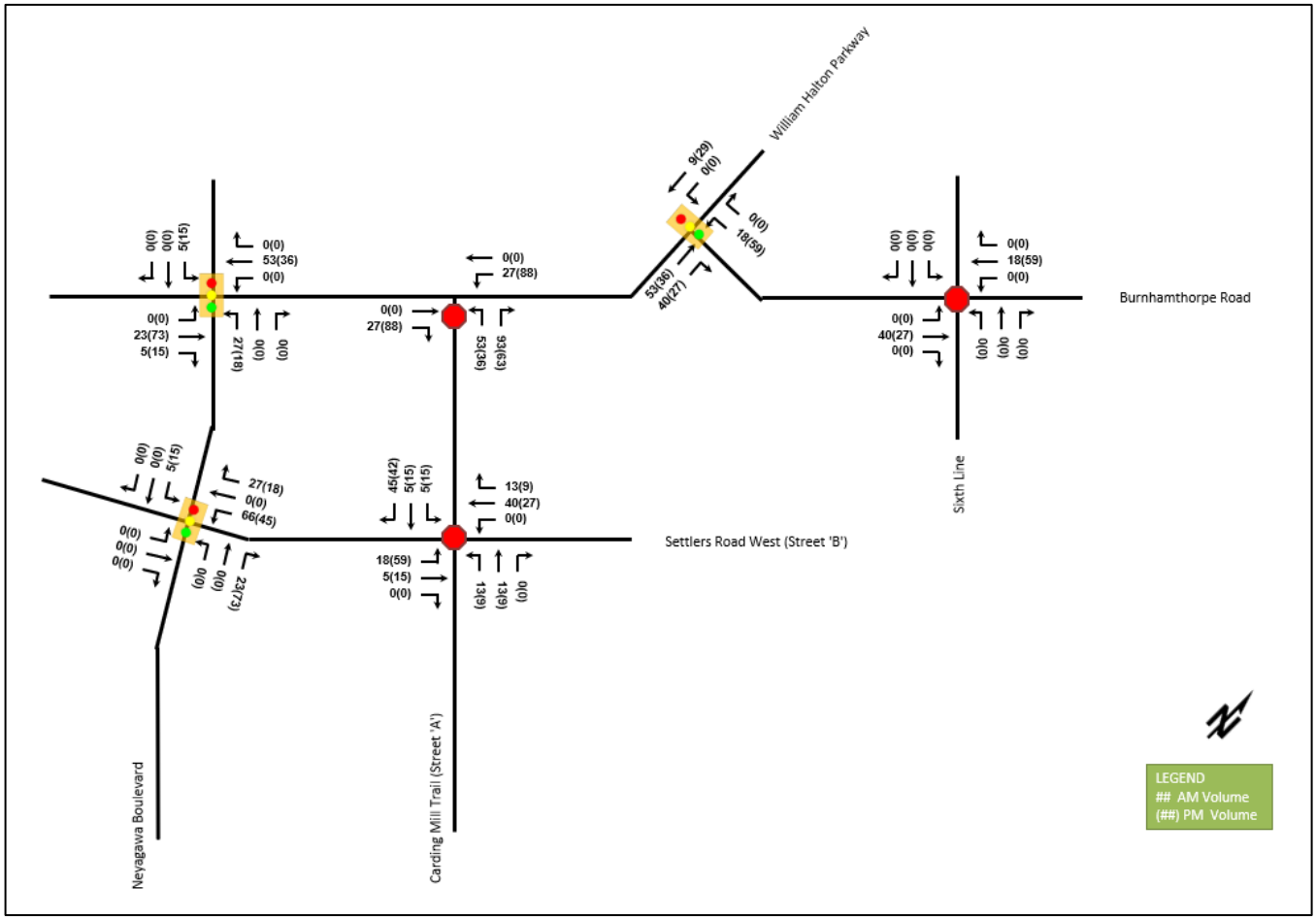


Figure 27: New Site Generated Auto Volumes - 2031



4.4 Future Total Travel Demands

The site generated traffic has been combined with the 2026 and 2031 Future Background traffic volumes to estimate the Future Total traffic volumes. The 2026 and 2031 total future traffic volumes are illustrated in Figure 28 and Figure 29, respectively.

Figure 28: 2026 Future Total Traffic Volumes

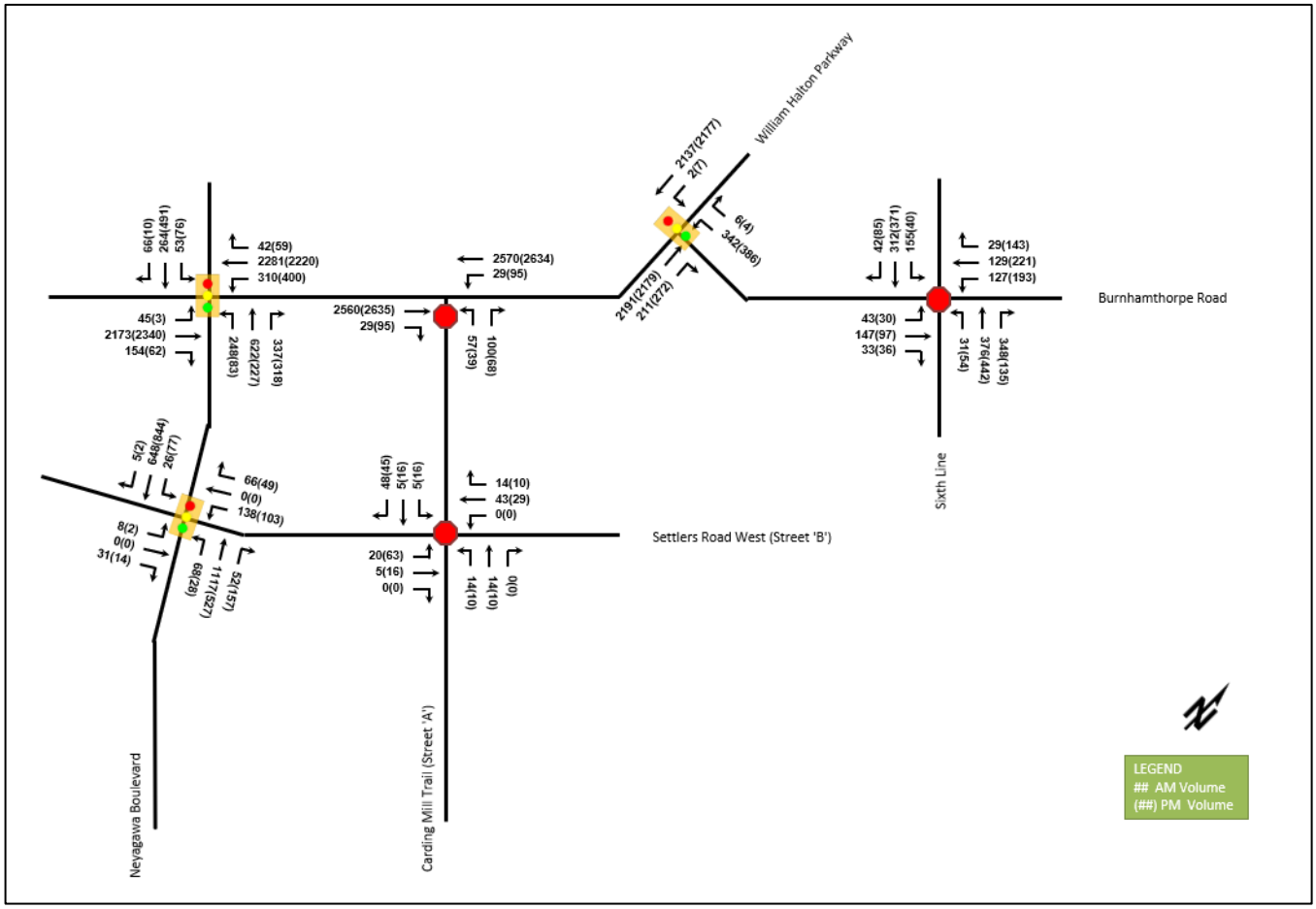
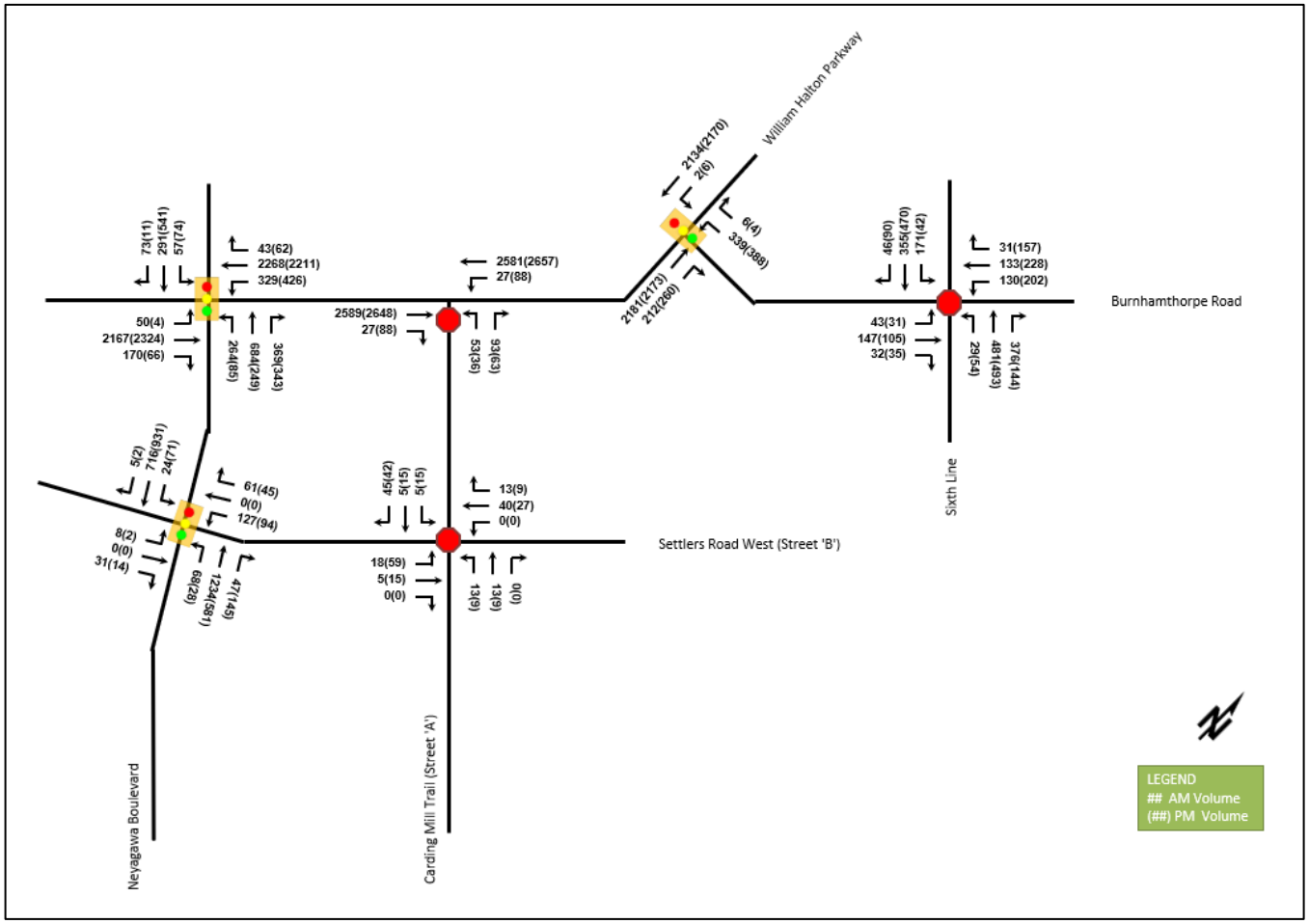


Figure 29: 2031 Future Total Traffic Volumes

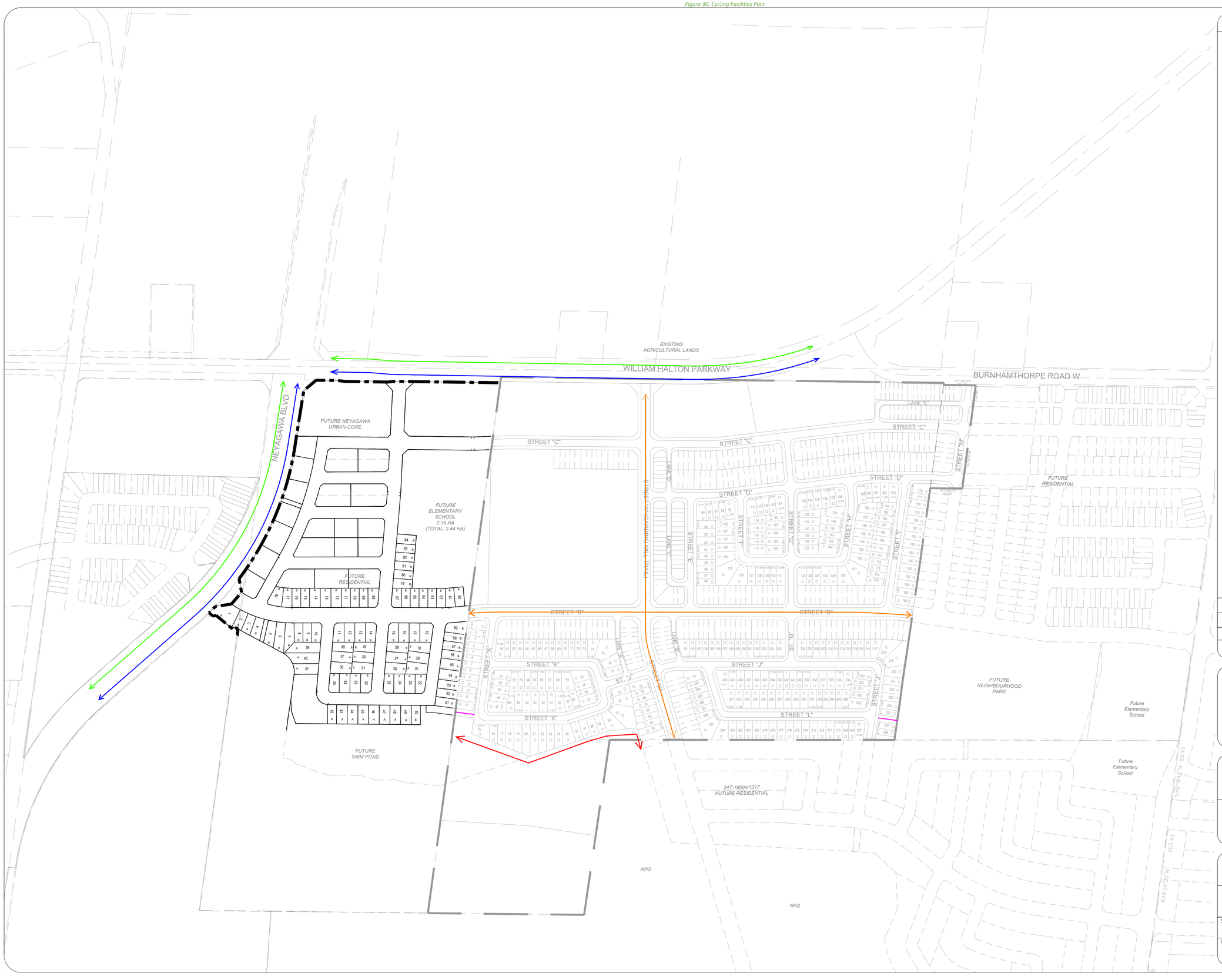


5 Development Design

5.1 Transportation Demand Management

The proposed developments are residential units with a mix of unit types including primarily detached single family homes and townhouse or semi-detached units. In these types of development one of the most effective Transportation Demand Management (TDM) measures are access and usability of transit, cycling, and pedestrian facilities. To this end the following plans have been created to illustrate the appropriate cycling (Figure 30), transit (Figure 31), and pedestrian (Figure 32) facilities. Location of nearby transit stops beyond the limits of the proposed subdivision along the future William Halton Parkway have been identified by the Town of Oakville staff as part of the first submission response and have been included within the Transit Facilities Plan in Figure 31.

Figure 30: Cycling Facilities Plan



Notes:

LEGEND:

- Signed Route
- Bicycle Lane
- Multi Use Pathway
- Major Trail
- Pathway Connections
- Multi-Use Trail

REV:	DESCRIPTION:	BY:	DATE:
02	Issued for Review	AN	2023-06-21
01	Issued for Review	BB	2021-10-18

STATUS:

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

CLIENT: Eno Investments Limited
Remington Group

ARCHITECT:

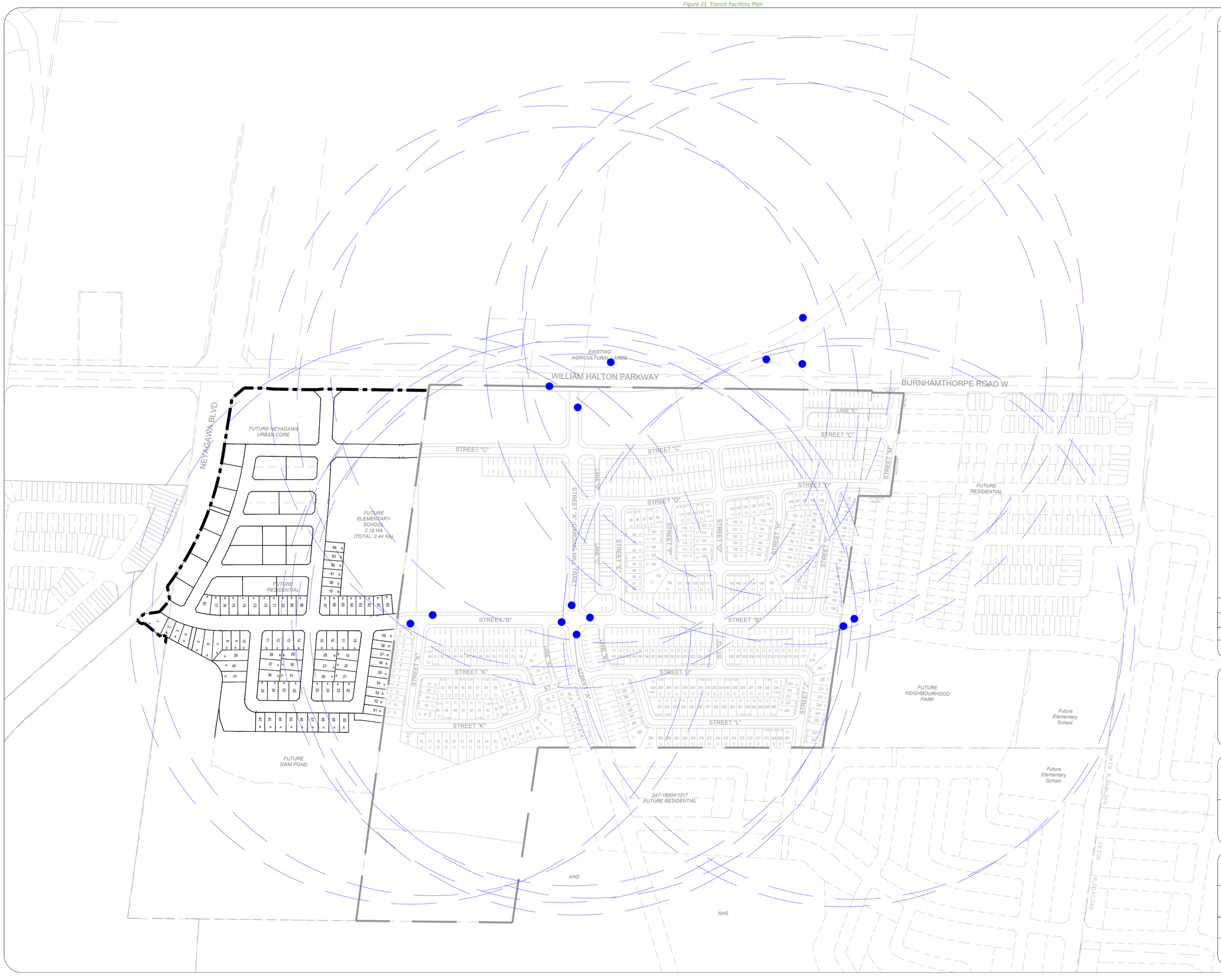
SITE: North Oakville

TITLE: Cycling Facilities Concept Plan

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2023-06-21	AN	AL

PROJECT NO:	DRAWING NO:	REVISION:
2020-60	003	02

Figure 31: Transit Facilities Plan



Notes:

LEGEND:

400m Transit Walking Distance

REV:	DESCRIPTION:	BY:	DATE:
02	Issued for Review	AN	2023-06-21
01	Issued for Review	BB	2021-10-18

STATUS:

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

CLIENT: Eno Investments Limited
Remington Group

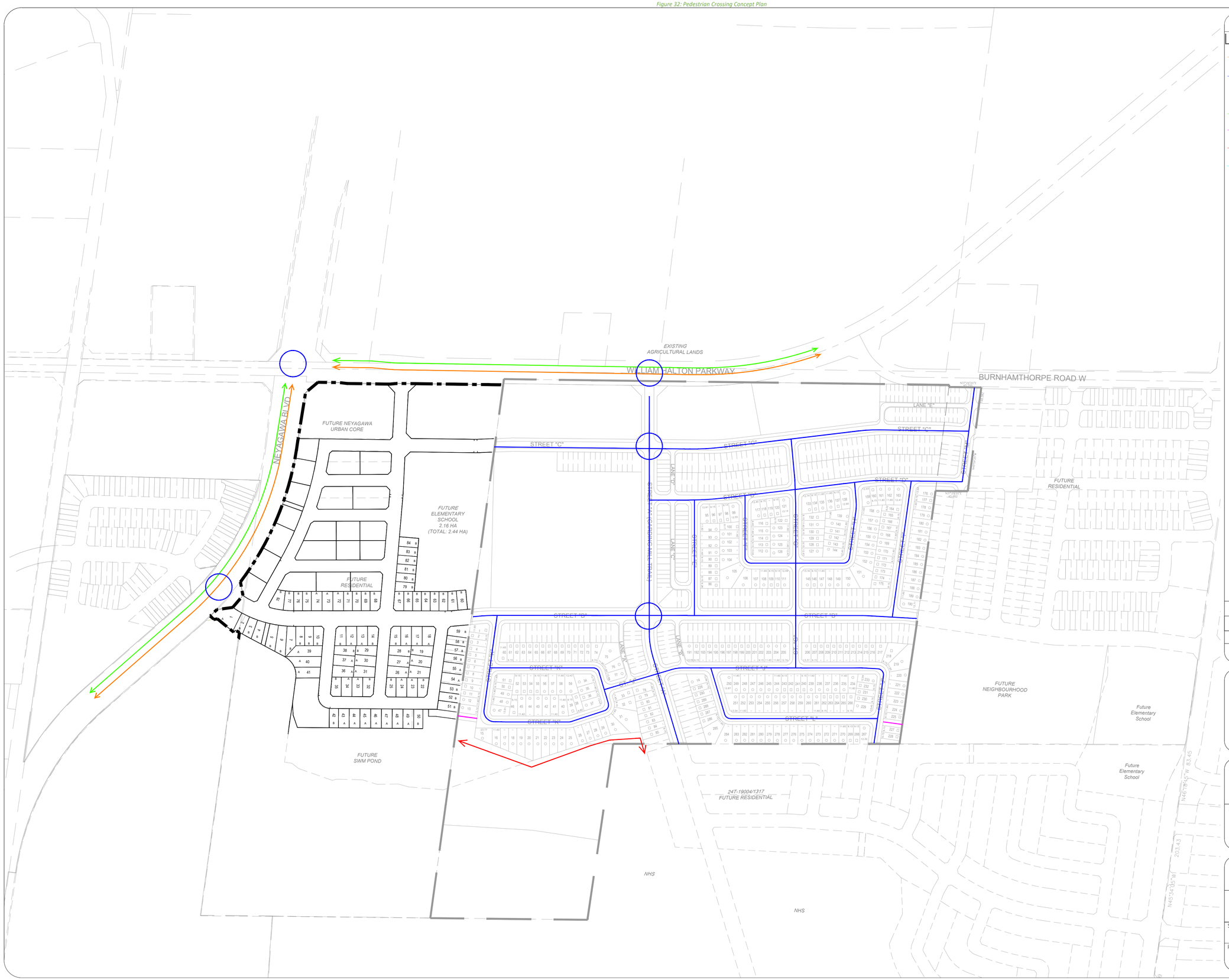
ARCHITECT:

SITE: North Oakville

TITLE: Transit Facilities Concept Plan

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2023-06-21	AN	AL
PROJECT NO:	DRAWING NO:		REVISION:
2020-60	001		02

Figure 32: Pedestrian Crossing Concept Plan



Notes:

LEGEND:

- Single Side Sidewalk
- Both Side Sidewalk
- Pedestrian Crossing
- Multi Use Pathway
- Pathway Connections
- Major Trail
- Multi-Use Trail

REV:	DESCRIPTION:	BY:	DATE:
02	Issued for Review	AN	2023-06-21
01	Issued for Review	BB	2021-10-18

STATUS:

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

CLIENT: Eno Investments Limited
Remington Group

ARCHITECT:

SITE: North Oakville

TITLE: Sidewalk Facilities Concept Plan

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2023-06-21	AN	AL

PROJECT NO:	DRAWING NO:	REVISION:
2020-60	002	02

5.2 Parking

The low-rise component of the proposed development is a residential subdivision and therefore the resident parking areas will be within each resident's home. These parking spaces will be provided as prescribed in the zoning bylaw based on each dwelling type. Additionally, 349 on-street parking stalls will be provided throughout the subdivision. The location and number of on-street parking stalls is subject to minor changes and will need to be refined as part of the detailed engineering submission once curb locations, utilities, and fire hydrants have been established. The proposed parking concept plan provided by Korsiak Planning can be found in Appendix G. The off-street parking requirements and provisions for the mixed-use component of the proposed development will be reviewed in later stages through the Site Plan Application (SPA) process. In case where the mid-rise building parking provisions will deviate from the Bylaw requirements, it has been assumed that a justification will be provided through the SPA process.

5.3 Development Access

Access to the development will be accommodated via signalized intersection of Neyagawa Boulevard at Settlers Road West (Site Access #1), and future intersection of William Halton Parkway at Carding Mill Trail (Site Access #2). Site Access #2 will be located 300 metres west of William Halton Parkway and Burnhamthorpe Road intersection (measured stop bar to stop bar) and will be a full-movement access.

Using TAC Geometric Guide for Canadian Roads, the spacing between Site Access #2 and Burnhamthorpe Road has been checked for suggested minimum corner clearances. It has been found that the suggested minimum clearance is 70 metres for an arterial road with an operating speed of 50 km/hr. To account for a higher expected operating speed along William Halton Parkway, the required corned clearance has been multiplied by a conservative factor of 1.5, which results in 105 metres of required corner clearance. Site Access #2 meets this guideline. The location of Site Access #2 has also been checked against the Halton Region Access management Guidelines. According to Table 1, the minimum spacing for a full-movement access along William Halton Parkway (C2 corridor) is 300 metres, measures from stop bar to stop bar. Thus, Site Access #2 meets this requirement.

Using OTM Book 12 Justification 7, and the volume projections herein, the traffic control signal warrant for Site Access #2 has been examined during 2026 and 2031 Future Total horizons. It has been found that signals are not warranted using Justification 7. The requirement for signals at this location will be further examined as part of the Future Total scenario operational analysis. The signalization warrants can be found in Appendix H.

A westbound left-turn lane and an eastbound right-turn lane will be implemented at Site Access #2 to facilitate movements from William Halton Parkway and onto Carding Mill Trail, as required by Halton Region Access Management Guidelines. Based on left-turning and right-turning volumes and storage requirements at Site Access #2, minimum taper and storage lengths will need to be applied when designing the auxiliary turn lanes. Additionally, left-turn lane warrants for unsignalized intersections were examined at the northbound approach of Site Access #2. To determine if a northbound left-turn lane is warranted, the MTO Geometric Design Standards for Ontario Highways, Section E, left-turn lane warrant nomographs were examined. It was determined that a northbound left-turn lane is not warranted in either 2026 or 2031 Future Total horizon. Left-turn lane nomographs have been provided in Appendix I.

5.4 Future High Density Block Waste Route

The proposed concept plan for the high-density blocks of the property account for an appropriate waste route, including 13 metre radius corners. This is illustrated in Appendix J. As part of a future Site Plan Application for these lands truck turning templates will be undertaken to confirm the truck circulation.

5.5 Intersections within the Subdivision

The future intersection of Settlers Road West and Carding Mill Trail is located within the proposed development. Using the Ontario Traffic Manual (OTM) Book 12 Justification 7 methodology, Traffic Control Signal Warrants have been examined at this intersection during 2026 and 2031 Future Total horizons. It was determined that signals are not warranted at this intersection in either horizon. Signal warrants can be found in Appendix H.

The need for an all-way stop control (AWSC) was also evaluated at Settlers Road West and Carding Mill Trail intersection using the Ontario Traffic Manual Book 5 methodology. At this intersection, the total vehicle volume on all intersection approaches in 2025 and 2030 Future Total scenarios does not exceed 350 during peak hours, and the volume split does not exceed 65/35. As such, only one condition (volume split) for an all-way stop control is met and an AWSC is not warranted at the subject intersection. However, as other similar existing major intersections along N Park Boulevard and Sixteen Mile Drive have all-way stop control, to remain consistent with the area, the internal intersection of Settlers Road West and Carding Mill Trail has been assumed to have an all-way stop control.

Additionally, left-turn lane warrants for unsignalized intersections were examined at the internal site intersection. To determine if a left-turn lane is warranted, the MTO Geometric Design Standards for Ontario Highways, Section E, left-turn lane warrant nomographs were examined. Left turn lanes were not warranted in either 2026 or 2031 Future Total horizons. Left-turn lane nomograms have been provided in Appendix I.

6 Operational Analysis

To understand the operational characteristics of the Study Area intersections, a Synchro model has been created using Trafficware's Synchro (Version 11). The Synchro model has been coded using the existing traffic signal timing, provided by Halton Region. Peak Hour factors (PHF) have been calculated based on the existing turning movement counts. Where peak hour 15-minute increments were not available, or at new intersections, a default PHF of 0.92 was used. The Heavy Vehicle percentage (HV %) has been calculated for each turning movement at the Study Area intersection. All Heavy Vehicle percentages calculated to be less than 2% were entered into the Synchro model as 2% in order to produce a conservative analysis. These calculations are shown in Appendix K. All other parameters have been coded using accepted best practices and default parameters where applicable.

6.1 2021 Existing Conditions

The existing intersection volumes have been analyzed to establish a baseline condition and determine the impact of the subject development as well as the surrounding background developments on the Study Area road network. Table 11 summarizes the operational analysis of the 2021 existing conditions. Appendix L contains the 2021 Existing Conditions Synchro Sheets.

Table 11: 2021 Existing Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour					PM Peak Hour				
		LOS	V/C	Del (s)	Q (50th)	Q (95th)	LOS	V/C	Del. (s)	Q (50th)	Q (95th)
Burnhamthorpe Road at Neyagawa Boulevard *(Signalized)*	EBL	D	0.33	48	9	20	D	0.02	41	1	3
	EBT	D	0.20	42	7	14	D	0.10	42	4	9
	EBR	B	0.50	13	0	18	A	0.17	1	0	0
	WBL	D	0.67	40	41	63	F	1.08	110	~59	#121
	WBT	C	0.11	29	8	14	C	0.04	30	2	6
	WBR	A	0.03	0	0	0	A	0.11	2	0	2
	NBL	A	0.27	8	13	19	A	0.07	6	3	5
	NBT	B	0.31	11	22	28	A	0.10	8	8	9
	NBR	A	0.31	2	<1	8	A	0.24	1	0	4
	SBL	A	0.08	8	2	7	A	0.03	6	1	4
	SBT	B	0.16	16	15	26	B	0.22	11	26	36
	SBR	A	0.08	0	0	1	A	0.01	0	0	0
	Overall	***B***	-	***16***	-	-	***C***	-	***30***	-	-
Burnhamthorpe Road at Sixth Line *(Unsignalized)*	EBL/T/R	F	1.21	107	-	106	E	0.86	44	-	56
	WBL/T/R	E	0.91	47	-	50	F	1.09	101	-	119
	NBL/T/R	F	1.27	131	-	128	F	0.99	66	-	84
	SBL/T/R	F	1.28	139	-	131	D	0.76	34	-	43
Neyagawa Boulevard at Settlers Road West *(Signalized)*	EBL	D	0.07	42	2	7	D	0.01	41	<1	3
	EBR	A	0.11	1	0	0	A	0.05	0	0	0
	NBL	A	0.14	3	3	7	A	0.05	2	0	3
	NBT	A	0.42	3	37	40	A	0.15	2	0	15
	SBT/R	A	0.24	2	22	15	A	0.25	1	0	12
	Overall	***A***	-	***3***	-	-	***A***	-	***1***	-	-
Notes:	~ - volume exceeds capacity, queue is theoretically infinite # - 95% percentile volume exceeds capacity										

The operational performance of Burnhamthorpe Road at Neyagawa Boulevard intersection is satisfactory with an overall LOS B and C during the AM and PM peak periods, respectively. As a result of high turning volumes, the LOS of westbound left-turn movement at this intersection is F, with a V/C ratio of 1.08. The intersection of Neyagawa Boulevard at Settlers Road West operates well with an overall LOS A during peak periods.

The unsignalized intersection of Sixth Line and Burnhamthorpe Road, currently operating with an all-way stop control, was shown to operate poorly with very high delays, high V/C ratios, and poor LOS. This intersection will be signalized as part of the widening of Sixth Line. This upgrade will be analysed as part of the 2026 Future Background conditions along with the impacts of the widening on the road network.

6.2 2026 Future Background Conditions

The 2026 Future Background conditions have been examined to determine the future traffic conditions without the addition of the proposed development. This will isolate the impact of the subject development on the traffic network. Table 12 summarizes the operational analysis of 2026 Future Background conditions. Due to the large change in volumes at the intersection of Neyagawa Boulevard at William Halton Parkway (formerly the intersection of Neyagawa Boulevard at Burnhamthorpe Road) the signal timing splits, cycle length, and phasing have been adjusted. The intersection geometry of William Halton Parkway and Neyagawa Boulevard has been confirmed with the William Halton Parkway Capital Works Project staff. The email correspondence with the WHP design team can be seen in Appendix M. The intersection geometry at William Halton Parkway and Burnhamthorpe Road as well as Sixth Line at Burnhamthorpe Road was coded in Synchro according to the Burnhamthorpe Road Character Study and Municipal Class Environmental Assessment (MMM Group, 2014). An excerpt of the Preliminary Design has been included in Appendix N. Synchro worksheets are included as Appendix O.

Table 12: 2026 Future Background Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour					PM Peak Hour				
		LOS	V/C	Del (s)	Q (50th)	Q (95th)	LOS	V/C	Del. (s)	Q (50th)	Q (95th)
William Halton Parkway (former Burnhamthorpe Road) at Neyagawa Boulevard *(Signalized)*	EBL	E	0.66	74	9	#30	C	0.04	30	1	3
	EBT	F	2.24	583	~408	#452	F	2.74	805	~451	#495
	EBR	A	0.30	10	6	21	A	0.10	0	0	0
	WBL	F	1.23	156	~68	#124	F	1.82	406	~118	#180
	WBT	F	1.57	285	~370	#414	F	1.77	374	~382	#426
	WBR	A	0.06	1	0	2	A	0.10	4	0	6
	NBL	C	0.52	21	21	36	B	0.17	12	7	14
	NBT	C	0.58	28	62	82	B	0.18	19	18	27
	NBR	A	0.48	5	19	29	A	0.41	5	0	34
	SBL	B	0.20	18	6	13	B	0.12	13	7	14
	SBT	C	0.27	27	23	34	C	0.38	23	41	56
	SBR	A	0.13	1	0	2	A	0.02	0	0	0
	Overall	***F***	-	***305***	-	-	***F***	-	***461***	-	-
	Mitigation Measures: Three through lanes eastbound and westbound, westbound and eastbound dual left turn lanes, 130s cycle length										
	EBL	E	0.38	70	7	14	E	0.02	61	<1	2
	EBT	D	0.98	46	220	#263	D	0.98	47	232	#276
	EBR	A	0.20	7	7	20	A	0.06	0	0	0
	WBL	F	0.98	103	48	#79	F	0.97	92	61	#95
	WBT	C	0.89	31	208	234	B	0.74	18	141	198
	WBR	A	0.05	2	0	4	A	0.07	3	0	6
	NBL	E	0.87	74	61	#111	E	0.62	70	17	#40
	NBT	D	0.68	46	85	108	D	0.29	41	29	41
	NBR	C	0.67	33	57	94	C	0.67	28	41	77
	SBL	E	0.53	62	12	#30	D	0.26	43	14	29
	SBT	D	0.30	38	32	45	D	0.62	48	68	88
	SBR	A	0.14	3	0	6	A	0.02	0	0	0
	Overall	***D***	-	***42***	-	-	***D***	-	***38***	-	-
Burnhamthorpe Road at Sixth Line *(Signalized)*	EBL	C	0.22	35	8	17	C	0.16	30	5	12
	EBT/R	D	0.46	37	12	21	C	0.39	33	8	16
	WBL	D	0.62	49	25	41	D	0.63	40	36	56
	WBT/R	C	0.32	34	12	22	C	0.46	22	17	30
	NBL	B	0.07	12	3	9	A	0.11	8	4	10
	NBT/R	A	0.40	9	29	50	A	0.28	8	24	36
	SBL	A	0.36	7	10	18	A	0.09	8	3	8
	SBT/R	A	0.16	5	11	18	A	0.22	7	19	28
	Overall	***B***	-	***16***	-	-	***B***	-	***16***	-	-
Neyagawa Boulevard at Settlers Road West *(Signalized)*	EBL	D	0.06	42	2	7	D	0.01	41	<1	3
	EBR	B	0.20	16	0	8	B	0.10	20	0	6
	NBL	A	0.15	3	4	7	A	0.07	2	0	3
	NBT	A	0.46	4	44	47	A	0.20	2	0	18
	SBT/R	A	0.26	3	28	24	A	0.32	1	1	15
	Overall	***A***	-	***4***	-	-	***A***	-	***2***	-	-

Intersection	Mvmnt	AM Peak Hour					PM Peak Hour				
		LOS	V/C	Del (s)	Q (50th)	Q (95th)	LOS	V/C	Del. (s)	Q (50th)	Q (95th)
William Halton Parkway at Burnhamthorpe Road *(Signalized)*	EBT	C	0.97	32	264	#371	C	0.97	33	267	#373
	EBR	A	0.17	6	10	22	A	0.24	6	15	31
	WBL	A	0.03	10	<1	1	B	0.13	15	1	4
	WBT	C	0.97	31	262	#369	C	0.97	33	269	#374
	NBL	E	0.84	62	83	113	E	0.84	62	83	113
	NBR	B	0.02	18	0	4	B	0.01	20	0	3
	Overall	***C***	**-**	***33***	**-**	**-**	***C***	**-**	***33***	**-**	**-**
Notes:	~ - volume exceeds capacity, queue is theoretically infinite # - 95% percentile volume exceeds capacity										

It has been noted that the 95th percentile cycle exceeds capacity on several approaches and time periods at Study Area intersections along William Halton Parkway. However, as V/C ratio for these movements is less than one, it can be assumed that the 95th percentile queue will rarely be exceeded.

The signalized intersection of Neyagawa Boulevard at William Halton Parkway will be over capacity and experience high delays on eastbound and westbound approaches with the projected volumes provided by Halton Region staff. To address these capacity constraints signal timing changes were explored, however, these measures were not able to process the significant volume of traffic passing through this intersection. By adding a third through lane in both the eastbound and westbound directions as well as westbound and eastbound double left turn lanes the delays were reduced and the V/C ratio at all movements was brought below 1.0. Further, different timings were tested at the westbound left-turn to improve the LOS of this movement but any increase in time allocated to the dual left turn lanes decreased time available for the eastbound and westbound through movements. As William Halton Parkway is proposed to be a key arterial corridor, the east-west major flow was prioritized over turning movements and minor streets. William Halton Parkway is currently under construction and therefore the projections provided by the Region, should be re-evaluated with updated traffic data prior to implementing any changes to the existing design of the William Halton Parkway.

Other Study Area intersections operate well with an overall LOS B at Burnhamthorpe Road at Sixth Line, Los C at William Halton Parkway at Burnhamthorpe Road, and LOS A at Neyagawa Boulevard and Settlers Road West. At William Halton Parkway and Burnhamthorpe Road, eastbound through and westbound through movements are projected to be nearing the capacity in the 2026 Future Background horizon as a result of high volumes along William Halton Parkway. The delay at these movements is within acceptable thresholds.

6.3 2031 Future Background Traffic Conditions

The 2031 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 13 summarizes the operational analysis of 2031 Future Background conditions. All mitigation measures previously discussed have been carried forward for the analysis of Future Background conditions. Synchro worksheets are included as Appendix P.

Table 13: 2031 Future Background Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour					PM Peak Hour				
		LOS	V/C	Del (s)	Q (50th)	Q (95th)	LOS	V/C	Del. (s)	Q (50th)	Q (95th)
William Halton Parkway (former Burnhamthorpe Road) at Neyagawa Boulevard *(Signalized)*	EBL	E	0.42	71	7	15	E	0.03	61	1	3
	EBT	D	1.01	54	~228	#270	D	0.98	47	232	#276
	EBR	A	0.23	8	8	22	A	0.07	1	0	1
	WBL	F	0.97	98	50	#82	F	0.97	89	69	#78
	WBT	C	0.90	32	210	236	B	0.73	12	82	130
	WBR	A	0.05	2	0	4	A	0.07	3	<1	1
	NBL	F	0.96	92	69	#125	F	0.85	111	19	#50
	NBT	D	0.73	46	95	119	D	0.32	42	32	45
	NBR	C	0.71	33	63	102	C	0.71	30	46	85
	SBL	F	0.68	81	14	#38	D	0.28	45	14	28
	SBT	D	0.32	37	35	49	D	0.70	50	77	98
	SBR	A	0.15	4	0	8	A	0.03	0	0	0
	Overall	***D***	-	***46***	-	-	***D***	-	***37***	-	-
Burnhamthorpe Road at Sixth Line *(Signalized)*	EBL	C	0.22	35	8	17	C	0.18	30	5	13
	EBT/R	D	0.45	37	12	21	C	0.41	34	9	18
	WBL	D	0.65	51	25	#43	D	0.66	41	38	58
	WBT/R	C	0.34	34	13	23	C	0.47	21	18	32
	NBL	B	0.07	13	3	9	A	0.13	9	4	11
	NBT/R	B	0.49	12	44	73	A	0.31	8	28	41
	SBL	A	0.44	8	11	20	A	0.11	8	3	9
	SBT/R	A	0.18	5	13	21	A	0.27	8	25	36
	Overall	***B***	-	***17***	-	-	***B***	-	***16***	-	-
Neyagawa Boulevard at Settlers Road West *(Signalized)*	EBL	D	0.06	42	2	7	D	0.01	41	<1	3
	EBR	B	0.20	16	0	8	B	0.10	20	0	6
	NBL	A	0.16	3	4	7	A	0.08	3	0	3
	NBT	A	0.51	4	52	55	A	0.22	2	0	20
	SBT/R	A	0.29	3	22	25	A	0.35	2	0	35
	Overall	***A***	-	***4***	-	-	***A***	-	***2***	-	-
William Halton Parkway at Burnhamthorpe Road *(Signalized)*	EBT	C	0.96	31	262	#369	C	0.96	22	350	#365
	EBR	A	0.17	6	10	22	A	0.23	1	5	8
	WBL	A	0.03	10	<1	1	B	0.12	14	1	3
	WBT	C	0.96	31	261	#368	C	0.96	31	289	#386
	NBL	E	0.84	62	82	112	E	0.88	70	92	#131
	NBR	B	0.02	18	0	4	C	0.01	22	0	3
	Overall	***C***	-	***32***	-	-	***C***	-	***28***	-	-
Notes:	~ - volume exceeds capacity, queue is theoretically infinite # - 95% percentile volume exceeds capacity										

It has been noted that the 95th percentile cycle exceeds capacity on several approaches and time periods at Study Area intersections along William Halton Parkway. However, as V/C ratio for these movements is less than one, it can be assumed that the 95th percentile queue will rarely be exceeded.

With the addition of background growth to project the 2031 Future Background traffic volumes at William Halton Parkway and Neyagawa Boulevard the delay increased, and the overall intersection level of service remained at LOS D. No mitigation measures have been proposed or applied to this intersection. As previously mentioned, the volume projections along William Halton Parkway provided by the Region are quite high. Further, it was noted by the Halton Region staff, that the transit mode share would increase over time, decreasing reliance on single occupant vehicles. While it is difficult to predict the impact of this effect, it would reduce not just the trips generated by any one site but should lower the rate of growth of traffic over time. The analysis has been presented without any reduction in the background traffic volumes to account for an increased transit mode share.

Other Study Area intersections operate well with V/C ratios and delays similar to the 2026 Future Background horizon. At William Halton Parkway and Burnhamthorpe Road intersection, eastbound through and westbound through movements are nearing capacity as a result of high volumes along William Halton Parkway with a V/C ratio of 0.97 and high delay.

6.4 2026 Future Total Conditions

The 2026 trip generation for the proposed developments has been added to the 2026 Future Background traffic volumes to project the impact of the new traffic on the future road network. The analysis parameters and mitigation measures proposed through the 2026 Future Background operational analysis have been carried forward as part of the analysis of 2026 Total Future conditions. Table 14 summarizes the results of the Synchro Analysis. Synchro worksheets have been included in Appendix Q.

Table 14: 2026 Total Future Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour					PM Peak Hour				
		LOS	V/C	Del (s)	Q (50th)	Q (95th)	LOS	V/C	Del. (s)	Q (50th)	Q (95th)
William Halton Parkway (former Burnhamthorpe Road) at Neyagawa Boulevard *(Signalized)*	EBL	E	0.38	70	7	14	E	0.02	61	<1	2
	EBT	D	1.00	53	~229	#272	D	1.02	55	~265	#294
	EBR	A	0.21	8	8	21	A	0.08	1	0	3
	WBL	F	0.98	103	48	#79	F	1.03	107	~65	#99
	WBT	C	0.92	34	223	#251	B	0.76	19	150	208
	WBR	A	0.05	2	0	4	A	0.07	3	0	6
	NBL	F	0.95	89	72	#128	F	0.75	82	23	#53
	NBT	D	0.66	44	84	106	D	0.28	40	28	41
	NBR	C	0.66	32	56	93	C	0.66	29	44	80
	SBL	E	0.56	62	13	#33	D	0.33	44	18	35
	SBT	D	0.29	37	32	45	D	0.60	46	67	87
	SBR	A	0.14	3	0	6	A	0.02	0	0	0
	Overall	***D***	-	***46***	-	-	***D***	-	***42***	-	-
Burnhamthorpe Road at Sixth Line *(Signalized)*	EBL	C	0.21	33	8	17	C	0.17	29	5	12
	EBT/R	D	0.52	41	17	28	D	0.44	35	11	20
	WBL	D	0.59	45	24	40	D	0.62	39	36	55
	WBT/R	C	0.33	34	14	24	C	0.52	25	24	38
	NBL	B	0.07	13	3	9	A	0.12	9	4	11
	NBT/R	B	0.41	10	30	53	A	0.29	8	25	37
	SBL	A	0.37	8	10	19	A	0.09	8	3	8
	SBT/R	A	0.16	6	12	20	A	0.22	8	19	29
	Overall	***B***	-	***17***	-	-	***B***	-	***17***	-	-
Neyagawa Boulevard at Settlers Road West – Site Access #1 *(Signalized)*	EBL	C	0.05	32	2	6	C	0.01	34	<1	2
	EBT/R	A	0.09	1	0	0	A	0.06	0	0	0
	WBL	D	0.67	53	29	47	D	0.58	52	22	37
	WBT/R	B	0.24	18	5	16	A	0.12	1	0	0
	NBL	A	0.19	7	5	12	A	0.10	5	2	5
	NBT/R	A	0.59	9	64	89	A	0.32	5	23	34
	SBL	A	0.14	8	2	6	A	0.18	6	4	12
	SBT/R	A	0.32	6	27	41	A	0.40	6	34	48
	Overall	***B***	-	***11***	-	-	***A***	-	***8***	-	-
William Halton Parkway at Burnhamthorpe Road *(Signalized)*	EBT	D	1.01	42	~330	#388	D	1.03	50	~341	#384
	EBR	A	0.21	6	14	27	A	0.28	7	20	35
	WBL	A	0.03	10	<1	1	B	0.13	15	1	4
	WBT	D	0.98	36	277	#372	D	1.03	49	~340	#383
	NBL	E	0.86	63	88	121	E	0.90	66	98	#152
	NBR	B	0.02	20	<1	4	B	0.01	20	0	3
	Overall	***D***	-	***39***	-	-	***D***	-	***49***	-	-

Intersection	Mvmnt	AM Peak Hour					PM Peak Hour				
		LOS	V/C	Del (s)	Q (50th)	Q (95th)	LOS	V/C	Del. (s)	Q (50th)	Q (95th)
Carding Mill Trail at William Halton Parkway – Site Access #2 *(Unsignalized)*	EBT	-	-	-	-	-	-	-	-	-	-
	EBR	-	-	-	-	-	-	-	-	-	-
	WBT	-	-	-	-	-	-	-	-	-	-
	WBL	E	0.24	40	-	7	F	0.88	123	-	41
	NBL/R	F	56.88	27520	-	178	F	0.94	132	-	46
	Mitigation Measure: Traffic Control Signals										
	EBT	D	0.96	39	422	#435	E	1.06	63	~468	#491
	EBR	A	0.02	4	2	3	A	0.08	5	7	10
	WBT	D	0.56	48	2	#11	C	0.54	32	10	30
	WBL	D	0.97	41	278	#460	B	0.92	18	222	#448
	NBL	E	0.33	57	16	29	E	0.36	66	11	23
	NBR	E	0.63	68	27	45	C	0.46	27	3	19
	Overall	***D***	**-**	***40***	**-**	**-**	***D***	**-**	***39***	**-**	**-**
Carding Mill Trail at Settlers Road West *(Unsignalized)*	EBL/T/R	A	0.03	8	-	1	A	0.10	8	-	2
	WBL/T/R	A	0.07	7	-	2	A	0.05	7	-	1
	NBL/T/R	A	0.04	7	-	1	A	0.03	8	-	1
	SBL/T/R	A	0.06	7	-	2	A	0.09	7	-	2
Notes:	~ - volume exceeds capacity, queue is theoretically infinite # - 95% percentile volume exceeds capacity										

It has been noted that the 95th percentile cycle exceeds capacity on several approaches and time periods at Study Area intersections along William Halton Parkway. However, where the V/C ratio is less than one, it can be assumed that the 95th percentile queue will rarely be exceeded.

The intersections previously analysed in the 2026 Future Background horizon operate similarly with the addition of the site generated traffic, with marginal differences in operational performance. As previously discussed, westbound left-turn movements at William Halton Parkway and Neyagawa Road intersection are projected to operate with poor LOS and high delays. This is as a result of the very high eastbound and westbound volumes projected on William Halton Parkway that were provided by the Halton Region. Site Access #1 and the internal intersection of Carding Mill Trail at Settlers Road West operate well, with LOS A at all most approaches.

At the unsignalized intersection of Carding Mill Trail and William Halton Parkway (Site Access #2), no delay is expected at the eastbound approach. The westbound left-turn movement operates at a LOS F, with a V/C ratio of 0.88 during the PM peak period. Further, as a result of the high through volumes along William Halton Parkway, little to no gap is available for northbound vehicles to proceed onto the regional road. To improve the level of service and reduce the likelihood of angled collisions from occurring at this access intersection, signalization was modeled in Synchro as a mitigation measure and the results can be seen in Table 14. As a result, the V/C ratio at the eastbound through movement is 1.06. The eastbound approach is also marginally over capacity at the adjacent intersection of William Halton Parkway at Burnhamthorpe Road. However, given that the auto trip generation of the proposed development will decrease in the 2031 Future Total horizon as a result of a mode share shift, and considering the conservative volume projections along William Halton Parkway, no further mitigations have been explored at Carding Mill Trail and William Halton Parkway, and William Halton Parkway at Burnhamthorpe Road in the 2026 Future Total horizon.

6.5 2031 Future Total Traffic Conditions

The 2031 Total Future intersection volumes, including the site generated traffic and other development traffic, have been analyzed to understand the impact of the subject development on the Study Area intersections. Table 15 summarizes the results of the Synchro Analysis. Synchro worksheets have been included in Appendix R.

Table 15: 2031 Total Future Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour					PM Peak Hour				
		LOS	V/C	Del (s)	Q (50th)	Q (95th)	LOS	V/C	Del. (s)	Q (50th)	Q (95th)
William Halton Parkway (former Burnhamthorpe Road) at Neyagawa Boulevard *(Signalized)*	EBL	E	0.42	71	7	15	E	0.03	61	1	3
	EBT	E	1.03	62	~249	#279	D	1.01	53	~250	#290
	EBR	A	0.24	8	9	24	A	0.09	2	0	4
	WBL	F	1.04	101	~54	#58	F	1.03	95	~71	#80
	WBT	C	0.94	24	208	#232	B	0.75	10	93	172
	WBR	A	0.05	1	0	0	A	0.07	1	1	1
	NBL	F	1.01	100	~78	#139	F	1.02	150	~26	#63
	NBT	D	0.69	44	93	116	D	0.32	42	32	45
	NBR	C	0.69	33	64	103	C	0.72	32	49	88
	SBL	E	0.65	72	15	#38	D	0.34	46	18	34
	SBT	D	0.30	36	34	48	D	0.68	49	76	97
	SBR	A	0.14	4	0	8	A	0.03	0	0	0
	Overall	***D***	-	***46***	-	-	***D***	-	***39***	-	-
	Updated operational performance as a result of the mitigation measures at Carding Mill Trail and William Halton Parkway										
	EBL	E	0.42	71	7	15	E	0.03	61	1	3
	EBT	E	1.03	62	~249	#279	D	1.01	53	~250	#290
	EBR	A	0.24	8	9	24	A	0.09	2	0	4
	WBL	F	1.04	116	~54	#86	F	1.03	108	~71	#107
	WBT	C	0.94	28	204	#272	B	0.75	12	90	164
	WBR	A	0.05	1	<1	1	A	0.07	3	2	4
	NBL	F	1.01	100	~78	#139	F	1.02	150	~26	#63
	NBT	D	0.69	44	93	116	D	0.32	42	32	45
	NBR	C	0.69	33	64	103	C	0.72	32	49	88
	SBL	E	0.65	72	15	#38	D	0.34	46	18	34
	SBT	D	0.30	36	34	48	D	0.68	49	76	97
	SBR	A	0.14	4	0	8	A	0.03	0	0	0
	Overall	***D***	-	***48***	-	-	***D***	-	***41***	-	-
Burnhamthorpe Road at Sixth Line *(Signalized)*	EBL	C	0.21	33	8	17	C	0.18	29	5	12
	EBT/R	D	0.52	41	17	28	D	0.46	36	12	21
	WBL	D	0.62	47	25	41	D	0.65	40	37	57
	WBT/R	C	0.35	35	15	25	C	0.54	24	25	40
	NBL	B	0.07	14	3	9	A	0.13	9	4	11
	NBT/R	B	0.50	13	45	75	A	0.32	9	29	42
	SBL	A	0.45	9	11	21	A	0.11	9	3	9
	SBT/R	A	0.18	6	14	22	A	0.28	8	25	37
	Overall	***B***	-	***18***	-	-	***B***	-	***17***	-	-
Neyagawa Boulevard at Settlers Road West – Site Access #1 *(Signalized)*	EBL	C	0.05	33	2	6	C	0.01	35	<1	2
	EBT/R	A	0.10	1	0	0	A	0.06	0	0	0
	WBL	D	0.64	53	27	44	D	0.55	51	20	35
	WBT/R	C	0.24	22	6	17	A	0.13	1	0	0
	NBL	A	0.20	7	5	12	A	0.10	5	2	5
	NBT/R	A	0.64	10	73	100	A	0.32	4	24	36
	SBL	A	0.16	9	1	6	A	0.17	5	4	11
	SBT/R	A	0.35	6	30	44	A	0.41	5	37	53
	Overall	***B***	-	***11***	-	-	***A***	-	***7***	-	-
William Halton Parkway at Burnhamthorpe Road *(Signalized)*	EBT	C	0.98	34	~266	#377	D	1.00	36	~271	67
	EBR	A	0.21	5	9	12	A	0.26	4	8	9
	WBL	A	0.04	10	<1	1	B	0.12	14	1	3
	WBT	C	0.96	35	294	#383	D	1.00	42	~334	#395
	NBL	E	0.88	71	94	#140	E	0.94	78	111	#173
	NBR	B	0.02	20	0	4	C	0.01	22	0	3
	Overall	***D***	-	***36***	-	-	***D***	-	***40***	-	-
	Updated operational performance as a result of the mitigation measure at Carding Mill Trail and William Halton Parkway										

Intersection	Mvmnt	AM Peak Hour					PM Peak Hour				
		LOS	V/C	Del (s)	Q (50th)	Q (95th)	LOS	V/C	Del. (s)	Q (50th)	Q (95th)
	EBT	C	0.98	20	~53	#393	C	1.00	27	~363	#390
	EBR	A	0.21	1	<1	2	A	0.26	1	0	0
	WBL	A	0.04	10	<1	1	B	0.12	14	1	3
	WBT	C	0.96	31	294	#383	D	1.00	42	~334	#395
	NBL	E	0.88	71	94	#140	E	0.94	78	111	#173
	NBR	B	0.02	20	0	4	C	0.01	22	0	3
	Overall	***C***	-	***28***	-	-	***D***	-	***36***	-	-
Carding Mill Trail at William Halton Parkway – Site Access #2 ***(Signalized)***	EBT	E	0.97	63	426	#421	E	1.06	79	~467	#496
	EBR	A	0.02	3	1	2	A	0.08	4	6	9
	WBL	C	0.52	22	1	2	C	0.53	25	12	13
	WBT	B	0.97	12	90	#454	A	0.93	10	133	143
	NBL	E	0.32	58	15	28	E	0.35	66	10	22
	NBR	E	0.61	68	25	43	C	0.43	24	2	16
	Overall	***D***	-	***38***	-	-	***D***	-	***43***	-	-
	Mitigation Measures: Three through lanes eastbound and westbound										
	EBT	B	0.67	19	275	267	B	0.73	18	291	292
	EBR	A	0.02	3	1	2	A	0.08	3	4	7
	WBL	C	0.52	22	1	2	C	0.56	26	12	14
	WBT	A	0.67	3	39	52	A	0.64	3	62	69
	NBL	E	0.32	58	15	28	E	0.35	66	10	22
	NBR	E	0.61	68	25	43	C	0.41	21	0	15
	Overall	***B***	-	***12***	-	-	***B***	-	***11***	-	-
Carding Mill Trail at Settlers Road West ***(Unsignalized)***	EBL/T/R	A	0.03	8	-	1	A	0.10	8	-	2
	WBL/T/R	A	0.06	7	-	2	A	0.04	7	-	1
	NBL/T/R	A	0.03	7	-	1	A	0.02	8	-	1
	SBL/T/R	A	0.06	7	-	2	A	0.09	7	-	2
Notes:	~ - volume exceeds capacity, queue is theoretically infinite # - 95% percentile volume exceeds capacity										

It has been noted that the 95th percentile cycle exceeds capacity on several approaches and time periods at Study Area intersections along William Halton Parkway. However, where the V/C ratio is less than one, it can be assumed that the 95th percentile queue will rarely be exceeded.

Overall, the addition of the site generated traffic to the 2031 Future Background does not significantly impact the Study Area intersections. At Neyagawa Boulevard and William Halton Parkway intersection, the addition of site-generated trips results in V/C ratios of the previously failing eastbound through, westbound left and northbound left turn movements to shift above one. However, it is important to note that the proposed development contributes a maximum of 2.5% of the total intersection volume during the peak hours. As the cycle length has already been maximized at this intersection in the 2026 Future Background horizon, there is no room to increase the capacity by adding more green time. Considering this, the operational performance of the eastbound through, westbound left, and northbound left turn movements is acceptable.

The site accesses and the internal intersection generally operate with a reasonable LOS. At the signalized access of William Halton Parkway and Carding Mill Trail, the eastbound through movement is noted to have a V/C ratio above one during the PM peak period. As previously mentioned, the volume along William Halton Parkway projected by Halton Region is 2100 vehicles during the peak hours. When combined with annual compound growth rate, and the background development traffic, this volume projection leads to operational constraints along William Halton Parkway starting in 2026 Future Background Horizon. In 2031 Future Total scenario, the total projected through traffic along William Halton Parkway results in approximately 2600 vehicles in each direction during the peak hours. Such high volume projection for a four-lane roadway indicates that there may be some overlap between the volumes projected by the Region and the background traffic, which results in double counting

and an overly conservative estimate. A three lane configuration of the William Halton Parkway has been coded in Synchro to bring the V/C ratio at the eastbound through movement below one, however, given the conservative volume assumptions discussed above it is unlikely that this mitigation measure will be needed. It is also anticipated that the Region will experience a shift from single occupant vehicle to other modes of travel, in particular transit. While this impact has been explicitly accounted for in the trip generation for the subject development, the impact of this effect on background traffic is hard to predict and quantify. This shift will reduce the number of single occupant vehicles, reducing the impact of the growth that has been projected in this analysis. Therefore, the mitigations proposed along William Halton Parkway should be carefully evaluated prior to implementing any changes to the existing design of the William Halton Parkway. Upon the completion, this corridor should be monitored and if the future capacity issues come to fruition, the solutions proposed in this study should be explored by the Region.

6.6 Sensitivity Analysis

In the previous sections, traffic volumes generated by the proposed and background developments have been assigned to all segments and intersections throughout the study area. This is a typical approach for a TIS, where a the impact of additional background traffic, and site traffic are evaluated incrementally, which allows for a net comparison between the horizons. However, when multiple movements are failing in the background horizon, these movements can affect other approaches, making it challenging to determine the causal correlation between traffic volumes and operational performance of specific movements. Therefore, mitigation measures including widening of WHP to three through lanes and double left turn lanes have been modelled and carried forward in the analysis to allow for a clear comparison between background traffic and site-generated traffic impacts. This analysis has shown that the proposed development has marginal impact on study area road network, when compared to growth in background traffic and projected volumes along William Halton Parkway.

The mitigation measures proposed in the 2026 Future Background horizon are not likely to be needed, as the intersection of Neyagawa Boulevard at Burnhamthorpe Road (future WHP) is currently built to its final configuration. Design of regional arterial roadways is usually guided by a macroscopic traffic model which takes into account long-range population and employment density targets along the proposed corridor to determine the roadway capacity that will need to be provided. Therefore, CGH Transportation has undertaken a sensitivity analysis to more closely examine how the traffic volumes and directionality will change at the intersection of William Halton Parkway and Neyagawa Boulevard, and to ensure that the current intersection capacity is suitable to accommodate future volumes.

To determine the changes in traffic directionality, existing turning movements at the intersection of Burnhamthorpe Road and Neyagawa Boulevard were closely examined. The review has shown that eastbound and westbound through volumes at this intersection are significantly lower than what is usually observed at arterial roads. Further, the lower volumes at eastbound through and westbound through movements were coupled with higher than average volumes at northbound right turn and westbound left turn movements. This indicates that vehicles coming from or going towards west make a turning movement at Neyagawa Boulevard to reach their destination via an alternative route (i.e. Dundas Street). Burnhamthorpe Road does not connect to any north-south arterials west of Neyagawa Boulevard, which explains the existing unusual traffic directionality at the subject intersection.

The construction of Phase II of William Halton Parkway will enable drivers to proceed to / from the west via WHP, eliminating the need to make turning movements at Neyagawa Boulevard. Thus, as part of the sensitivity analysis, 90% of the existing traffic on the westbound left turn and northbound right turn were reassigned to westbound through and eastbound through movements, respectively. To determine the future total volume on westbound left turn and northbound right turn, the remaining existing trips at these movements were combined with trips

from background developments and the subject site. No further adjustments were made to the turning movements at the intersection of WHP and Neyagawa Boulevard, as background developments and subject site are local trip generators and the residents / patrons from these developments are most likely to make turning movements and change their trip direction at the start of their trips.

Next, the Halton Region volume projections along William Halton Parkway were treated as the ultimate peak hour volume along any given segment of WHP. To ensure that 2100 vehicles per peak hour is the maximum segment volume on the proposed arterial road, through movements were reduced until the total approach and/or departure volumes do not exceed 2100 vph. The resulting 2031 Future Total Volumes at the intersection of William Halton Parkway and Neyagawa Boulevard as well as William Halton Parkway at Carding Mill Trail can be seen in Figure 33. These volumes were modeled in Synchro using the existing intersection configuration in combination with recommended turning lanes at Carding Mill Trail and William Halton Parkway. Table 16 summarizes the results of the Synchro Analysis. Synchro worksheets have been included in Appendix S.

Figure 33: Adjusted 2031 Future Total Traffic Volumes

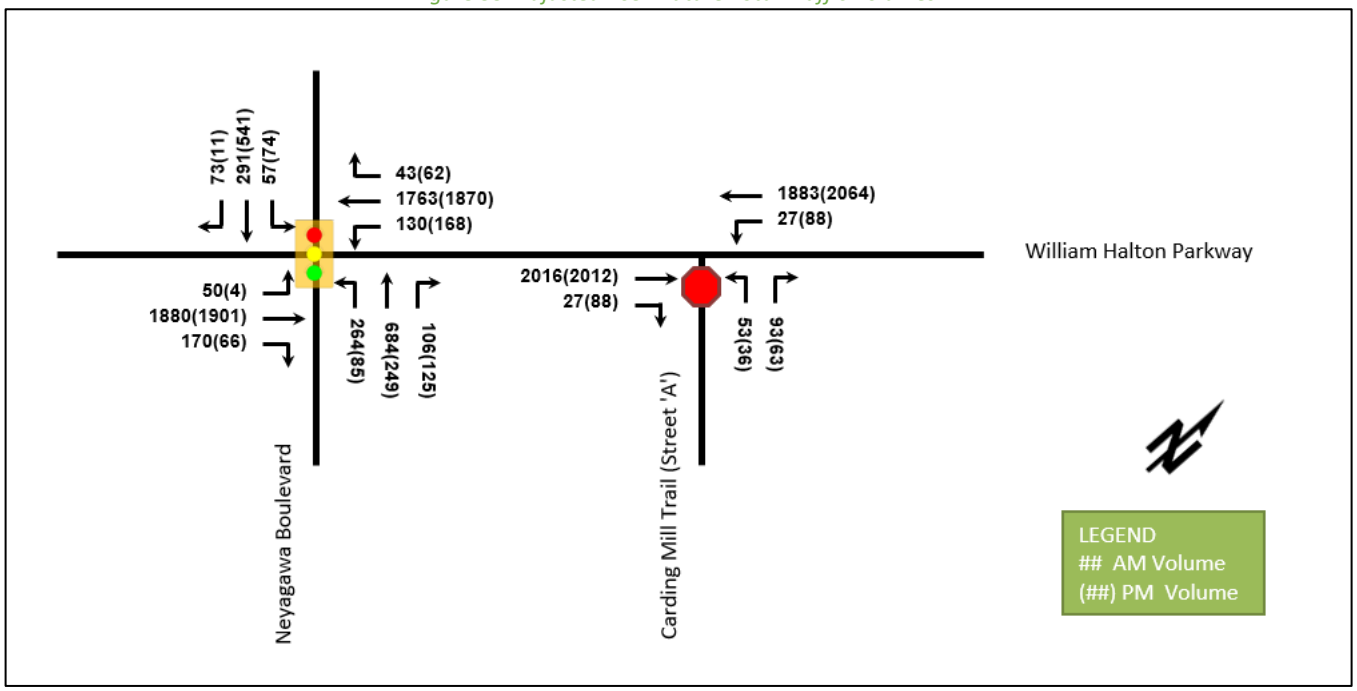


Table 16: 2031 Total Future Conditions Sensitivity Analysis

Intersection	Mvmnt	AM Peak Hour					PM Peak Hour				
		LOS	V/C	Del (s)	Q (50th)	Q (95th)	LOS	V/C	Del. (s)	Q (50th)	Q (95th)
William Halton Parkway (former Burnhamthorpe Road) at Neyagawa Boulevard *(Signalized)*	EBL	C	0.46	25	6	14	B	0.08	17	1	3
	EBT	F	1.10	87	~356	#399	D	1.01	52	~318	#375
	EBR	A	0.21	8	11	23	A	0.08	5	3	10
	WBL	F	0.99	104	25	#71	F	1.01	106	~38	#89
	WBT	D	1.00	50	~310	#354	C	0.87	23	226	266
	WBR	A	0.05	1	0	3	A	0.07	3	1	6
	NBL	F	0.99	95	69	#134	F	0.98	141	27	#65
	NBT	D	0.72	49	102	126	D	0.33	46	35	49
	NBR	B	0.22	16	9	25	B	0.29	10	2	20
	SBL	F	0.71	91	17	#43	D	0.36	51	20	37
	SBT	D	0.40	48	41	57	E	0.71	55	84	106
	SBR	A	0.19	10	0	14	A	0.03	0	0	0
	Overall	***E***	-	***63***	-	-	***D***	-	***42***	-	-

Intersection	Mvmnt	AM Peak Hour					PM Peak Hour				
		LOS	V/C	Del (s)	Q (50th)	Q (95th)	LOS	V/C	Del. (s)	Q (50th)	Q (95th)
Carding Mill Trail at William Halton Parkway – Site Access #2 ***(Signalized)***	EBT	B	0.83	15	193	228	C	0.94	30	260	#316
	EBR	A	0.02	3	1	4	A	0.09	6	6	13
	WBL	D	0.54	48	3	#24	D	0.76	55	9	#40
	WBT	B	0.77	13	163	192	B	0.86	17	205	246
	NBL	D	0.18	50	14	28	D	0.12	45	9	20
	NBR	D	0.34	43	20	39	B	0.19	12	0	13
	Overall	***B***	**-**	***15***	**-**	**-**	***C***	**-**	***24***	**-**	**-**
Notes:	~ - volume exceeds capacity, queue is theoretically infinite # - 95% percentile volume exceeds capacity										

Figure 33 above shows 2031 Future Total traffic volumes, based on two key assumptions. First, it was assumed that the existing northbound right turn and westbound left turn volumes will be redirected to eastbound through and westbound through movements as a result of WHP being extended beyond 16 Mile Creek. The second assumption is based on a more direct interpretation of Region's traffic volume projections along WHP, where 2100 vph was used as the maximum future traffic volume along any given WHP segment.

As can be seen in Table 18, the resulting traffic volumes are much better aligned with the final design of WHP at Neyagawa Boulevard intersection. Overall, the subject intersection is within the Town of Oakville and Halton Region operational thresholds. Some movements, including eastbound through, westbound through, westbound left and northbound left turn are at or slightly above capacity during the peak 15 minutes of the AM and PM peak periods, with an average V/C ratio of 1.01. This is typical for an intersection of two arterial roadways, and also in line with existing operations at heavy movements of this intersection. Therefore, no changes to the existing intersection geometry are required to support the 2031 Future Total volumes at William Halton Parkway and Neyagawa Boulevard intersection.

7 Right-of-Way Designation

This section provides an analysis and a summary of the right-of-way requirements for the east-west Street 'C' and the north-south Street 'M'. The average annual daily traffic (AADT) by road type provided within the 2017 TAC Geometric Design Guide for Canadian Roads (TAC Guide) is summarized in Table 17.

Table 17: TAC Guide AADT by Road Type – Residential Roads

	Public Lanes	Locals	Collectors	Arterials
Traffic volume (veh/day) (typical)	<500	<1000	<8000	5000-30000

Note: AADT calculated as two-way volumes

Future traffic along Street 'C' will be assessed at two segments, east and west of Street 'A'. The typical future daily volumes along Street 'C' and Street 'M' will be compared against the TAC Geometric Design Guide values provided in Table 17 above to determine the appropriate classification for each road. The AADT along each road will be estimated by using 1:10 ratio of PM peak hour traffic and will be based on the complete build-out of the proposed development. This includes the proposed 1405 apartment units that have not received allotment at this time, to ensure that the proposed right-of-way can meet the demands of these future units.

7.1 Street 'C' East of Street 'A'

Units that are expected to generate traffic along Street 'C' east of Street 'A' were determined by reviewing the internal road network within Remington Eno and Trinison Sherborne Lodge subdivisions, the proposed site accesses, as well as access to major transportation infrastructure.

It was determined that for the inbound trips, Street 'C' east of Street 'A' is expected to receive traffic from the future high-rise apartment blocks and townhouses fronting Street 'C', Lane 'E', and Lane 'D', as shown in Figure

34. The outbound trips along Street ‘C’ are expected to be generated by the same units. The majority of eastbound trips leaving the proposed development (15% of the total trips) will exit via right-in right-out access to Burnhamthorpe Road available along Street ‘M’, as this is the most direct eastbound path for the studied units. Therefore, outbound traffic along Street ‘C’ immediately east of Street ‘A’ is expected to be 85% of the inbound traffic as a result of the reduction in eastbound trips. Table 18 provides a summary of unit types that are expected to generate traffic along Street ‘C’ east of Street ‘A’ in the inbound and outbound directions.

Figure 34: Units Generating Traffic Along Street 'C' East of Street 'A'

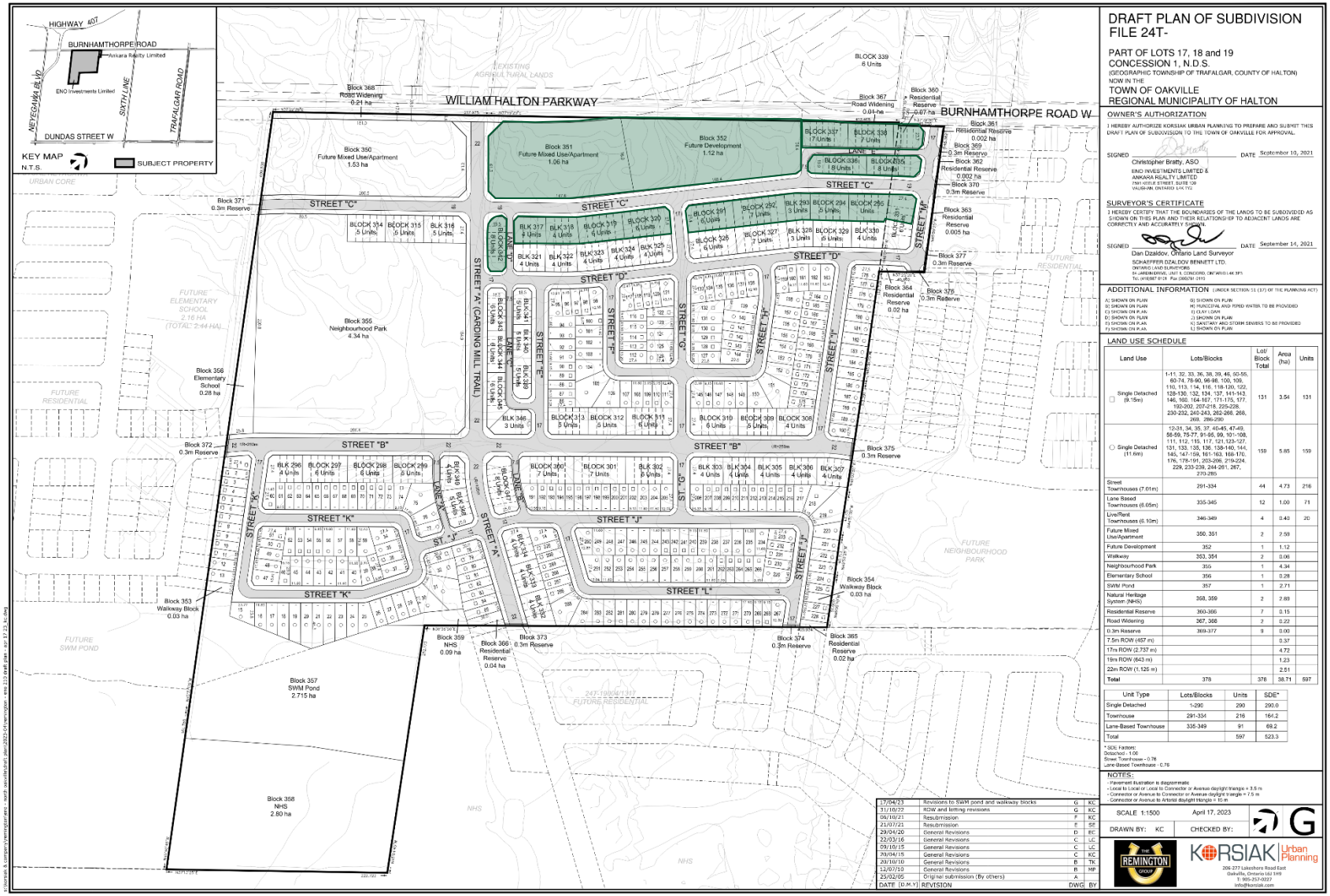


Table 18: Units Impacting Street 'C' East of Street 'A'

Direction	Property	Land Use	Total Units	Percent of Units Utilizing Street 'C'	Net Units
Inbound	Remington Eno	Multifamily Housing (High-Rise)	1405	100%	1405
		Multifamily Housing (Low-Rise)	88	100%	88
		Single Family Detached	3	100%	3
Outbound	Remington Eno	Multifamily Housing (High-Rise)	1405	85%	1194
		Multifamily Housing (Low-Rise)	88	85%	75
		Single Family Detached	3	85%	3

The ITE Trip Generation Manual 10th Edition trip rate equations were used to determine the appropriate vehicle trip generation rates for studied Remington Eno units. Table 19 summarizes the ITE Trip Generation Equations and directional splits for each land use.

Table 19: ITE Equations and Directional Splits – PM Peak Hour

Land Use Code (LUC)	PM Peak Hour		
	Equation	In	Out
Multifamily Housing (High-Rise) (222)	$T = 0.34(X) + 8.56$	61%	39%
Multifamily Housing (Low-Rise) (220)	$\ln(T) = 0.89\ln(T) - 0.02$	63%	37%
Single Family Detached (210)	$\ln(T) = 0.96\ln(T) + 0.2$	63%	37%

Using the above equations, the base vehicle trip rates for each development were calculated. These are converted to person trips using the 1.28 factor. Table 20 summarizes the person trip rates for the proposed units.

Table 20: ITE Trip Generation Person Trip Rates – PM Peak Hour

Direction	Property	Dwelling Type	Unit Count	Vehicle Trip Rate	Person Trip Rates
Inbound	Remington Eno	Multifamily Housing (High-Rise)	1405	0.35	0.45
		Multifamily Housing (Low-Rise)	88	0.60	0.77
		Single Family Detached	3	1.17	1.50
Outbound	Remington Eno	Multifamily Housing (High-Rise)	1194	0.35	0.45
		Multifamily Housing (Low-Rise)	75	0.61	0.78
		Single Family Detached	3	1.17	1.50

Using the above Person Trip rates, the person trip generation of the studied Eno units was estimated. Table 21 below summarizes the total person trip generation by land use.

Table 21: Trip Generation – Units Accessing Street 'C' East of Street 'A' – PM Peak Hour

Direction	Property	Dwelling Type	Unit Count	In	Out
Inbound	Remington Eno	Multifamily Housing (High-Rise)	1405	384	-
		Multifamily Housing (Low-Rise)	88	43	-
		Single Family Detached	3	3	-
Outbound	Remington Eno	Multifamily Housing (High-Rise)	1194	-	209
		Multifamily Housing (Low-Rise)	75	-	22
		Single Family Detached	3	-	1
			Total	**430**	**232**

Using the 2031 mode shares provided in Table 9 and person trips in Table 21, the person trips by mode have been projected. Table 23 summarizes the 2031 trip generation by mode.

Table 22: 2031 Trip Generation by Mode – Units Accessing Street 'C' East of Street 'A' – PM Peak Hour

Mode	Mode Share	In	Out	Total
Auto Driver	60%	258	139	397
Auto Passenger	15%	65	35	100
Transit	20%	86	46	132
Non-Auto Modes	5%	22	12	34
Total	**100%**	**430**	**232**	**662**

As shown above, a total of 258 inbound and 139 outbound PM peak hour auto trips are projected to travel along Street 'C', immediately east of Street 'A'. Table 23 summarizes the bi-directional AADT along the studied Street 'C' segment.

Table 23: AADT – Street 'C' East of Street 'A'

Eastbound	Westbound	Total	Appropriate Road Type
258 (2580 AADT)	139 (1390 AADT)	387 (3870 AADT)	Collector

*AADT determined by using 1:10 PM Peak volume ratio

As shown above, the average annual daily traffic along Street 'C' east of Street 'A' is equal to 3870 vehicles. This exceeds the local road threshold of 1000 vehicles per day Therefore, Street 'C' east of Street 'A' should be designated as a collector road. Based on the North Oakville Urban Design and Open Space Guidelines a Connector / Transit Corridor collector road designation with a 19-metre right-of-way is appropriate for Street 'C' east of Street 'A'. A 19-metre right-of-way along Street 'C' east of Street 'A' will enable intra-neighbourhood travel and distribute traffic to and from Street 'A', which is designated as Avenue / Transit Corridor.

7.2 Street 'C' West of Street 'A'

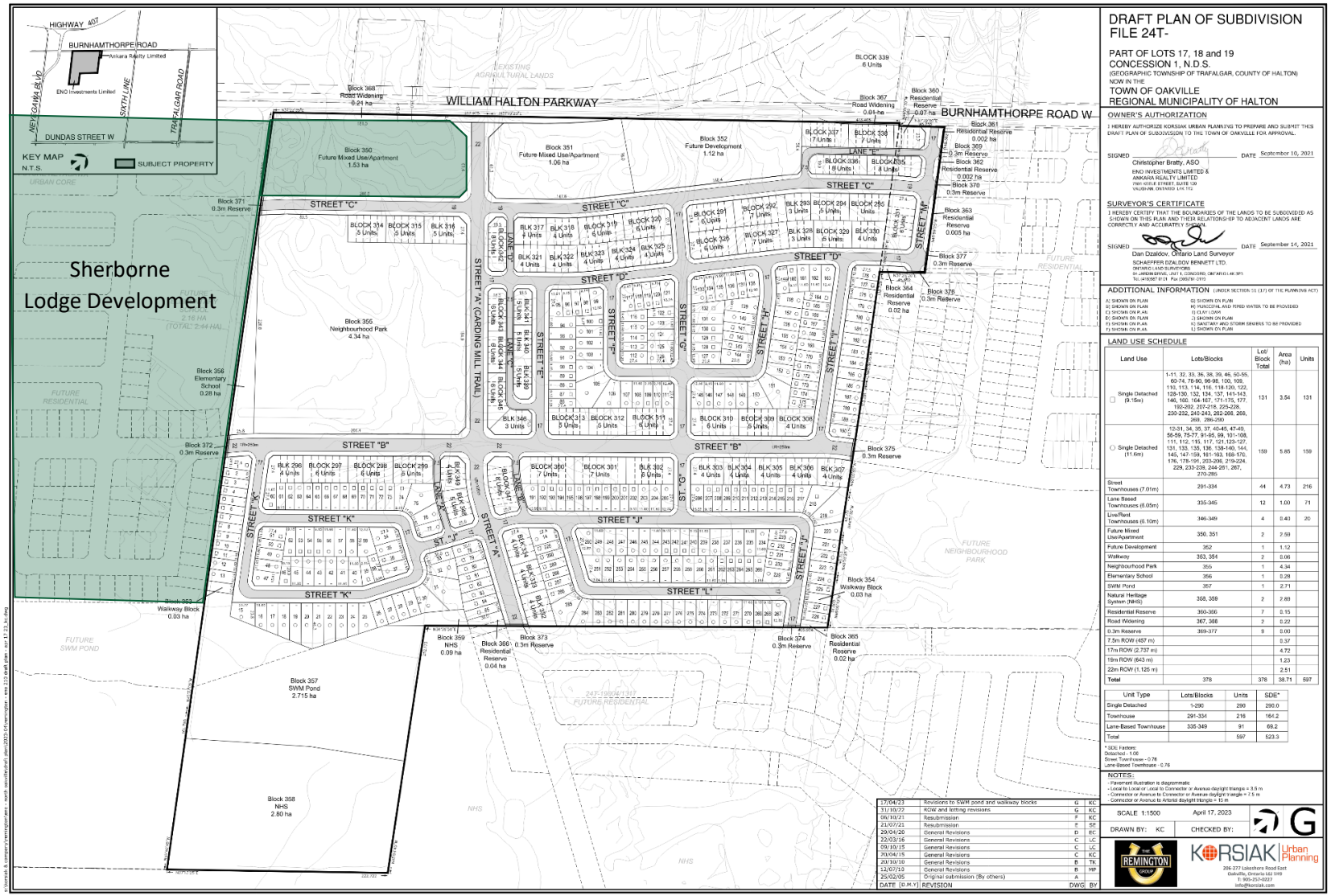
Units that are expected to generate traffic along Street 'C' west of Street 'A' were determined by reviewing the internal road network within Remington Eno and Trinison Sherborne Lodge subdivisions, the proposed site accesses, as well as access to major transportation infrastructure.

It was determined that for the inbound trips, Street 'C' west of Street 'A' is expected to receive traffic from the proposed mid-rise mixed-use Remington Eno apartment block. Additionally, Trinison Sherborne Lodge property traffic coming from the east is expected to utilize Street 'C' west of Street 'A' as this is the most direct path for Sherborne Lodge westbound trips to arrive from Burnhamthorpe Road and the future William Halton Parkway. Based on the traffic distribution outlined as part of Sherborne Lodge Traffic Impact Study prepared by CGH Transportation in 2021, 30% of inbound trips will be returning from east and north via the aforementioned arterial roadways. Therefore, inbound trips along Street 'C' west of Street 'A' will include trips to the proposed mid-rise mixed-use Remington Eno apartment building and 30% of all inbound trips to the Trinison Sherborne Lodge property. Figure 35 shows the units that generate inbound traffic along Street 'C' west of Street 'A'.

The outbound trips along Street 'C' are expected to be generated by the proposed mid-rise mixed-use Remington Eno apartment building only. This is because residents of the Trinison Sherborne Lodge community will be able to access the future William Halton Parkway and Burnhamthorpe Road via the right in right out access at Street 'B'

and WHP. Figure 36 shows the units that generate outbound traffic along Street ‘C’ east of Street ‘A’. Table 24 provides a summary of unit types that are expected to generate traffic along Street ‘C’ west of Street ‘A’ in the inbound and outbound directions.

Figure 35: Units Generating Inbound Traffic Along Street 'C' West of Street 'A'



Land Use	Lots/Blocks	Lot/ Block Total	Area (ha)	Units
Single Detached (9.15m)	1-11, 32, 33, 36, 38, 39, 46, 50-55, 63-74, 79-90, 96-98, 100, 109, 110, 113, 114, 116, 118-120, 122, 128-130, 132, 134, 137, 141-143, 146, 160, 164-167, 171-175, 177, 192-202, 207-218, 225-229, 230-232, 240-243, 282-288, 288, 289, 296-299	131	3.54	131
Single Detached (11.6m)	12-31, 34, 35, 37, 40-45, 47-49, 56-59, 75-77, 91-95, 99, 101-108, 111, 112, 115, 117, 121,123-127, 131, 133, 135, 136, 138-140, 144, 145, 147-159, 161-163, 168-170, 176, 178-191, 203-206, 219-224, 229, 233-239, 244-281, 267, 270-285	159	5.85	159
Street Townhouses (7.01m)	291-334	44	4.73	216
Lane Based Townhouses (8.05m)	335-345	12	1.00	71
Live/Rent Townhouses (6.10m)	346-349	4	0.40	20
Future Mixed Use/Apartment	350, 351	2	2.59	
Future Development	352	1	1.12	
Walkway	353, 354	2	0.06	
Neighbourhood Park	355	1	4.34	
Elementary School	356	1	0.28	
SWM Pond	357	1	2.71	
Natural Heritage System (NHS)	358, 359	2	2.89	
Residential Reserve	360-366	7	0.15	
Road Widening	367, 368	2	0.22	
0.3m Reserve	369-377	9	0.00	
7.5m ROW (457 m)			0.37	
17m ROW (2.737 m)			4.72	
19m ROW (643 m)			1.23	
22m ROW (1,125 m)			2.51	
Total	378	378	38.71	597

Unit Type	Lots/Blocks	Units	SDE*
Single Detached	1-290	290	290.0
Townhouse	291-334	216	164.2
Lane-Based Townhouse	335-349	91	69.2
Total		597	523.3

* SDE Factors:
Detached - 1.00
Street Townhouse - 0.76
Lane-Based Townhouse - 0.76

NOTES:
- Pavement illustration is diagrammatic
- Local to Local or Local to Connector or Avenue daylight triangle = 3.5 m
- Connector or Avenue to Connector or Avenue daylight triangle = 7.5 m
- Connector or Avenue to Arterial daylight triangle = 10 m

DATE [D.M.Y]	REVISION	DWG	BY
17/04/23	Revisions to SWM pond and walkway blocks	G	KC
31/10/22	KCW and letting revisions	G	KC
08/10/21	Resubmission	F	KC
21/07/21	Resubmission	E	SF
29/04/20	General Revisions	D	EC
22/03/16	General Revisions	C	LC
09/10/15	General Revisions	C	LC
29/04/15	General Revisions	C	KC
20/10/10	General Revisions	B	TK
12/07/10	General Revisions	B	MP
25/02/05	Original submission (By others)	A	

Figure 36: Units Generating Outbound Traffic Along Street 'C' West of Street 'A'

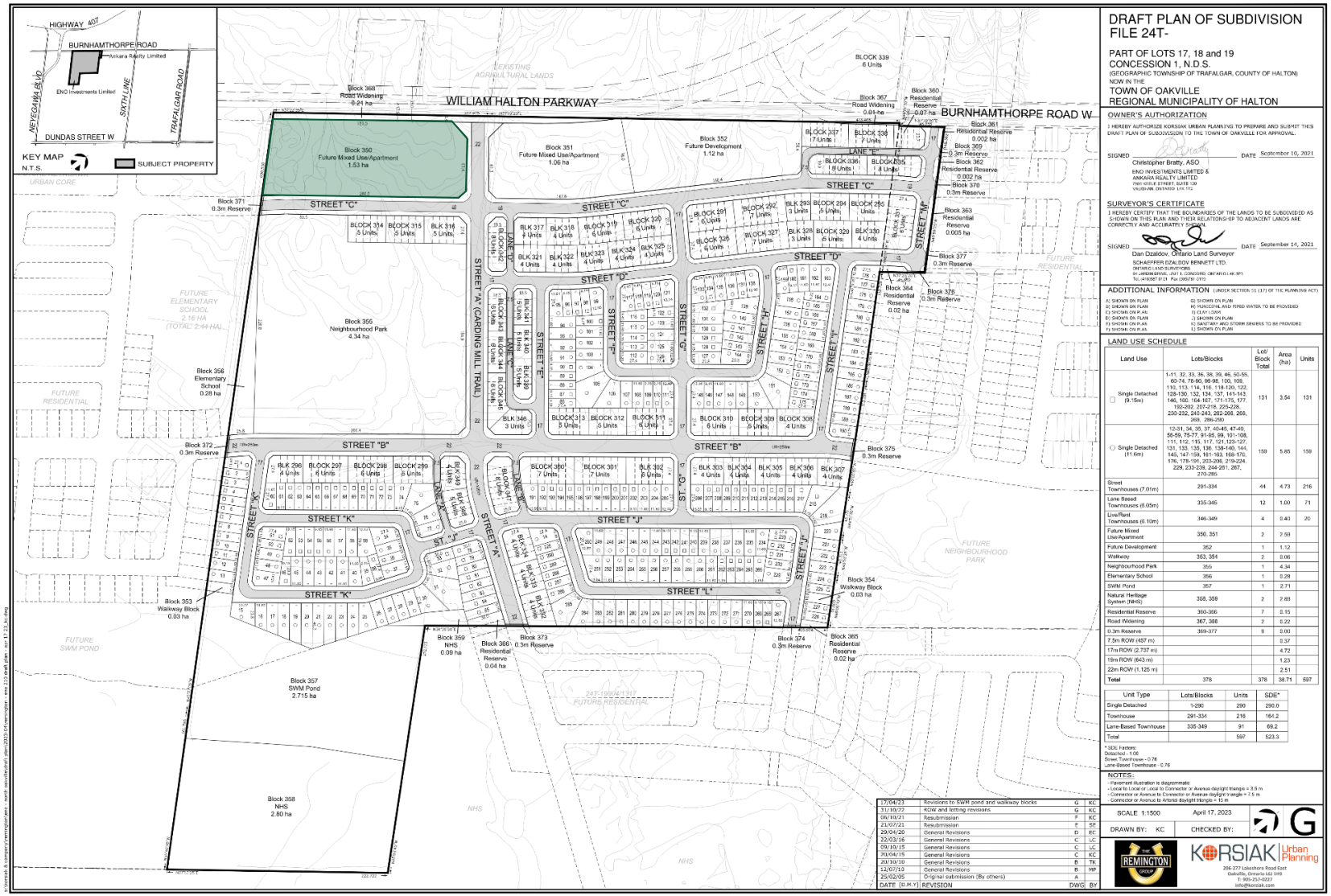


Table 24: Units Impacting Street 'C' West of Street 'A'

Direction	Property	Land Use	Total Units / GFA (s.f.)	Percent of Units Utilizing Street 'C'	Net Units / GFA (s.f.)
Inbound	Remington Eno	Multifamily Housing (Mid-Rise)	295	100%	295
		Shopping Centre	15,000	100%	15,000
	Trinison Sherborne Lodge	Multifamily Housing (Mid-Rise)	296	30%	89
		Multifamily Housing (Low-Rise)	125	30%	38
		Single Family Detached	84	30%	25
		Shopping Centre	27,125	30%	8,138
Outbound	Remington Eno	Multifamily Housing (Mid-Rise)	295	100%	295
		Shopping Centre	15,000	100%	15,000

The total PM peak hour person trip generation for the above-listed land uses was retained directly from Table 6 of this report as well as Table 4 of the Trinison Sherborne Lodge Traffic Impact Study prepared by CGH Transportation in 2021. The trip generation is based on the ITE Trip Generation Manual 10th Edition trip rate equations as well as a 1.28 person trip conversion factor. Table 25 summarizes the person trip generation for the aforementioned units.

Table 25: Trip Generation – Units Accessing Street 'C' West of Street 'A' – PM Peak Hour

Direction	Property	Dwelling Type	Unit Count	In	Out
Inbound	Remington Eno	Multifamily Housing (Mid-Rise)	295	97	-
		Shopping Centre	15,000	31	-
	Trinison Sherborne Lodge (100%)	*Multifamily Housing (Mid-Rise)*	*296*	*98*	*-*
		Multifamily Housing (Low-Rise)	*125*	*59*	*-*
		Single Family Detached	*84*	*69*	*-*
		Shopping Centre	*27,125*	*63*	*-*
	Trinison Sherborne Lodge *(30%)*	Multifamily Housing (Mid-Rise)	89	98*30% = 29	-
		Multifamily Housing (Low-Rise)	38	59*30% = 18	-
		Single Family Detached	25	69*30% = 21	-
		Shopping Centre	8,138	63*30% = 19	-
Outbound	Remington Eno	Multifamily Housing (Mid-Rise)	295	-	62
		Shopping Centre	15,000	-	28
			Total	**215**	**90**

Using the 2031 mode shares provided in Table 9 and person trips in Table 25, the person trips by mode have been projected. Table 26 summarizes the 2031 trip generation by mode.

Table 26: 2031 Trip Generation by Mode – Units Accessing Street 'C' West of Street 'A' – PM Peak Hour

Mode	Mode Share	In	Out	Total
Auto Driver	60%	129	54	183
Auto Passenger	15%	32	14	46
Transit	20%	43	18	61
Non-Auto Modes	5%	11	5	16
Total	**100%**	**215**	**90**	**305**

As shown above, a total of 129 inbound and 54 outbound PM peak hour auto trips are projected to travel along Street 'C', immediately west of Street 'A'. Table 27 summarizes the bi-directional AADT along the studied Street 'C' segment.

Table 27: AADT – Street 'C' West of Street 'A'

Westbound	Eastbound	Total	Appropriate Road Type
129 (1290 AADT)	54 (540 AADT)	183 (1830 AADT)	Collector

*AADT determined by using 1:10 PM Peak volume ratio

As shown above, the average annual daily traffic along Street 'C' west of Street 'A' is equal to 1830 vehicles. This exceeds the local road threshold of 1000 vehicles per day. Therefore, Street 'C' west of Street 'A' should be designated as a collector road. Based on the North Oakville Urban Design and Open Space Guidelines Connector / Transit Corridor a collector road designation with a 19-metre right-of-way is appropriate for Street 'C' west of Street 'A'. A 19-metre right-of-way along Street 'C' west of Street 'A' will enable intra-neighbourhood travel and distribute traffic to and from Street 'A', which is designated as Avenue / Transit Corridor.

7.3 Street 'M' North of Street 'C'

Units that are expected to generate traffic along Street 'M' north of Street 'C' were determined by reviewing the internal road network within Remington Eno and the proposed subdivision to the east of the Eno property line, the proposed site accesses, as well as access to major transportation infrastructure.

It was determined that for the inbound trips, Street 'M' north of Street 'C' is expected to receive traffic to the proposed subdivision east of the Remington Eno property line. This includes eastbound trips along the future William Halton Parkway coming from north, west, and south due to the right-in right-out nature of the future Street 'M' access at William Halton Parkway, which will preclude eastbound trips along William Halton Parkway from entering the subdivision at Street 'M'. According to the distribution in Table 10, traffic from north, west, and south will make up 80% of all traffic destined to the neighbouring subdivision east of the Remington Eno property line. It should be noted that this value is conservative, as trips from the south may enter the future subdivision via other alternative routes such as Carding Mill Trail.

Trips destined to the Eno subdivision will use the signalized access at Street 'A' / Carding Mill Trail and the future William Halton Parkway, to avoid traveling northeast through the future signalized intersection of William Halton Parkway at Burnhamthorpe Road before arriving to Street 'M'. Figure 37 shows the units that are expected to generate inbound traffic along Street 'M' north of Street 'C'.

The outbound trips along Street 'M' will be destined to the east due to the right-in right-out nature of Street 'M' access onto Burnhamthorpe Road. These trips are expected to be generated by Remington Eno units fronting Street 'C' east of Street 'A', and some of the units fronting Street 'D', Street 'G', Street 'H', Street 'I', and Street 'M'. Additionally, eastbound traffic from the neighboring property units destined to the east is also expected to travel along Street 'M' north of Street 'C'. Based on the distribution outlined in Table 10 and considering that there are other alternative eastbound routes such as Street 'B', it was assumed that 15% of all trips generated by the aforementioned units will travel outbound along Street 'M' north of Street 'C'. Figure 38 shows the units that generate outbound traffic along Street 'M' north of Street 'C'. Table 28 provides a summary of unit types that are expected to generate traffic along Street 'M' west of Street 'C' in the inbound and outbound directions.

Figure 37: Units Generating Inbound Traffic Along Street 'M' North of Street 'C'

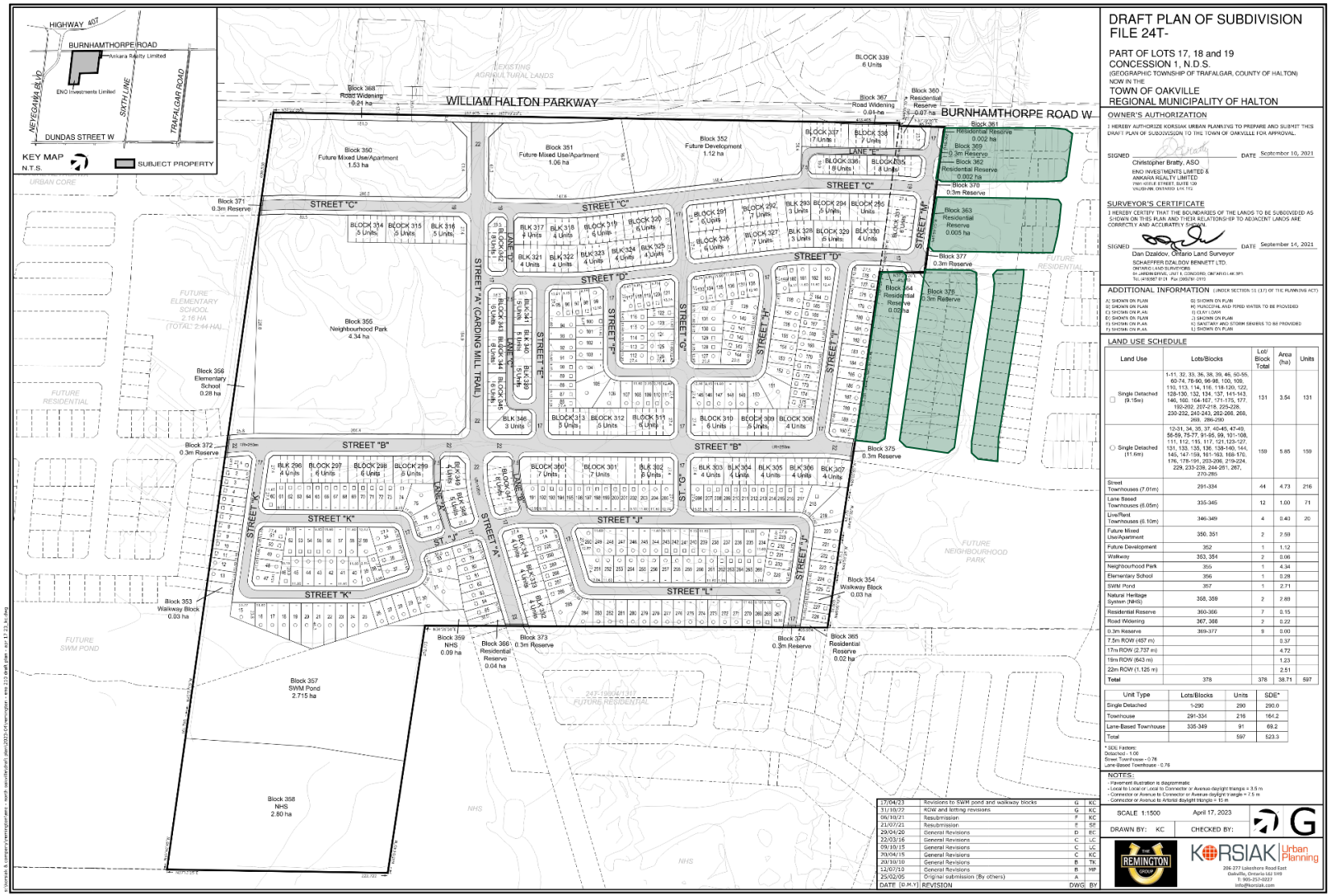


Figure 38: Units Generating Outbound Traffic Along Street 'M' North of Street 'C'

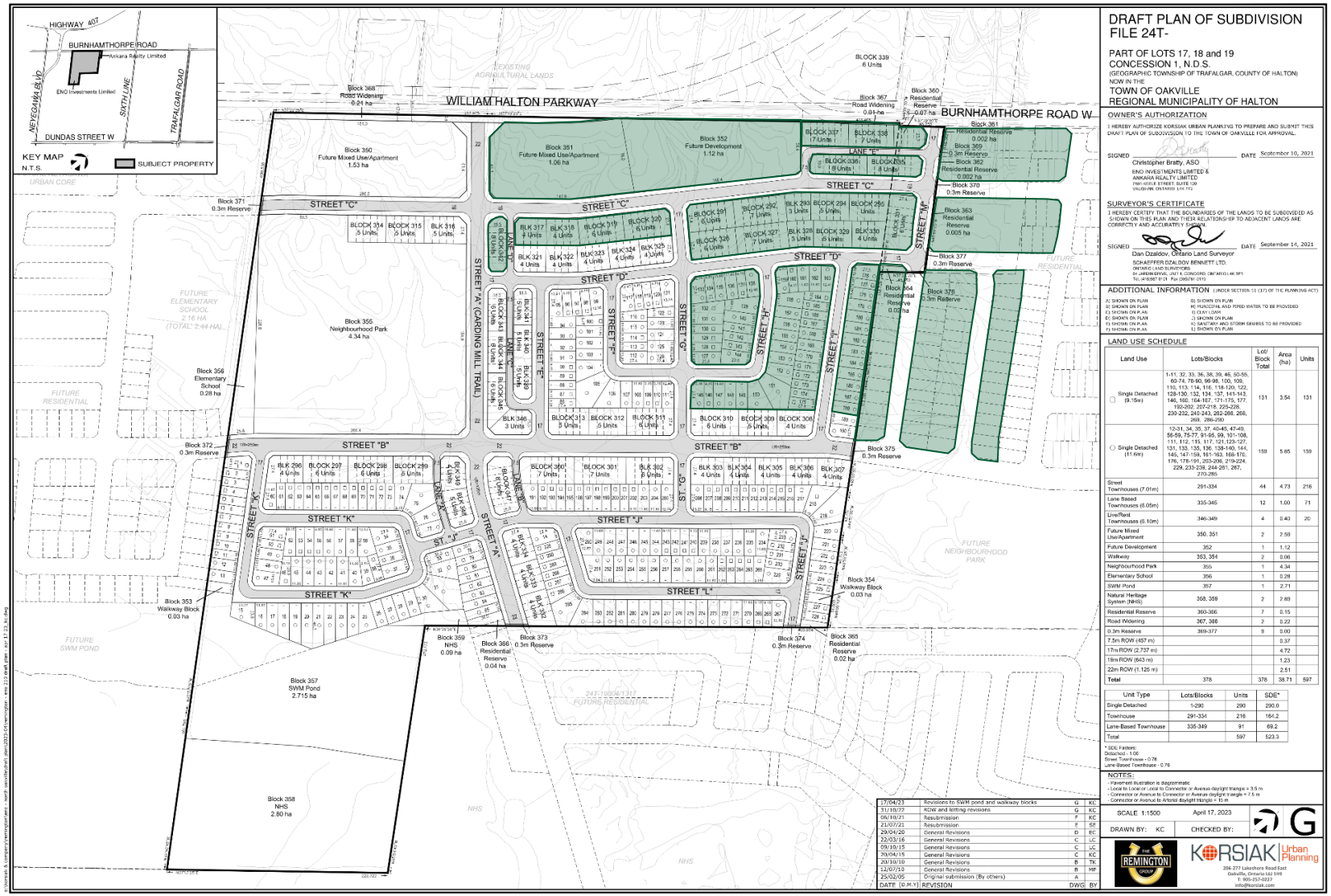


Table 28: Units Impacting Street 'M' North of Street 'C'

Direction	Property	Land Use	Total Units / GFA (s.f.)	Percent of Units Utilizing Street 'C'	Net Units / GFA (s.f.)
Inbound	Neighbouring Property East of Remington Eno*	Multifamily Housing (Low-Rise)	52	80%	42
		Single Family Detached	70	80%	56
Outbound	Remington Eno	Multifamily Housing (High-Rise)	1405	15%	211
		Multifamily Housing (Low-Rise)	113	15%	17
		Single Family Detached	67	15%	10
	Neighbouring Property East of Remington Eno*	Multifamily Housing (Low-Rise)	52	15%	8
		Single Family Detached	70	15%	11

* Unit types and counts at the neighboring property east of Remington Eno was approximated by mirroring unit counts within Remington Eno property along Street 'M'

The ITE Trip Generation Manual 10th Edition trip rate equations were used to determine the appropriate vehicle trip generation rates for the studied units. Table 29 summarizes the ITE Trip Generation Equations and directional splits for each land use.

Table 29: ITE Equations and Directional Splits – PM Peak Hour

Land Use Code (LUC)	PM Peak Hour		
	Equation	In	Out
Multifamily Housing (High-Rise) (222)	$T = 0.34(X) + 8.56$	61%	39%
Multifamily Housing (Low-Rise) (220)	$\ln(T) = 0.89\ln(T) - 0.02$	63%	37%
Single Family Detached (210)	$\ln(T) = 0.96\ln(T) + 0.2$	63%	37%

Using the above equations, the base vehicle trip rates for each development were calculated. These are converted to person trips using the 1.28 factor. Table 30 summarizes the person trip rates for the proposed units.

Table 30: ITE Trip Generation Person Trip Rates – PM Peak Hour

Direction	Property	Dwelling Type	Unit Count	Vehicle Trip Rate	Person Trip Rates
Inbound	Neighbouring Property East of Remington Eno	Multifamily Housing (Low-Rise)	42	0.65	0.83
		Single Family Detached	56	1.04	1.27
Outbound	Remington Eno	Multifamily Housing (High-Rise)	211	0.38	0.49
		Multifamily Housing (Low-Rise)	17	0.72	0.92
		Single Family Detached	10	1.11	1.42
	Neighbouring Property East of Remington Eno	Multifamily Housing (Low-Rise)	8	0.78	1.00
		Single Family Detached	11	1.11	1.42

Using the above Person Trip rates, the person trip generation of the studied residential units was estimated. Table 31 below summarizes the total person trip generation by land use.

Table 31: Trip Generation – Units Accessing Street 'M' North of Street 'C' – PM Peak Hour

Direction	Property	Dwelling Type	Unit Count	In	Out
Inbound	Neighbouring Property East of Remington Eno	Multifamily Housing (Low-Rise)	42	22	-
		Single Family Detached	56	47	-
Outbound	Remington Eno	Multifamily Housing (High-Rise)	211	-	45
		Multifamily Housing (Low-Rise)	17	-	6
		Single Family Detached	10	-	5
	Neighbouring Property East of Remington Eno	Multifamily Housing (Low-Rise)	8	-	3
		Single Family Detached	11	-	6
			Total	**69**	**65**

Using the 2031 mode shares provided in Table 9 and person trips in Table 31, the person trips by mode have been projected. Table 32 summarizes the 2031 trip generation by mode.

Table 32: 2031 Trip Generation by Mode – Units Accessing Street 'C' West of Street 'A' – PM Peak Hour

Mode	Mode Share	In	Out	Total
Auto Driver	60%	41	39	80
Auto Passenger	15%	10	10	20
Transit	20%	14	13	27
Non-Auto Modes	5%	3	3	6
Total	**100%**	**69**	**65**	**134**

As shown above, a total of 41 inbound and 39 outbound PM peak hour auto trips are projected to travel along Street 'M' north of Street 'C'. Table 33 summarizes the bi-directional AADT along the studied Street 'M' segment.

Table 33: AADT – Street 'M' North of Street 'C'

Westbound	Eastbound	Total	Appropriate Road Type	% Theoretical Threshold
41 (410 AADT)	39 (390 AADT)	80 (800 AADT)	Local	80%

*AADT determined by using 1:10 PM Peak volume ratio

As shown above, the average annual daily traffic along Street 'M' north of Street 'C' is equal to 800 vehicles. This is equal to 80% of the local road theoretical volume threshold of 1000 vehicles per. Therefore, Street 'M' north of Street 'C' should be designated as a local road with a 17-metre right of way, as per the North Oakville Urban Design and Open Space Guidelines.

8 Conclusions

This Transportation Impact Study has examined the trip generation, access requirements, and Study Area road network impact of the proposed Remington Eno development in North Oakville. The TIS has shown the following:

a) The proposed development is located along south side of Burnhamthorpe Road, 400 metres east of Neyagawa Boulevard, and will include 290 single detached homes, 307 townhouses, and several multi-storey mid-rise buildings with a total of approximately 1700 apartment units and a total of approximately 15,000 square feet of retail space. However, the landowner of this property has only received allotment for 295 apartment units, in one building. For the purposes of this TIS, all other apartment buildings will be considered beyond the horizons of this study and will be further studied at the time that allotment is received, and those buildings can proceed.

b) Access to the development will be accommodated via intersection of Settlers Road West and Neyagawa Boulevard (Site Access #1) to the west, and intersection of Carding Mill Trail at future William Halton Parkway (Site Access #2) to the north. Site Access #2 will be located 300 metres west of William Halton Parkway and Burnhamthorpe Road intersection (measured stop bar to stop bar) and will be a full-movement access.

c) Based on a combination of the historical data and engineering judgement, a 2% per annum compound annual growth rate was selected. This is consistent with the TIS of nearby sites (Neighborhood 9/10/11 and Sherborne Lodge) prepared by CGH Transportation in 2020 and 2021.

d) To estimate the impact of the subject development on the Study Area a person trip generation exercise has been undertaken. The subject development is anticipated to generate 383 AM and 510 PM two-way peak hour auto trips in 2026 horizon, and 352 AM and 472 PM two-way peak hour auto trips in 2031 horizon. The vehicle trips were estimated using the projected 2026 and 2031 mode shares provided by Halton Region.

e) Using the existing traffic volumes, projected to 2021, and balanced between adjacent intersections, an operational analysis of existing conditions was undertaken. Through this analysis it was determined that the intersection of Burnhamthorpe Road and Sixth Line is experiencing capacity constraints. However, given the upcoming upgrades to this intersection no major mitigation measures were proposed to address the existing deficiencies.

f) The 2026 Future Background traffic volumes, including background growth, the construction of William Halton Parkway, the Sixth Line widening, and upgrades to intersections along Burnhamthorpe Road were analysed. To address projected deficiencies the following changes were made to the Study Area road network:

    a. Neyagawa Boulevard at William Halton Parkway
        i. Add a third through lane eastbound and westbound
        ii. Westbound and eastbound dual left turn lanes
        iii. Signal timing and phasing changes

    With the changes noted above, the intersections operations improve significantly, however, eastbound left and westbound left turn movements are still experiencing high delays, as high through volumes were given priority when allocating green time.

g) The operations of William Halton Parkway at Neyagawa Boulevard further deteriorate in the 2031 Future Background horizon. No further mitigation measures have been proposed or applied to this intersection as by this horizon it is anticipated that commuters would start to shift from single occupant vehicle trips

to transit and active modes. This must be promoted in order to ensure that by 2031 the overall amount of traffic growth can be accommodated by the Study Area road network. It should also be noted that a 2% background growth rate has been applied to the 2021 balanced volumes and this amount of growth will not be sustained into the future as the area surrounding the subject development will build-out and growth at this rate will not continue indefinitely.

h) In 2026 Future Total horizon it was found that the addition of the site generated traffic has a minimal impact on the Study Area intersections. Site Access #1 and the internal intersection were shown to operate with good LOS and low delays. The intersection of Carding Mill Trail at William Halton Parkway (Site Access #2) was shown to operate poorly as a result of limited gap opportunities to get in and out of the site. A traffic signal was examined to address these deficiencies and prevent safety hazards. With the proposed signals the Carding Mill Trail at William Halton Parkway intersection was projected to operate at a better LOS. This, however resulted in a V/C ratio of 1.06 at the eastbound through approach. The eastbound approach was also marginally over capacity at the adjacent intersection to the east. However, given that the auto trip generation of the proposed development will decrease in the 2031 Future Total horizon, and considering the overly conservative volume projections along William Halton Parkway, no further mitigations have been explored for the 2026 Future Total horizon.

i) The addition of the site generated traffic to the 2031 Future Background traffic volumes does not have a significant impact on the Study Area intersections. At the most operationally constrained intersection in the Study Area (Neyagawa Boulevard and William Halton Parkway), the proposed development contributes less than 2.5 percent of the peak hour volumes. Some of the movements at Neyagawa Boulevard and William Halton Parkway shift just over capacity with the addition of site generated trips, however, the poor LOS is predominantly caused by background volumes as the V/C ratios at failing movements were approaching capacity in the 2031 Future Background horizon.

j) The site accesses and the internal intersection generally operate with reasonable LOS during the 2031 Future Total horizon, with the exception of the eastbound through movement at William Halton Parkway and Carding Mill Trail intersection. A three-lane configuration has been proposed along William Halton Parkway to bring the V/C ratio of the eastbound movement below one, however it is likely that this mitigation measure is not needed due to the following:
    a. High volume projections along William Halton Parkway indicate that there may be some overlap between the Regional projections and the background traffic, which results in double counting and an overly conservative estimate.
    b. A shift from reliance on single occupant vehicles to other modes of travel is anticipated by 2030 which may alleviate some of the capacity constraints.

k) A sensitivity analysis has been undertaken to ensure that the current configuration of William Halton Parkway at Neyagawa Boulevard, built to the final design of WHP, is sufficient to carry the 2031 Future Total volumes. The results of the analysis show that future demand is within thresholds of the current intersection capacity, and therefore, no mitigation measures are required.

l) An AADT analysis was conducted to determine the appropriate right-of-way for Street ‘C’ and Street ‘M’. Based on the projected trip generation and distribution throughout the proposed Remington Eno and Trinison Sherborne Lodge properties, it was determined that Street ‘C’ should be designated as a collector road with a 19-metre right-of-way. Street ‘M’ analysis showed the projected daily volumes to be below the daily local road threshold, and therefore, Street ‘M’ should be designated as a local road with a 17-metre right-of-way.

m) TDM measures are implemented to encourage commuters to shift away from single occupant vehicle trips. For a development of the type proposed for Remington Eno, primarily low-density residential units, the most effective measures are access and usability of transit, cycling and pedestrian facilities. To ensure that the proposed developments are appropriately served by transit, cycling, and pedestrian facilities, concept plans have been prepared.

The proposed development will have a minor impact on the Study Area road network. The proposed accesses and the internal site intersection will operate at an acceptable level of service. The proposed development will provide a good pedestrian and cycling network along with good access to transit throughout the development. It is recommended that, from a transportation perspective, the proposed development application proceeds.

Prepared By:

Viktoriya Zaytseva, B.A.Sc.
416-567-3719
Viktoriya.Zaytseva@CGHTransportation.com

Reviewed By:

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

Appendix A

Scope Confirmation

Technical Memorandum

To:	Syed Rizvi – Town of Oakville Quadri Adebayo– Halton Region	Date:	2020-08-04
Cc:	Robin Marinac – CGH Transportation		
From:	Mark Crockford	Project Number:	2020-60

Re: Eno Investments Limited North Oakville – Terms of Reference

We have been asked to undertake a Transportation Impact Study (TIS) for Eno Investments property in North Oakville, located approximately 400 metres east of Burnhamthorpe Road at Neyagawa Boulevard. The proposed development includes a mix of 341 single detached houses, 204 townhouses, and an apartment tower with approximately 350 units. It has been indicated that allotment for this development will only allow one of the three 12-storey apartment towers shown on the concept plan, however at a future time it is anticipated that high density blocks will be present in the location of the three apartment towns shown on the plan. The property is currently a greenfield area that is bordered to the north by Burnhamthorpe Road. This section of Burnhamthorpe Road will ultimately become part of the future William Halton Parkway.

CGH has recently completed a TIS for nearby developments which will be used as a reference document for the required TIS.

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

Transportation Impact Study Requirements:

The study will be in accordance with North Oakville's *Terms of Reference for Transportation Impact Studies and Transportation Functional Design Studies (2009)*.

Study Area:

- An overview of the transportation network existing conditions will be documented (including transit, cycling, pedestrian and automobile modes)
- An overview of the Study Area road network will be provided including the road classification and descriptions of:
    - Neyagawa Boulevard
    - Burnhamthorpe Road (William Halton Parkway)
    - Old Burnhamthorpe Road
    - Sixth Line
    - Street A (Carding Mill Trail)
- The following intersections will be included in the Transportation Impact Study:
    - Neyagawa Boulevard at Burnhamthorpe Road (William Halton Parkway) - *Existing*
    - Street A (Carding Mill Trail) at Burnhamthorpe Road (William Halton Parkway) - *Existing*
    - Sixth Line at Burnhamthorpe Road - *Existing*
    - William Halton Parkway at Old Burnhamthorpe Road - *Future*
    - Internal intersection of Street B at Street A (Carding Mill Trail) - *Future*
- Existing Turning Movement Count Summary Reports for Neyagawa Boulevard at Burnhamthorpe Road (William Halton Parkway), Street A (Carding Mill Trail) at Burnhamthorpe Road (William Halton Parkway), and Sixth Line at

Burnhamthorpe Road will be requested from the Town of Oakville and used to determine the existing volumes at the applicable Study Area intersections.

- Signal Timing Plans for Trafalgar Road at Neyagawa Boulevard at Burnhamthorpe Road (William Halton Parkway) will be requested from the Town of Oakville.
- Existing collision data to be requested from the Town of Oakville in order to produce a traffic collision analysis

Proposed Development Overview:

- A description of the proposed development and any planned active mode facilities
- Outline of land use as it relates to the development and site statistics
- Transportation Demand Management (TDM) supportive elements of the proposed development

Study Horizon & Peak Periods:

- Base year 2020, followed by a build-out future horizon of 2025 (five-year future horizon)
- AM and PM peak hour horizons

Background Growth:

- A 2% compound annual background growth rate will be used to project both the 2020 existing volumes and 2025 future horizon volumes. These growth rates have been taken from the Transportation Impact Study for the adjacent development of Neighbourhood 9/10/11 in order to ensure consistency
- Surrounding development traffic impact assessments

Development Site Traffic:

- Trip generation: ITE Trip Generation Manual 10th Edition
- Existing Modal Split: TTS
- Future Modal Split: TTS and consideration of planned transportation improvements and future implemented TDM measures
- Trip distribution and assignment of auto trips: TTS, surrounding area characteristics
- Trip reductions as required

Analysis:

- Traffic analysis to be performed using Synchro 10, on Study Area network intersections to determine the LOS, delay, V / C ratio and the 95th percentile queues for both signalized and unsignalized intersections as well as individual critical movements using Highway Capacity Manual (HCM) methodology
    - Heavy Vehicle %, Peak Hour Factors, pedestrian volumes, and cyclist volumes will be taken from the collected TMC data
    - Other Synchro inputs will be based on site observations as well as Synchro default parameters
- A qualitative transit, cycling, and pedestrian analysis in consideration of any planned improvements
- Safety analysis to be performed if required
- Access location analysis including a sight distance evaluation
- Site parking, loading and circulation to be considered where necessary

Recommendations:

- Any recommended offsite improvements or mitigation measures, which may include turn lane requirements, pedestrian / cycling / transit amenities, construction impacts, safety measures etc.

Viktoriya Zaytseva

From: Adebayo, Quadri <Quadri.Adebayo@halton.ca>
Sent: August 18, 2020 3:34 PM
To: Mark Crockford
Cc: Robin Marinac; Syed Rizvi
Subject: RE: 374 Burnhamthorpe Road (Response to TIS Terms of Reference)

Good afternoon Mark,

Below is our transportation planning staff comments after reviewing the TIS terms of reference thus:

The terms of reference state "The study will be in accordance with North Oakville's Terms of Reference for Transportation Impact Studies and Transportation Functional Design Studies (2009)." The Study must also be in accordance to Halton Region's Transportation Impact Study Guidelines (2015), Halton's Access By-Law 32-17 and Halton's Access Management Guidelines (2015).

The study intersections listed in the terms of reference are acceptable.

Data Requests:
For the traffic volume counts and traffic signal timing, information can be requested from our Road Operations group at trafficdatarequests@halton.ca. Additionally, collision data for the area must be obtained for the last 5 years and outlined in the Study as part of a safety assessment. *Considering the current times we are experiencing with COVID-19, older counts may be used with an acceptable growth rate of 2% for the through movements at the Burnhamthorpe/Neyagawa intersection and along Burnhamthorpe. I would ask that if this is the case, please obtain at least two counts from past years and, review the consistency in all movements for both counts, prior to using. Should you find a discrepancy, please discuss with me prior to moving forward.

Burnhamthorpe Road:
Burnhamthorpe Road is currently designated as a Regional arterial road under the jurisdiction of Halton Region. However, a new roadway (William Halton Parkway) is being built just north of Burnhamthorpe Road and is expected to address future east-west travel demands in this area, replacing the Regional road function of Burnhamthorpe Road.

Burnhamthorpe Road is to be transferred to the Town in approximately 3-5 years, with the section from Sixth Line to Trafalgar Road to be transferred in the next 6-12 months.

For the Town's Burnhamthorpe Road Character Study and Class Environmental Assessment information, please see the study at this link: https://www.oakville.ca/residents/eas-burnhamthorpe.html

For any area developments, Town of Oakville development engineering staff will provide area development details.

The TIS report shall include:

- Site Plan and Map,
- Size & Number of Development Phases,

- Existing Conditions (Study Area Intersections, Road Network, Pedestrian Routes, Cycling Routes, Transit Services),
- Existing Traffic Conditions (Site Operating Characteristics, Data Collection/Traffic Counts, Analysis Periods (5 years Ahead),
- Future Background Conditions (Horizon Years, Horizon Year Volumes)
- Background Traffic Demand (with TMC's < 2 years old),
- Background Traffic Demand Forecast (with acceptable growth rates)
- Site Generated Traffic (Transit Modal Split, Trip Generation/Distribution/Assignment)
- Future Total Traffic Demand,
- Capacity Analysis (by Intersection, with LOS, Avg. Delay, V/C ratios),
- Traffic Impacts (Tables – Total Traffic with/without Mitigation)
- Access Considerations – Existing, Proposed, Geometrics (turn lanes, sight lines),
- Recommendations - Identify required/recommended road improvements either as a result of the development impacts, or general non-development improvements.
- TDM recommendations (Transit, Pedestrian & Cycling Facilities Analysis)
- Conclusions

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

Let me know if you have further questions

Regards,

Quadri Adebayo

Quadri Adebayo, M.PL, PMP
Intermediate Planner
Planning Services
Legislative & Planning Services
Halton Region
905-825-6000, ext. 3105 | 1-866-442-5866

From: Adebayo, Quadri
Sent: Wednesday, August 12, 2020 3:51 PM
To: 'Mark Crockford' <mark.crockford@cghtransportation.com>

Cc: Robin Marinac <robin.marinac@cghtransportation.com>
Subject: RE: 374 Burnhamthorpe Road

Thanks for the information.

This is to acknowledge receipt of your email and to advise that I have forwarded it on to the Region's Transportation Planner (Matt Krusto). He will communicate with you after he reviews it.

Regards,

Quadri

From: Mark Crockford <mark.crockford@cghtransportation.com>
Sent: Wednesday, August 12, 2020 3:25 PM
To: Adebayo, Quadri <Quadri.Adebayo@halton.ca>; Syed Rizvi <syed.rizvi@oakville.ca>
Cc: Robin Marinac <robin.marinac@cghtransportation.com>
Subject: 374 Burnhamthorpe Road

Hi Quadri and Syed,

We have been asked to undertake a TIS for 374 Burnhamthorpe Road. As part of our startup for this we've prepared a Terms of Reference for your review, please see attached. We've also included a preliminary concept plan for discussion purposes, please keep in mind this plan will likely change throughout the process. Please let us know if you have any comments or questions.

Thanks,
Mark

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

Viktoriya Zaytseva

From: Syed Rizvi <syed.rizvi@oakville.ca>
Sent: August 18, 2020 4:13 PM
To: Mark Crockford; Quadri.Adebayo@halton.ca
Cc: Robin Marinac
Subject: RE: 374 Burnhamthorpe Road

Hi Mark,
Town's Transportation comments on the TOR submitted are below:

- Add "Street B" and Neyagawa Blvd among the study area intersections.
- 2% annual growth rate for the area where sizeable developments are planned for next 5-8 years seems to be very low. The TIS that was completed recently should be consulted for consistency and growth factor should be used after approval from Region with cc to Town staff.
- A separate email for the traffic data required should be sent to the town staff for data processing.

Please feel free to contact if you have any questions.
Thanks,
Syed

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

From: Mark Crockford <mark.crockford@cghtransportation.com>
Sent: August 12, 2020 3:25 PM
To: Quadri.Adebayo@halton.ca; Syed Rizvi <syed.rizvi@oakville.ca>
Cc: Robin Marinac <robin.marinac@cghtransportation.com>
Subject: 374 Burnhamthorpe Road

Hi Quadri and Syed,

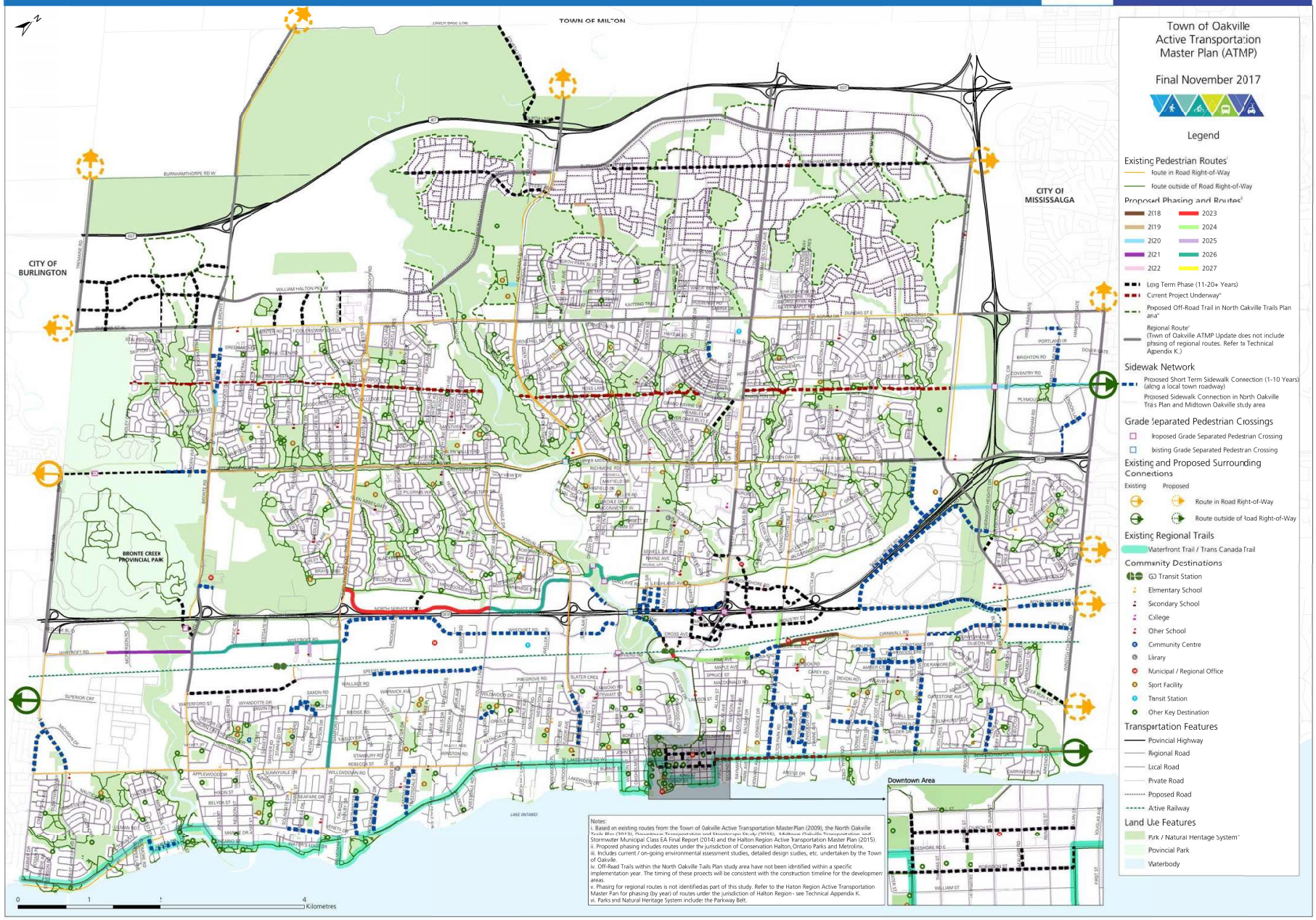
We have been asked to undertake a TIS for 374 Burnhamthorpe Road. As part of our startup for this we've prepared a Terms of Reference for your review, please see attached. We've also included a preliminary concept plan for discussion purposes, please keep in mind this plan will likely change throughout the process. Please let us know if you have any comments or questions.

Appendix B

Town of Oakville Active Transportation Master Plan Maps

Map 8 - Proposed Pedestrian Network Phasing

Map 8



Town of Oakville
Active Transportation
Master Plan (ATMP)

Final November 2017

Legend

Existing Pedestrian Routes
- Route in Road Right-of-Way
- Route outside of Road Right-of-Way

Proposed Phasing and Routes
- 2018
- 2019
- 2020
- 2021
- 2022
- 2023
- 2024
- 2025
- 2026
- 2027
- Long Term Phase (11-20+ Years)
- Current Project Underway
- Proposed Off-Road Trail in North Oakville Trails Plan area
- Regional Route (Town of Oakville ATMP Update does not include phasing of regional routes. Refer to Technical Appendix K.)

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

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

Existing and Proposed Surrounding Connections

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

Existing Regional Trails
- Waterfront Trail / Trans Canada Trail

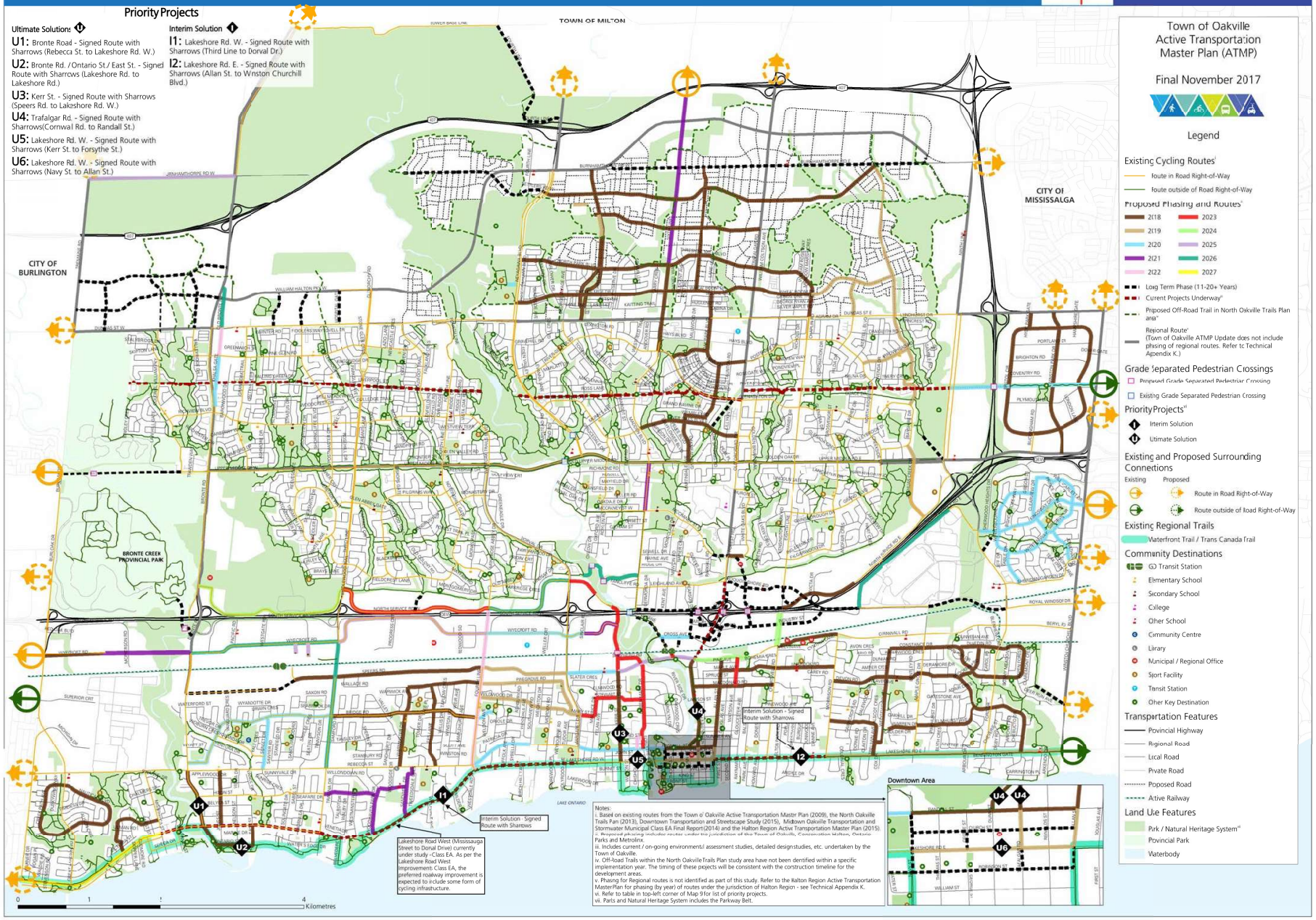
Community Destinations
- GO Transit Station
- Elementary School
- Secondary School
- College
- Other School
- Community Centre
- Library
- Municipal / Regional Office
- Sport Facility
- Transit Station
- Other Key Destination

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

Land Use Features
- Park / Natural Heritage System
- Provincial Park
- Waterbody

Map 9 - Proposed Cycling Network Phasing & Priority Projects

Map 9



Appendix C

Turning Movement Count Data

Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Project #20-185 - CGH Transportation

Intersection Count Report

Intersection:	Settlers Rd W & Neyagawa Blvd
Municipality:	Oakville
Count Date:	Nov 17, 2020
Site Code:	2018500001
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-09:00, 16:00-18:00
Weather:	Clear

Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Map

Intersection:	Settlers Rd W & Neyagawa Blvd
Municipality:	Oakville
Count Date:	Nov 17, 2020

Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Summary

Intersection: Settlers Rd W & Neyagawa Blvd
Municipality: Oakville
Count Date: Nov 17, 2020

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
07:00 - 08:00	0	153	0	0	153	1	9	271	0	0	280	0
08:00 - 09:00	0	262	5	0	267	0	68	306	0	0	374	0
BREAK												
16:00 - 17:00	0	295	2	0	297	0	28	220	0	0	248	0
17:00 - 18:00	0	250	4	0	254	0	33	197	0	0	230	0
GRAND TOTAL	**0**	**960**	**11**	**0**	**971**	**1**	**138**	**994**	**0**	**0**	**1132**	**0**

Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Summary

Intersection: Settlers Rd W & Neyagawa Blvd
Municipality: Oakville
Count Date: Nov 17, 2020

Settlers Rd W - Traffic Summary

	East Approach Totals						West Approach Totals					
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles					
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds
07:00 - 08:00	0	0	0	0	0	0	6	0	12	0	18	0
08:00 - 09:00	0	0	0	0	0	0	8	0	31	0	39	0
BREAK												
16:00 - 17:00	0	0	0	0	0	0	2	0	14	0	16	0
17:00 - 18:00	0	0	0	0	0	0	0	0	25	0	25	0
GRAND TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**16**	**0**	**82**	**0**	**98**	**0**

Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Settlers Rd W & Neyagawa Blvd
Municipality: Oakville
Count Date: Nov 17, 2020

North Approach - Neyagawa Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	0	32	0	0	32	0	2	0	0	2	0	0	0	0	0	0
07:15	0	41	0	0	41	0	1	0	0	1	0	0	0	0	0	1
07:30	0	30	0	0	30	0	0	0	0	0	0	0	0	0	0	0
07:45	0	47	0	0	47	0	0	0	0	0	0	0	0	0	0	0
08:00	0	53	1	0	54	0	0	0	0	0	0	0	0	0	0	0
08:15	0	58	3	0	61	0	1	0	0	1	0	0	0	0	0	0
08:30	0	84	0	0	84	0	1	0	0	1	0	0	0	0	0	0
08:45	0	62	1	0	63	0	3	0	0	3	0	0	0	0	0	0
SUBTOTAL	0	407	5	0	412	0	8	0	0	8	0	0	0	0	0	1

Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Settlers Rd W & Neyagawa Blvd
Municipality: Oakville
Count Date: Nov 17, 2020

North Approach - Neyagawa Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	0	78	1	0	79	0	0	0	0	0	0	0	0	0	0	0
16:15	0	61	1	0	62	0	0	0	0	0	0	0	0	0	0	0
16:30	0	80	0	0	80	0	0	0	0	0	0	0	0	0	0	0
16:45	0	76	0	0	76	0	0	0	0	0	0	0	0	0	0	0
17:00	0	56	0	0	56	0	0	0	0	0	0	0	0	0	0	0
17:15	0	71	1	0	72	0	0	0	0	0	0	0	0	0	0	0
17:30	0	67	1	0	68	0	0	0	0	0	0	0	0	0	0	0
17:45	0	56	2	0	58	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	545	6	0	551	0	0	0	0	0	0	0	0	0	0	0
GRAND TOTAL	**0**	**952**	**11**	**0**	**963**	**0**	**8**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**1**

Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Settlers Rd W & Neyagawa Blvd
Municipality: Oakville
Count Date: Nov 17, 2020

South Approach - Neyagawa Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	0	67	0	0	67	0	0	0	0	0	0	0	0	0	0	0
07:15	2	77	0	0	79	0	0	0	0	0	0	0	0	0	0	0
07:30	3	69	0	0	72	0	0	0	0	0	0	0	0	0	0	0
07:45	4	58	0	0	62	0	0	0	0	0	0	0	0	0	0	0
08:00	10	77	0	0	87	0	6	0	0	6	0	0	0	0	0	0
08:15	19	91	0	0	110	1	3	0	0	4	0	0	0	0	0	0
08:30	29	74	0	0	103	0	4	0	0	4	0	0	0	0	0	0
08:45	9	47	0	0	56	0	4	0	0	4	0	0	0	0	0	0
SUBTOTAL	76	560	0	0	636	1	17	0	0	18	0	0	0	0	0	0

Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Settlers Rd W & Neyagawa Blvd
Municipality: Oakville
Count Date: Nov 17, 2020

South Approach - Neyagawa Blvd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	4	52	0	0	56	0	1	0	0	1	0	0	0	0	0	0
16:15	7	58	0	0	65	0	1	0	0	1	0	0	0	0	0	0
16:30	9	52	0	0	61	0	0	0	0	0	0	0	0	0	0	0
16:45	8	56	0	0	64	0	0	0	0	0	0	0	0	0	0	0
17:00	8	48	0	0	56	0	0	0	0	0	0	0	0	0	0	0
17:15	7	61	0	0	68	0	0	0	0	0	0	0	0	0	0	0
17:30	8	51	0	0	59	0	0	0	0	0	0	0	0	0	0	0
17:45	10	37	0	0	47	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	61	415	0	0	476	0	2	0	0	2	0	0	0	0	0	0
GRAND TOTAL	137	975	0	0	1112	1	19	0	0	20	0	0	0	0	0	0

Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Settlers Rd W & Neyagawa Blvd
Municipality: Oakville
Count Date: Nov 17, 2020

West Approach - Settlers Rd W

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	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0
07:30	4	0	4	0	8	0	0	0	0	0	0	0	0	0	0	0
07:45	1	0	6	0	7	0	0	0	0	0	0	0	0	0	0	0
08:00	2	0	5	0	7	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0
08:30	2	0	13	0	15	0	0	0	0	0	0	0	0	0	0	0
08:45	4	0	9	0	13	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	14	0	43	0	57	0	0	0	0	0	0	0	0	0	0	0

Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Traffic Count Data

Intersection: Settlers Rd W & Neyagawa Blvd
Municipality: Oakville
Count Date: Nov 17, 2020

West Approach - Settlers Rd W

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
16:00	0	0	5	0	5	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0
16:45	2	0	3	0	5	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	6	0	6	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	6	0	6	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	6	0	6	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	7	0	7	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	2	0	39	0	41	0	0	0	0	0	0	0	0	0	0	0
GRAND TOTAL	**16**	**0**	**82**	**0**	**98**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Peak Hour Diagram

Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Specified Period		One Hour Peak	
From:	07:00:00	From:	08:00:00
To:	09:00:00	To:	09:00:00

Intersection: Settlers Rd W & Neyagawa Blvd
Site ID: 2018500001
Count Date: Nov 17, 2020

Weather conditions:

**** Signalized Intersection ****

Major Road: Neyagawa Blvd runs N/S

North Approach

	Out	In	Total
Cars	262	297	559
Trucks	5	17	22
Bicycles	0	0	0
	267	**314**	**581**

Neyagawa Blvd

Bicycles	0	0	0
Trucks	0	5	0
Cars	5	257	0
Totals	**5**	**262**	**0**

Peds: 0

Settlers Rd W

			Totals
0	0	0	**0**
0	0	8	**8**
0	0	31	**31**

Peds: 0

Peds: 0

Peds: 0

West Approach

	Out	In	Total
Cars	39	72	111
Trucks	0	1	1
Bicycles	0	0	0
	39	**73**	**112**

Totals	**68**	**306**	**0**
Cars	67	289	0
Trucks	1	17	0
Bicycles	0	0	0

Neyagawa Blvd

South Approach

	Out	In	Total
Cars	356	288	644
Trucks	18	5	23
Bicycles	0	0	0
	374	**293**	**667**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Summary

Intersection: Settlers Rd W & Neyagawa Blvd
Count Date: Nov 17, 2020
Period: 07:00 - 09:00

Peak Hour Data (08:00 - 09:00)

Start Time	North Approach Neyagawa Blvd						South Approach Neyagawa Blvd						East Approach						West Approach Settlers Rd W						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
08:00		53	1	0	0	54	10	83		0	0	93				0			2		5	0	0	7	154
08:15		59	3	0	0	62	20	94		0	0	114				0			0		4	0	0	4	180
08:30		85	0	0	0	85	29	78		0	0	107				0			2		13	0	0	15	207
08:45		65	1	0	0	66	9	51		0	0	60				0			4		9	0	0	13	139
Grand Total		**262**	**5**	**0**	**0**	**267**	**68**	**306**		**0**	**0**	**374**				**0**	**0**		**8**		**31**	**0**	**0**	**39**	**680**
Approach %		98.1	1.9	0		-	18.2	81.8		0		-					-		20.5		79.5	0		-	
Totals %		38.5	0.7	0		39.3	10	45		0		55					0		1.2		4.6	0		5.7	
PHF		**0.77**	**0.42**	**0**		**0.79**	**0.59**	**0.81**		**0**		**0.82**					**0**		**0.5**		**0.6**	**0**		**0.65**	**0.82**
Cars		257	5	0		262	67	289		0		356					0		8		31	0		39	657
% Cars		98.1	100	0		98.1	98.5	94.4		0		95.2					0		100		100	0		100	96.6
Trucks		5	0	0		5	1	17		0		18					0		0		0	0		0	23
% Trucks		1.9	0	0		1.9	1.5	5.6		0		4.8					0		0		0	0		0	3.4
Bicycles		0	0	0		0	0	0		0		0					0		0		0	0		0	0
% Bicycles		0	0	0		0	0	0		0		0					0		0		0	0		0	0
Peds					0	-					0	-				0	-						0	-	0
% Peds					0	-					0	-				0	-						0	-	

Peak Hour Diagram

Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Specified Period		One Hour Peak	
From:	16:00:00	From:	16:00:00
To:	18:00:00	To:	17:00:00

Intersection: Settlers Rd W & Neyagawa Blvd
Site ID: 2018500001
Count Date: Nov 17, 2020

Weather conditions:

**** Signalized Intersection ****

Major Road: Neyagawa Blvd runs N/S

North Approach

	Out	In	Total
Cars	297	220	517
Trucks	0	2	2
Bicycles	0	0	0
	297	**222**	**519**

Neyagawa Blvd

Bicycles	0	0	0
Trucks	0	0	0
Cars	2	295	0
Totals	**2**	**295**	**0**

Peds: 0

Settlers Rd W

			Totals
0	0	0	**0**
0	0	2	**2**
0	0	14	**14**

Peds: 0

Peds: 0

Peds: 0

West Approach

	Out	In	Total
Cars	16	30	46
Trucks	0	0	0
Bicycles	0	0	0
	16	**30**	**46**

Totals	**28**	**220**	**0**
Cars	28	218	0
Trucks	0	2	0
Bicycles	0	0	0

Neyagawa Blvd

South Approach

	Out	In	Total
Cars	246	309	555
Trucks	2	0	2
Bicycles	0	0	0
	248	**309**	**557**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Summary

Intersection: Settlers Rd W & Neyagawa Blvd
Count Date: Nov 17, 2020
Period: 16:00 - 18:00

Peak Hour Data (16:00 - 17:00)

Start Time	North Approach Neyagawa Blvd						South Approach Neyagawa Blvd						East Approach						West Approach Settlers Rd W						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:00		78	1	0	0	79	4	53		0	0	57				0		0	0		5	0	0	5	141
16:15		61	1	0	0	62	7	59		0	0	66				0		0	0		3	0	0	3	131
16:30		80	0	0	0	80	9	52		0	0	61				0		0	0		3	0	0	3	144
16:45		76	0	0	0	76	8	56		0	0	64				0		2	0		3	0	0	5	145
Grand Total		**295**	**2**	**0**	**0**	**297**	**28**	**220**		**0**	**0**	**248**				**0**	**0**	**2**			**14**	**0**	**0**	**16**	**561**
Approach %		99.3	0.7	0		-	11.3	88.7		0		-					-	12.5			87.5	0		-	
Totals %		52.6	0.4	0		52.9	5	39.2		0		44.2					0	0.4			2.5	0		2.9	
PHF		**0.92**	**0.5**	**0**		**0.93**	**0.78**	**0.93**		**0**		**0.94**					**0**	**0.25**			**0.7**	**0**		**0.8**	**0.97**
Cars		295	2	0		297	28	218		0		246					0	2			14	0		16	559
% Cars		100	100	0		100	100	99.1		0		99.2					0	100			100	0		100	99.6
Trucks		0	0	0		0	0	2		0		2					0	0			0	0		0	2
% Trucks		0	0	0		0	0	0.9		0		0.8					0	0			0	0		0	0.4
Bicycles		0	0	0		0	0	0		0		0					0	0			0	0		0	0
% Bicycles		0	0	0		0	0	0		0		0					0	0			0	0		0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Burnhamthorpe Rd W @ Neyagawa Blvd

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 7:45:00
To: 8:45:00

Municipality: Halton Region
Site #: 0000003297
Intersection: Neyagawa Blvd & Burnhamthorpe R
TFR File #: 3
Count date: 4-Dec-2019

Weather conditions:
Overcast/Wet

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Neyagawa Blvd runs N/S

North Leg Total:	897			
North Entering:	317			
North Peds:	0			
Peds Cross:	⋈			
Heavys	2	7	2	11
Trucks	0	4	2	6
Cars	56	216	28	300
Totals	58	227	32	
Heavys	2			
Trucks	1			
Cars	577			
Totals	580			
East Leg Total:	684			
East Entering:	306			
East Peds:	0			
Peds Cross:	⧖			

Neyagawa Blvd

Heavys	Trucks	Cars	Totals
16	1	294	311

Cars	Trucks	Heavys	Totals
12	0	0	12
76	0	6	82
212	0	0	212
300	0	6	

Burnhamthorpe Rd W

N
W E
S

Heavys	Trucks	Cars	Totals
1	0	38	39
4	0	61	65
9	0	121	130
14	0	220	

Burnhamthorpe Rd W

Cars	Trucks	Heavys	Totals
368	3	7	378

Neyagawa Blvd

Peds Cross:	⧖			
West Peds:	0			
West Entering:	234			
West Leg Total:	545			
Cars	549			
Trucks	4			
Heavys	16			
Totals	569			
Cars	162	527	279	968
Trucks	1	1	1	3
Heavys	8	1	1	10
Totals	171	529	281	
Peds Cross:	⋈			
South Peds:	0			
South Entering:	981			
South Leg Total:	1550			

Comments

Burnhamthorpe Rd W @ Neyagawa Blvd

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 11:30:00
To: 12:30:00

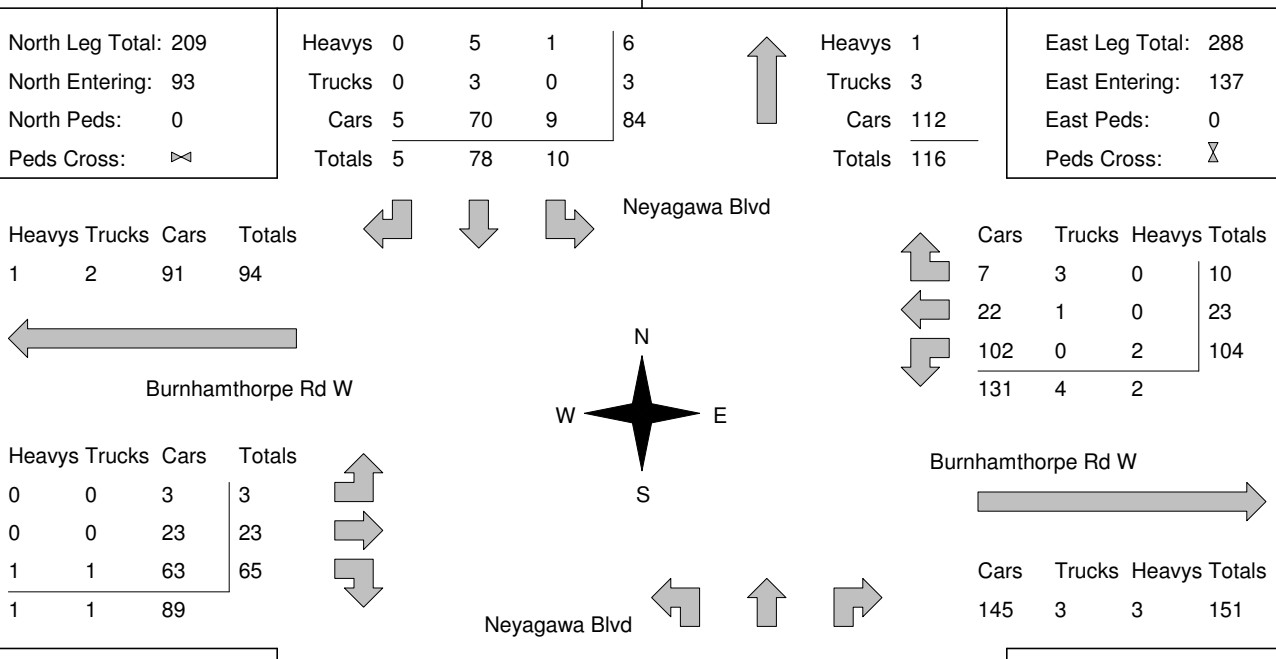
Municipality: Halton Region
Site #: 0000003297
Intersection: Neyagawa Blvd & Burnhamthorpe R
TFR File #: 3
Count date: 4-Dec-2019

Weather conditions:
Overcast/Wet

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Neyagawa Blvd runs N/S



Comments

Burnhamthorpe Rd W @ Neyagawa Blvd

Afternoon Peak Diagram

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

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

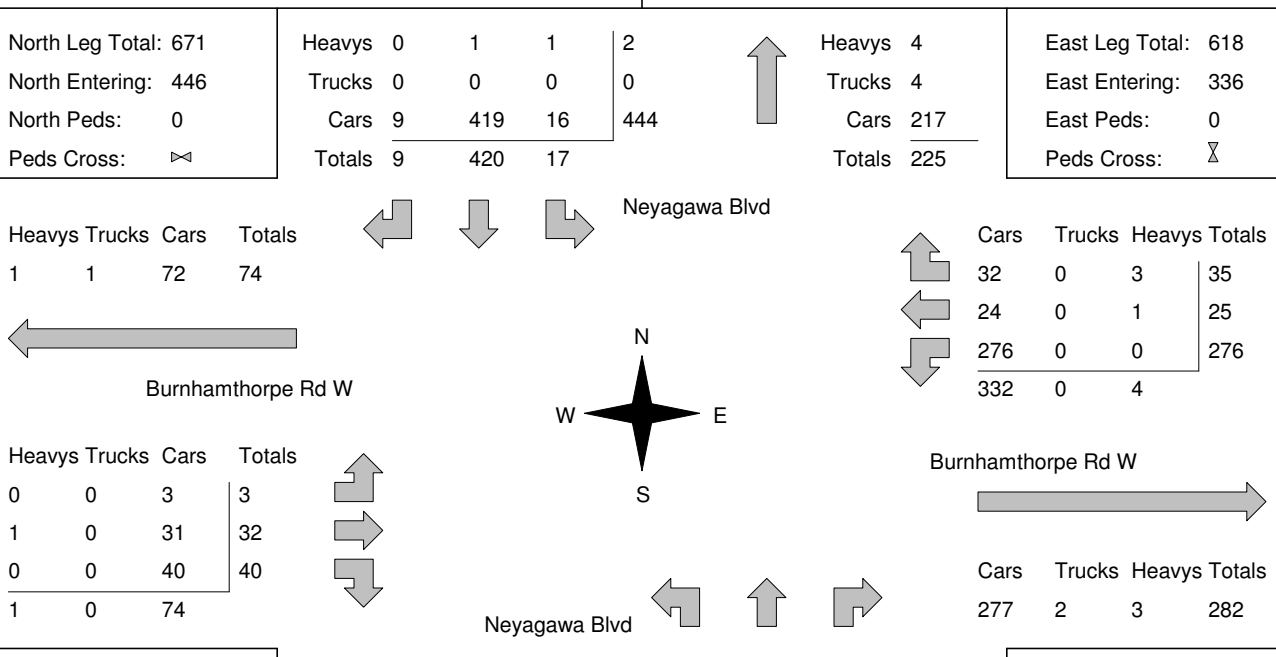
Municipality: Halton Region
Site #: 0000003297
Intersection: Neyagawa Blvd & Burnhamthorpe R
TFR File #: 3
Count date: 4-Dec-2019

Weather conditions:
Overcast/Wet

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Neyagawa Blvd runs N/S



Comments

Burnhamthorpe Rd W @ Neyagawa Blvd

Total Count Diagram

Municipality: Halton Region
Site #: 0000003297
Intersection: Neyagawa Blvd & Burnhamthorpe R
TFR File #: 3
Count date: 4-Dec-2019

Weather conditions:
Overcast/Wet

Person(s) who counted:
Cam

**** Signalized Intersection ****

Major Road: Neyagawa Blvd runs N/S

North Leg Total:	3757
North Entering:	1825
North Peds:	0
Peds Cross:	⋈

Heavys	4	40	13	57
Trucks	0	13	5	18
Cars	113	1508	129	1750
Totals	117	1561	147	

Heavys	25
Trucks	22
Cars	1885
Totals	1932

East Leg Total:	3684
East Entering:	1803
East Peds:	0
Peds Cross:	⧖

Neyagawa Blvd

Heavys	Trucks	Cars	Totals
34	12	847	893

Cars	Trucks	Heavys	Totals
125	3	9	137
236	3	10	249
1407	4	6	1417
1768	10	25	

Burnhamthorpe Rd W

N
W E
S

Heavys	Trucks	Cars	Totals
3	1	98	102
12	2	250	264
17	4	462	483
32	7	810	

Burnhamthorpe Rd W

Cars	Trucks	Heavys	Totals
1830	17	34	1881

Neyagawa Blvd

Peds Cross:	⧖
West Peds:	1
West Entering:	849
West Leg Total:	1742

Cars	3377
Trucks	21
Heavys	63
Totals	3461

Cars	498	1662	1451	3611
Trucks	9	18	10	37
Heavys	20	13	9	42
Totals	527	1693	1470	

Peds Cross:	⋈
South Peds:	1
South Entering:	3690
South Leg Total:	7151

Comments

Burnhamthorpe Rd E @ Sixth Line

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 7:45:00
To: 8:45:00

Municipality: Halton Region
Site #: 0000003298
Intersection: Burnhamthorpe Rd E & Sixth Line
TFR File #: 4
Count date: 4-Dec-2019

Weather conditions:
Overcast/Wet

Person(s) who counted:
Cam

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

Major Road: Burnhamthorpe Rd E runs W/E

North Leg Total:	693			
North Entering:	417			
North Peds:	2			
Peds Cross:	⋈			
Heavys	1	5	4	10
Trucks	0	1	4	5
Cars	90	188	124	402
Totals	91	194	132	
Heavys	3			
Trucks	3			
Cars	270			
Totals	276			
East Leg Total:	903			
East Entering:	265			
East Peds:	0			
Peds Cross:	⧖			

Sixth Line

Heavys	Trucks	Cars	Totals
7	1	287	295

Burnhamthorpe Rd E

Heavys	Trucks	Cars	Totals
3	1	90	94
1	0	262	263
2	1	21	24
6	2	373	

Cars	Trucks	Heavys	Totals
15	0	0	15
189	1	5	195
54	0	1	55
258	1	6	

N
W E
S

Burnhamthorpe Rd E

Cars	Trucks	Heavys	Totals
627	4	7	638

Sixth Line

Peds Cross:	⧖			
West Peds:	0			
West Entering:	381			
West Leg Total:	676			
Cars	263			
Trucks	2			
Heavys	8			
Totals	273			
Cars	8	165	241	414
Trucks	0	2	0	2
Heavys	1	0	2	3
Totals	9	167	243	
Peds Cross:	⋈			
South Peds:	0			
South Entering:	419			
South Leg Total:	692			

Comments

Burnhamthorpe Rd E @ Sixth Line

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 11:45:00
To: 12:45:00

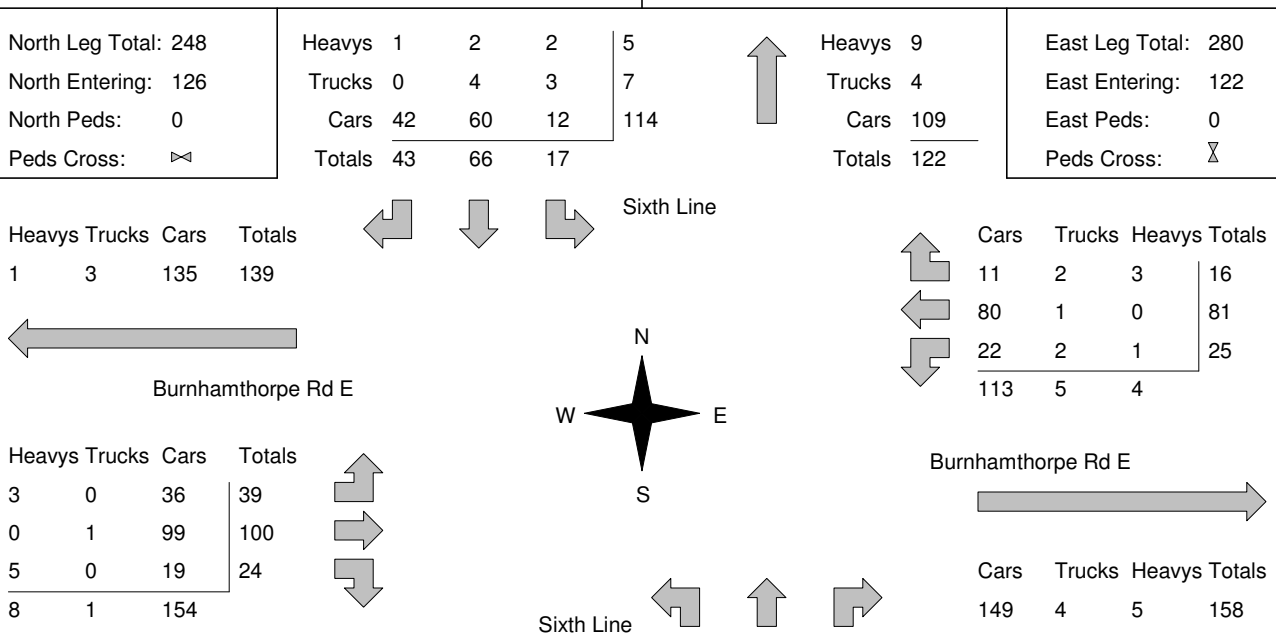
Municipality: Halton Region
Site #: 0000003298
Intersection: Burnhamthorpe Rd E & Sixth Line
TFR File #: 4
Count date: 4-Dec-2019

Weather conditions:
Overcast/Wet

Person(s) who counted:
Cam

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

Major Road: Burnhamthorpe Rd E runs W/E



Comments

Burnhamthorpe Rd E @ Sixth Line

Afternoon Peak Diagram

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

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

Municipality: Halton Region
Site #: 0000003298
Intersection: Burnhamthorpe Rd E & Sixth Line
TFR File #: 4
Count date: 4-Dec-2019

Weather conditions:
Overcast/Wet

Person(s) who counted:
Cam

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

Major Road: Burnhamthorpe Rd E runs W/E

North Leg Total:	728			
North Entering:	263			
North Peds:	0			
Peds Cross:	⋈			
Heavys	0	0	1	1
Trucks	0	1	0	1
Cars	115	123	23	261
Totals	115	124	24	
Heavys	2			
Trucks	0			
Cars	463			
Totals	465			
East Leg Total:	707			
East Entering:	414			
East Peds:	0			
Peds Cross:	⧖			

Sixth Line

Heavys	Trucks	Cars	Totals
4	0	345	349

Cars	Trucks	Heavys	Totals
118	0	0	118
204	0	1	205
91	0	0	91
413	0	1	

Burnhamthorpe Rd E

N
W E
S

Heavys	Trucks	Cars	Totals
1	0	104	105
2	0	180	182
0	0	11	11
3	0	295	

Burnhamthorpe Rd E

Cars	Trucks	Heavys	Totals
288	1	4	293

Sixth Line

Peds Cross:	⧖			
West Peds:	0			
West Entering:	298			
West Leg Total:	647			
Cars	225			
Trucks	1			
Heavys	0			
Totals	226			
Cars	26	241	85	352
Trucks	0	0	1	1
Heavys	3	1	1	5
Totals	29	242	87	
Peds Cross:	⋈			
South Peds:	1			
South Entering:	358			
South Leg Total:	584			

Comments

Burnhamthorpe Rd E @ Sixth Line

Total Count Diagram

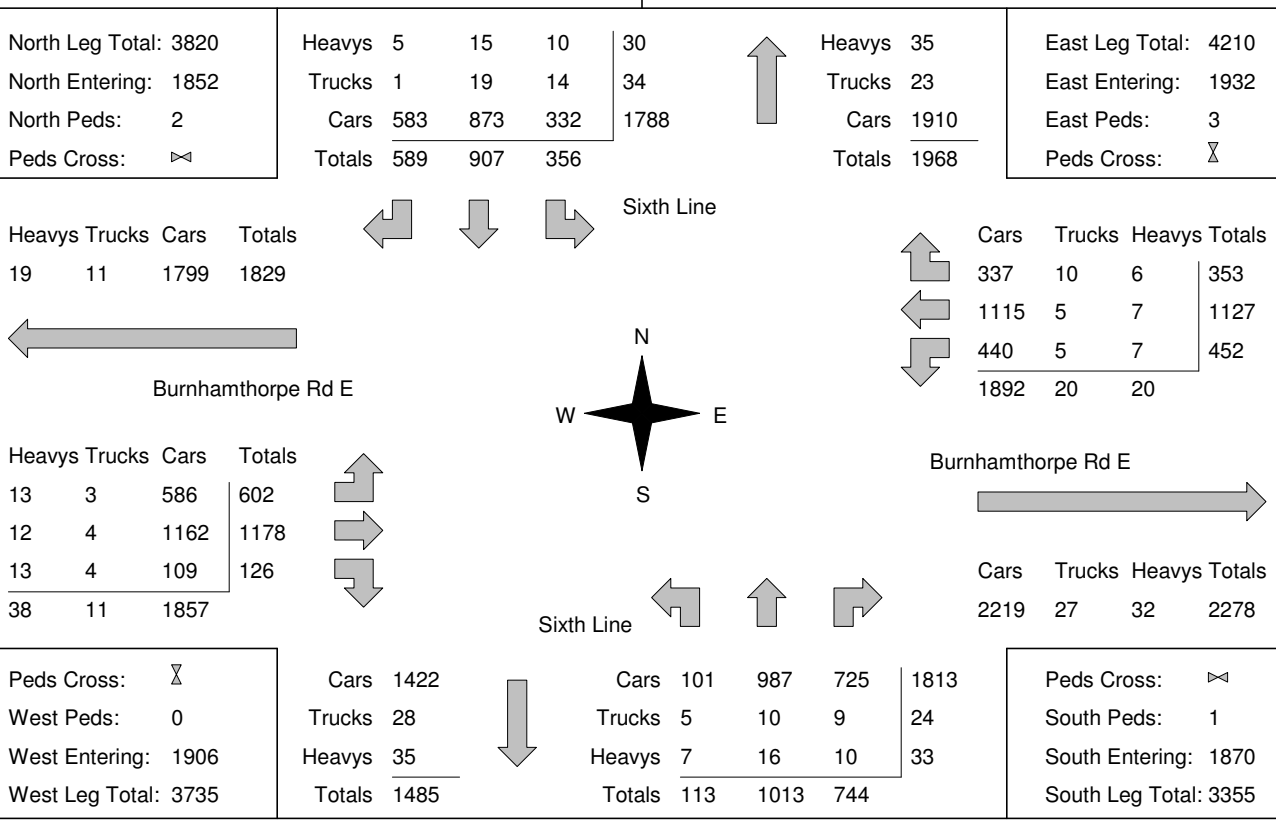
Municipality: Halton Region
Site #: 0000003298
Intersection: Burnhamthorpe Rd E & Sixth Line
TFR File #: 4
Count date: 4-Dec-2019

Weather conditions:
Overcast/Wet

Person(s) who counted:
Cam

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

Major Road: Burnhamthorpe Rd E runs W/E



Comments

Appendix D

Volumes Along Future William Halton Parkway

From:	Mark Crockford
To:	Viktoriya Zaytseva
Subject:	FW: Neighbourhood 10 - Revised Scope
Date:	January 14, 2021 10:39:09 AM
Attachments:	image001.png image002.png

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

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

All looks thorough and detailed enough for me.

Thanks Mark!

Matt

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

Halton Region logo

From: Mark Crockford [mailto:mark.crockford@cghtransportation.com]
Sent: Tuesday, November 27, 2018 12:54 PM

To: Krusto, Matt; syed.rizvi@oakville.ca
Cc: Christopher Gordon
Subject: Neighbourhood 10 - Revised Scope

Hi Matt and Syed,

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

Transportation Impact Study Requirements (TIS):

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

The TIS report will include:

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

Study Area:

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

- Trafalgar Road and Burnhamthorpe Road
- Trafalgar Road and William Halton Parkway
- Dundas Street and Sixth Line

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

Study Horizon:

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

Background Growth

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

Transit Mode Splits:

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

Trip Generation

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

Changes to the Study Area Road Network:

Sixth Line Widening

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

William Halton Parkway

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

Thanks,

Mark

Appendix E

Landowner's Group Neighborhood 9/10/11 Traffic Volumes

Figure 23: 2024 Traffic Assignment (Sheet A)

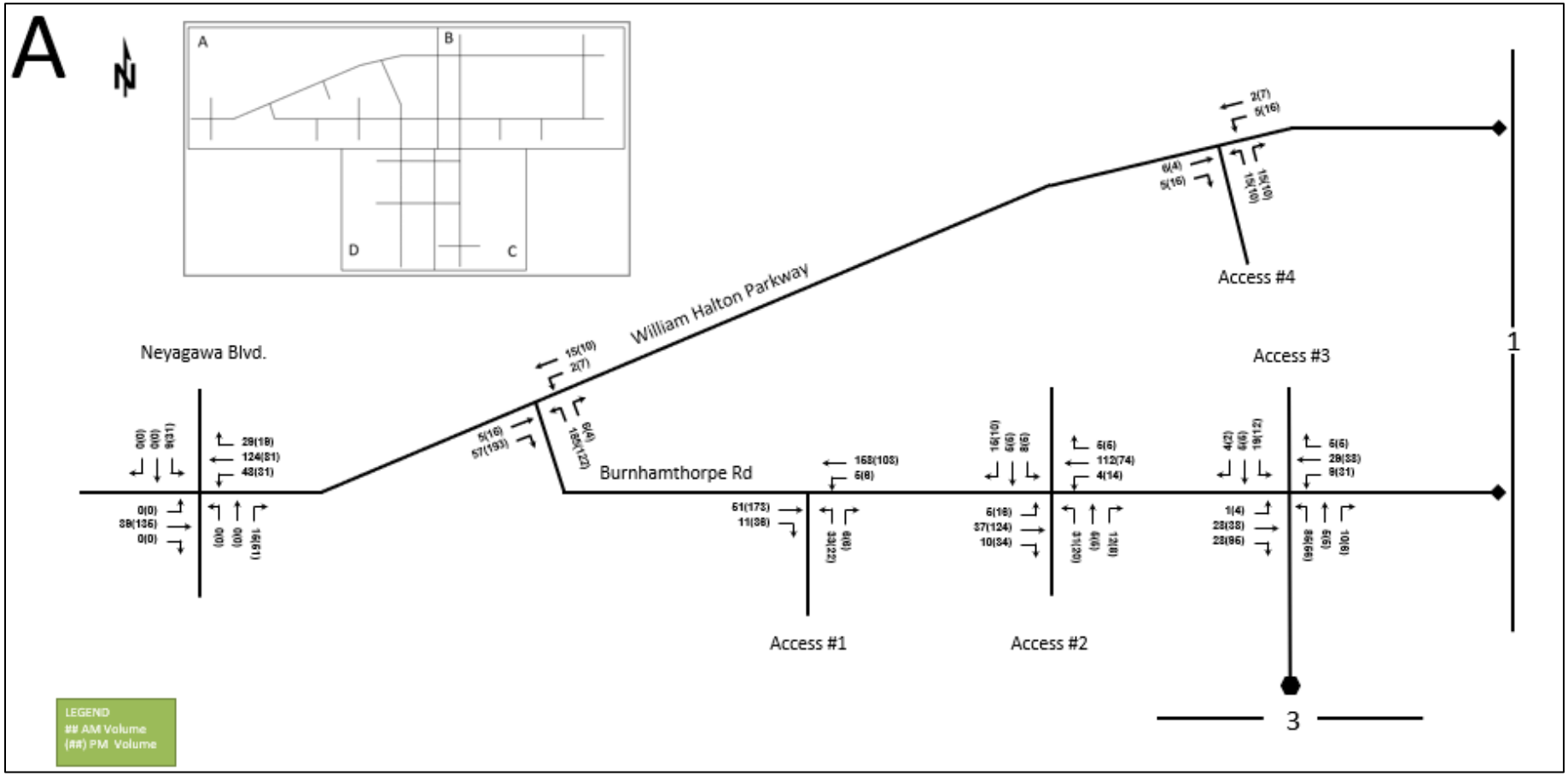


Figure 24: 2024 Traffic Assignment (Sheet B)

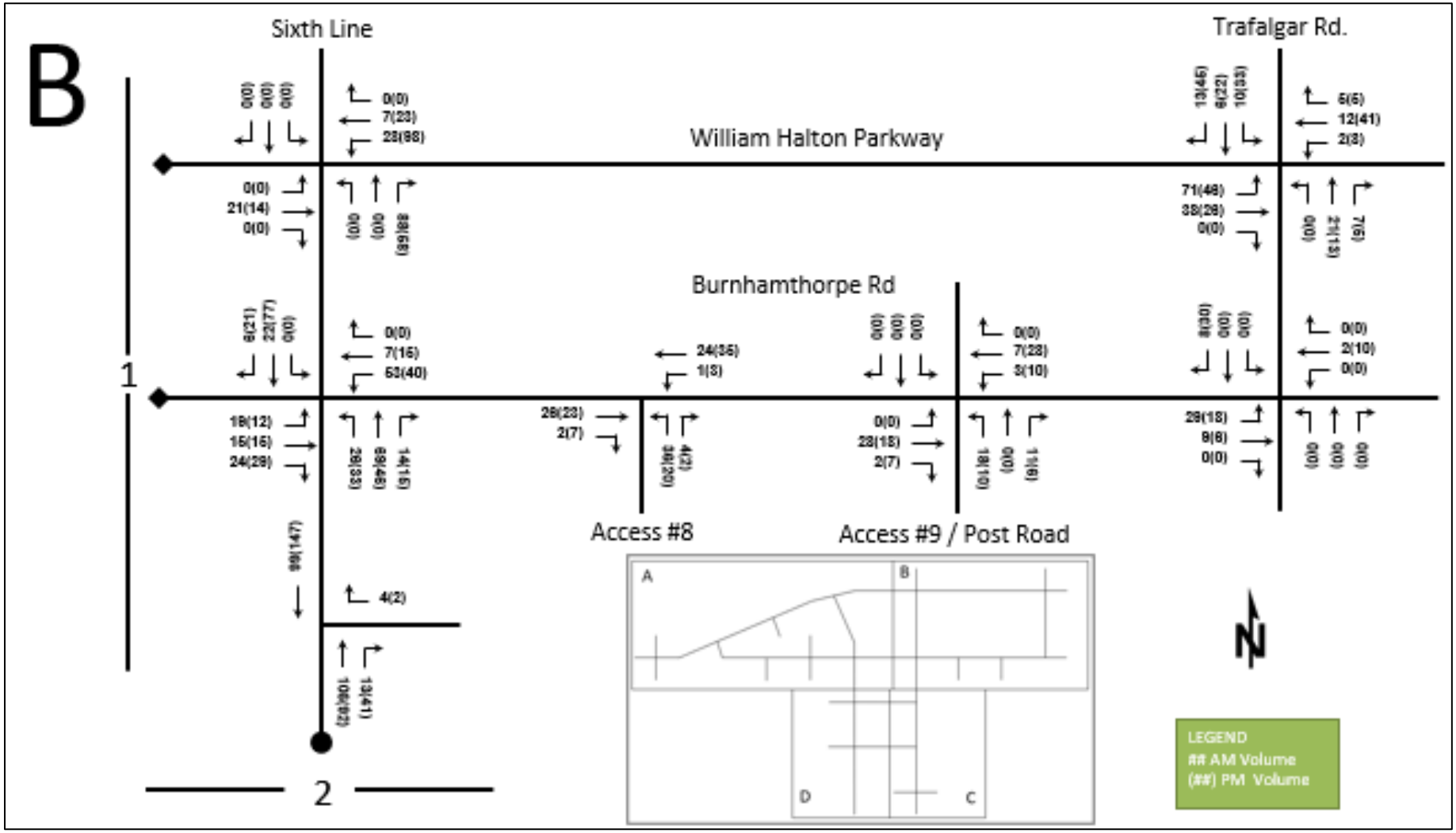


Figure 25: 2024 Traffic Assignment (Sheet C)

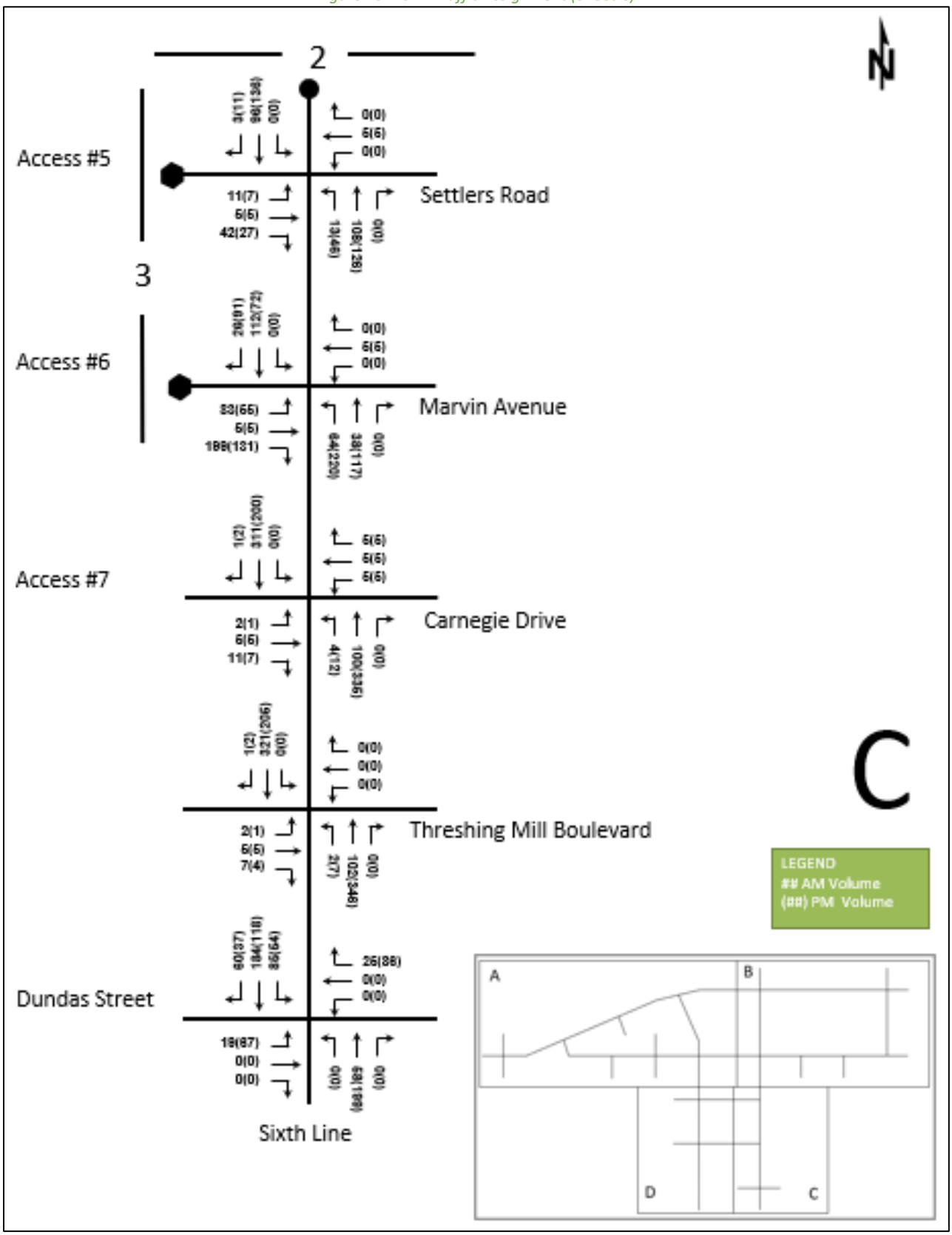


Figure 26: 2024 Traffic Assignment (Sheet D)

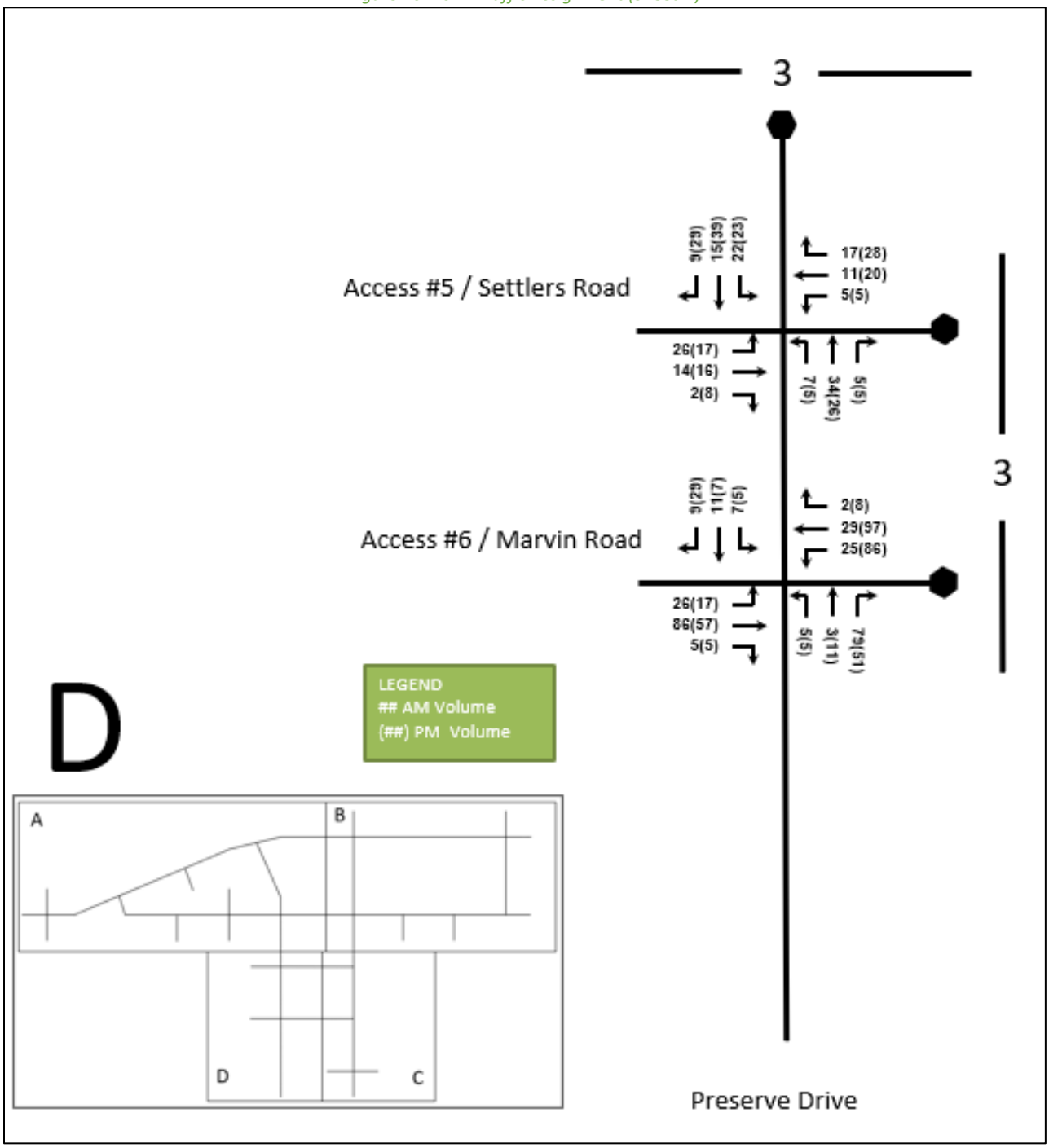


Figure 27: 2030 Traffic Assignment (Sheet A)

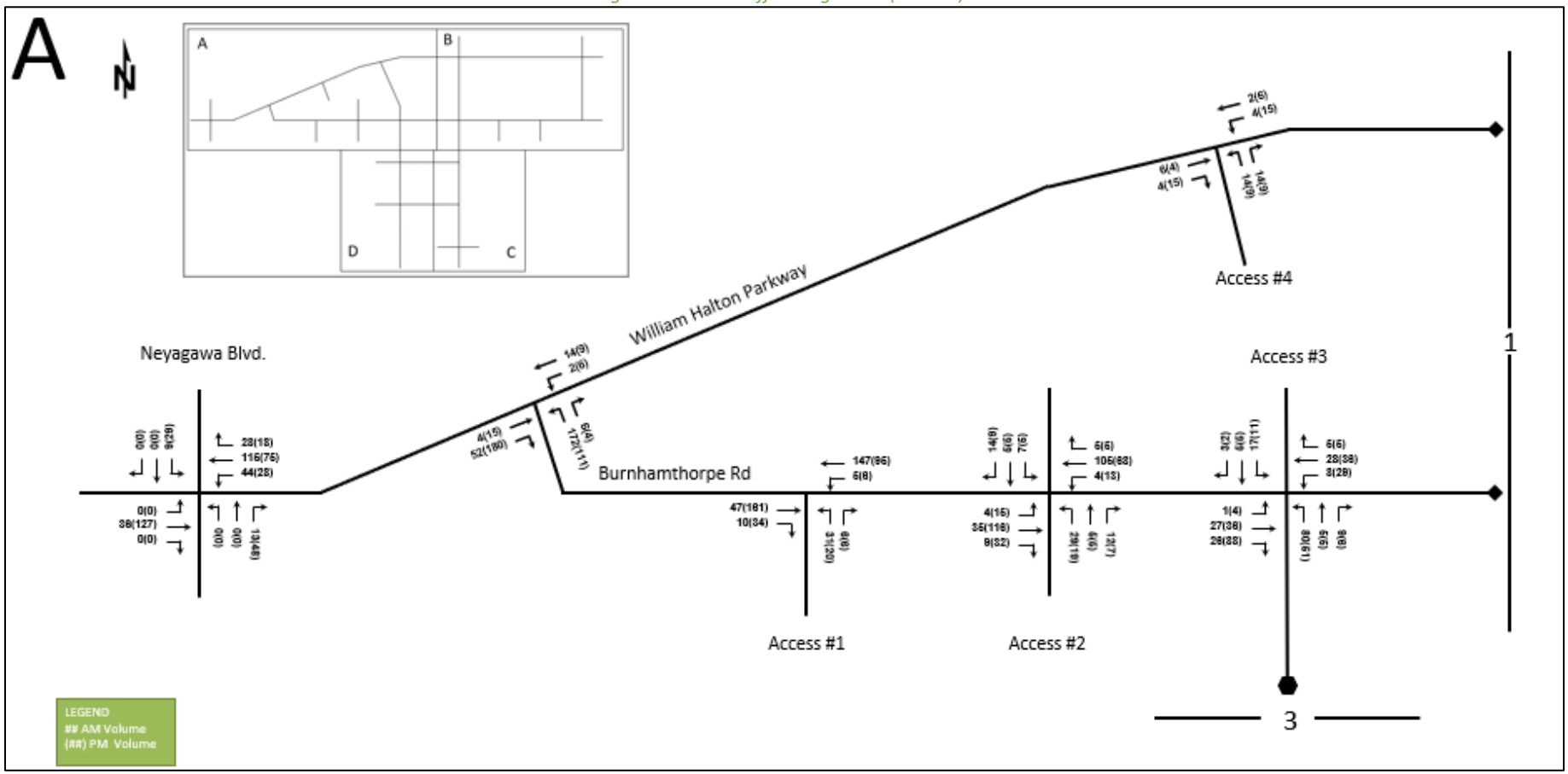


Figure 28: 2030 Traffic Assignment (Sheet B)

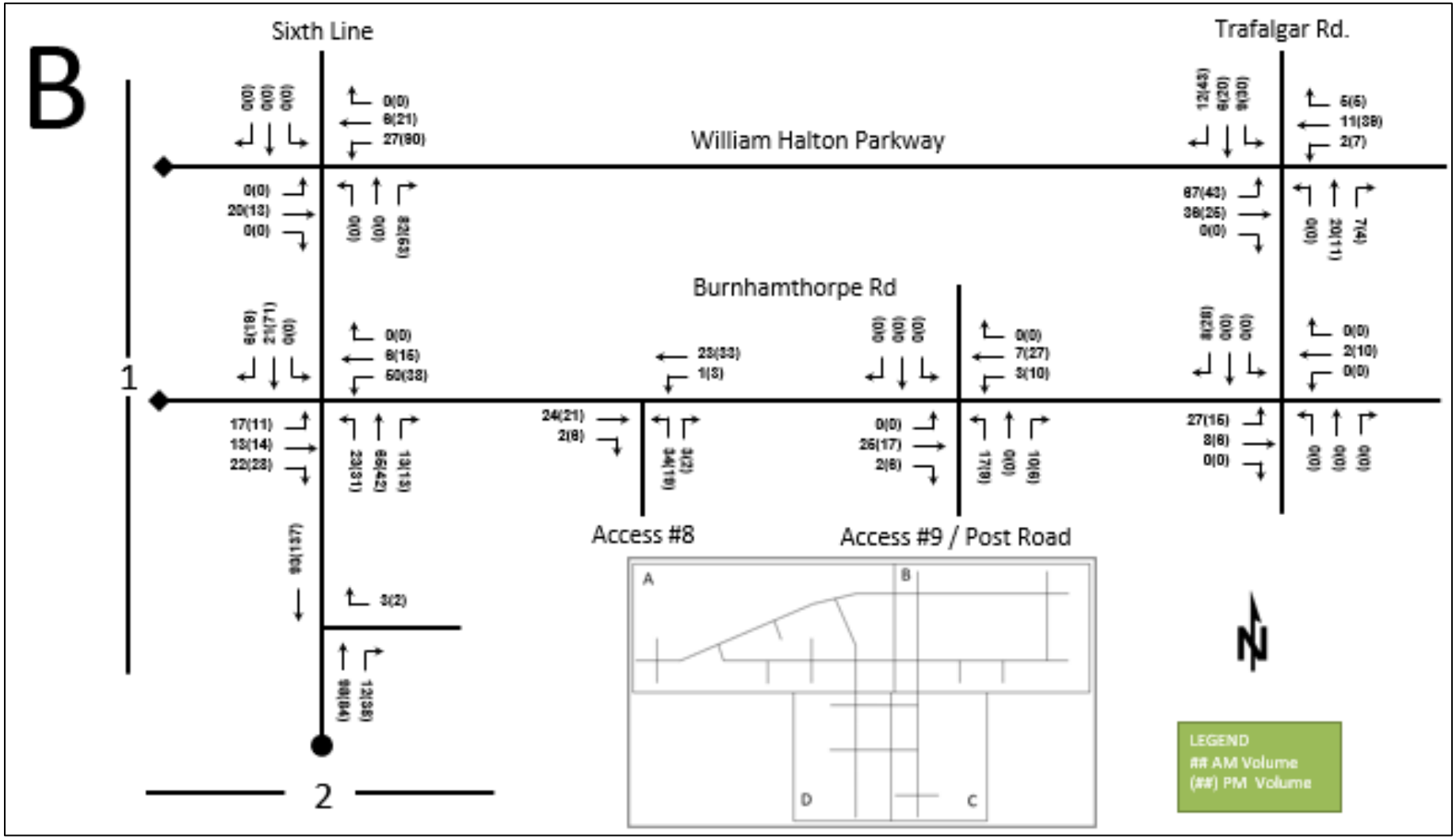


Figure 29: 2030 Traffic Assignment (Sheet C)

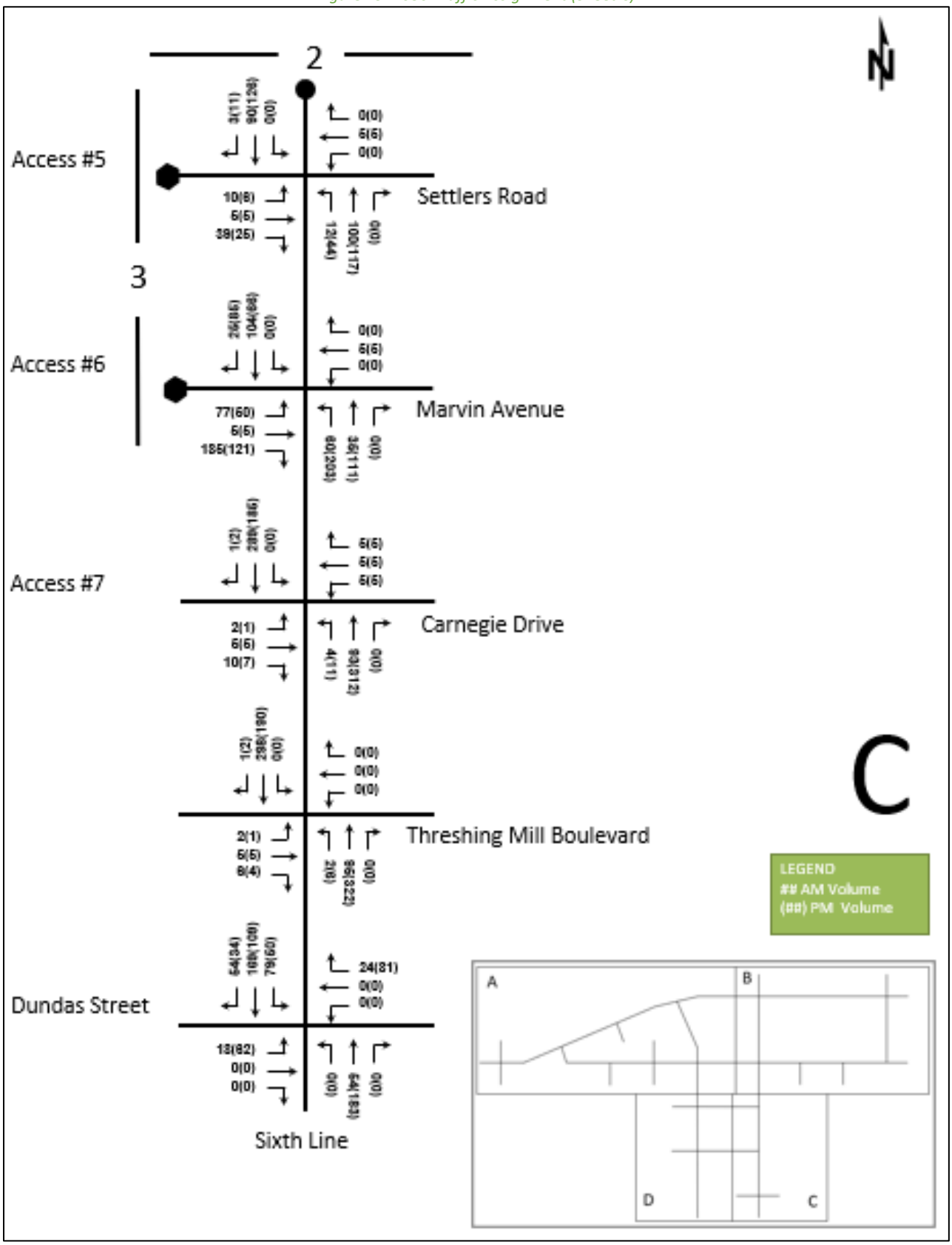
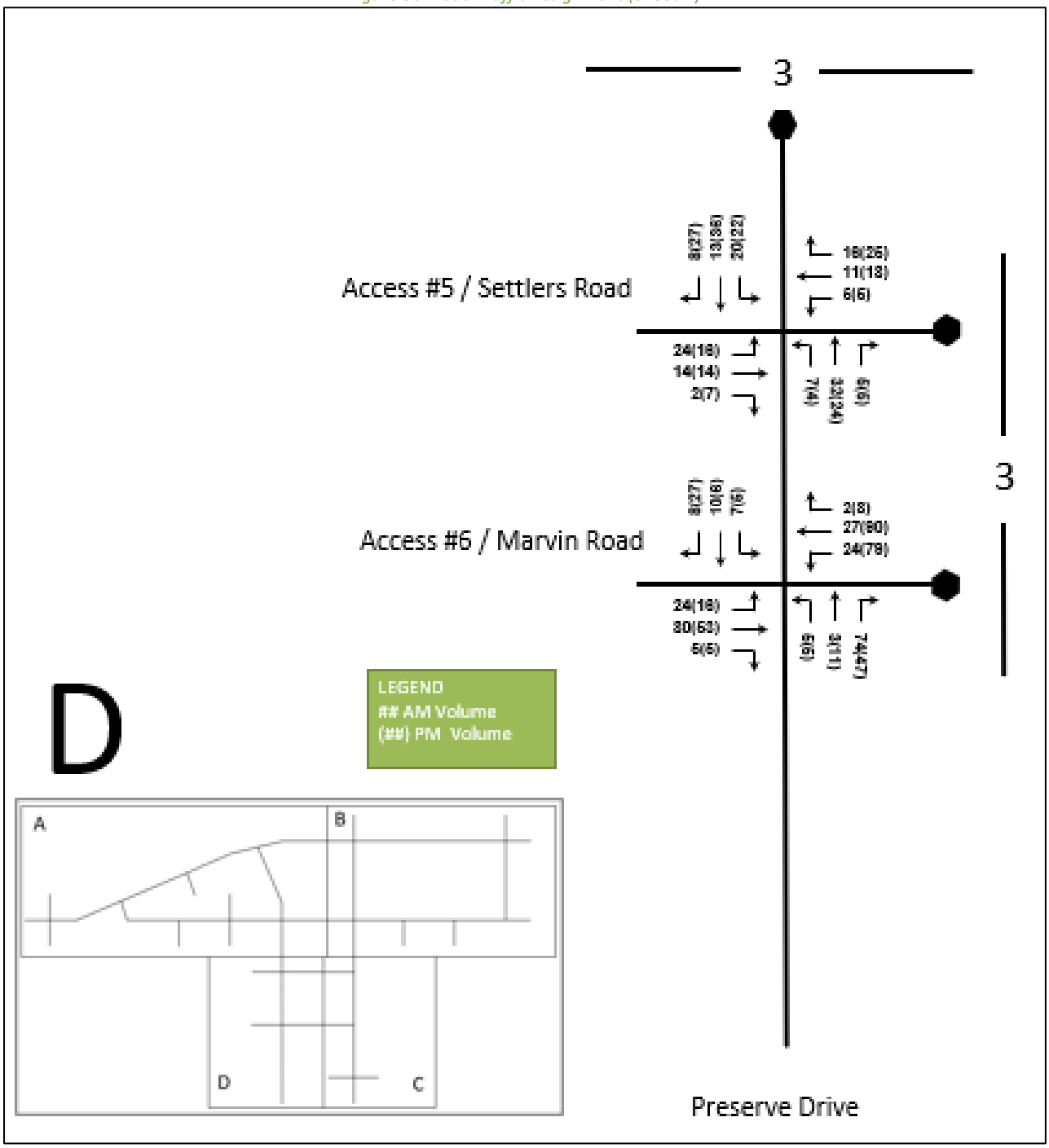


Figure 30: 2030 Traffic Assignment (Sheet D)



Appendix F

ITE Internal Capture Rates

Table 6.2 Unconstrained Internal Person Trip Capture Rates for Trip Destinations within a Mixed-Use Development

		Weekday	
		AM Peak Hour	PM Peak Hour
To OFFICE	From Retail	4%	31%
	From Restaurant	14%	30%
	From Cinema/Entertainment	0%	6%
	From Residential	3%	57%
	From Hotel	3%	0%
To RETAIL	From Office	32%	8%
	From Restaurant	8%	50%
	From Cinema/Entertainment	0%	4%
	From Residential	17%	10%
	From Hotel	4%	2%
To RESTAURANT	From Office	23%	2%
	From Retail	50%	29%
	From Cinema/Entertainment	0%	3%
	From Residential	20%	14%
	From Hotel	6%	5%
To CINEMA/ENTERTAINMENT	From Office	0%	1%
	From Retail	0%	26%
	From Restaurant	0%	32%
	From Residential	0%	0%
	From Hotel	0%	0%
To RESIDENTIAL	From Office	0%	4%
	From Retail	2%	46%
	From Restaurant	5%	16%
	From Cinema/Entertainment	0%	4%
	From Hotel	0%	0%
To HOTEL	From Office	0%	0%
	From Retail	0%	17%
	From Restaurant	4%	71%
	From Cinema/Entertainment	0%	1%
	From Residential	0%	12%

Source: Bochner, B., K. Hooper, B. Sperry, and R. Dunphy. NCHRP Report 684: *Enhancing Internal Trip Capture Estimation for Mixed-Use Developments.* Washington, DC: Transportation Research Board, Tables 101 and 102, 2011.

Table 6.1 Unconstrained Internal Person Trip Capture Rates for Trip Origins within a Mixed-Use Development

		WEEKDAY	
		AM Peak Hour	PM Peak Hour
From OFFICE	To Retail	28%	20%
	To Restaurant	63%	4%
	To Cinema/Entertainment	0%	0%
	To Residential	1%	2%
	To Hotel	0%	0%
From RETAIL	To Office	29%	2%
	To Restaurant	13%	29%
	To Cinema/Entertainment	0%	4%
	To Residential	14%	26%
	To Hotel	0%	5%
From RESTAURANT	To Office	31%	3%
	To Retail	14%	41%
	To Cinema/Entertainment	0%	8%
	To Residential	4%	18%
	To Hotel	3%	7%
From CINEMA/ENTERTAINMENT	To Office	0%	2%
	To Retail	0%	21%
	To Restaurant	0%	31%
	To Residential	0%	8%
	To Hotel	0%	2%
From RESIDENTIAL	To Office	2%	4%
	To Retail	1%	42%
	To Restaurant	20%	21%
	To Cinema/Entertainment	0%	0%
	To Hotel	0%	3%
From HOTEL	To Office	75%	0%
	To Retail	14%	16%
	To Restaurant	9%	68%
	To Cinema/Entertainment	0%	0%
	To Residential	0%	2%

Source: Bochner, B., K. Hooper, B. Sperry, and R. Dunphy. NCHRP Report 684: *Enhancing Internal Trip Capture Estimation for Mixed-Use Developments.* Washington, DC: Transportation Research Board, Tables 99 and 100, 2011.

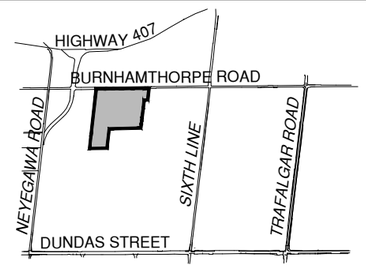
Appendix G

Parking Concept Plan

PRELIMINARY ON-STREET PARKING ANALYSIS
Remington Eno

PART OF LOT 17, 18 and 19
CONCESSION 1, NORTH OF DUNDAS STREET

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



KEY MAP
N.T.S.

SUBJECT PROPERTY

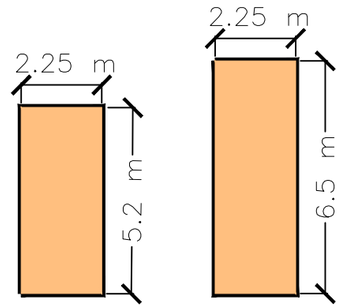
± 349 On-street parking spaces*

± 601 Residential units

± 0.58 Visitor parking space/ unit

± 1520 Residential parking spaces

TYPICAL ON-STREET PARKING SPACE**



* Subject to adjustment during detailed engineering design

** Per North Oakville Parking Strategy

SCALE 1:3500

June 5, 2023

KORSIAK | Urban Planning
206-277 Lakeshore Road East
Oakville, Ontario L6J 1H9
T: 905-257-0227
info@korsiak.com

S:\Korsiak & Company\REMINGTON\Eno - North Oakville\Parking Plan\2023-06\Eno North Oakville - Parking Plan - Jun 5 23_kc.dwg

Appendix H

Traffic Control Signal Warrants

Settlers Road West at Carding Mill Trail
Future Total 2026

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	96	13%	13%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	46	27%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	50	7%	7%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	17	23%		

Notes
1. Refer to OTM Book 12, pg 88, Nov 2007
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4
4. T-intersection factor corrected, applies only to 1B

Settlers Road West at Carding Mill Trail
Future Total 2031

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	89	12%	12%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	43	25%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	47	6%	6%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	16	21%		

Notes
1. Refer to OTM Book 12, pg 88, Nov 2007
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4
4. T-intersection factor corrected, applies only to 1B

William Halton Parkway at Site Access #2
Future Total 2026

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	2728	455%	83%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	99	83%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	2662	444%	79%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	40	79%		

Notes
1. Refer to OTM Book 12, pg 88, Nov 2007 check OTM book 12
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4
4. T-intersection factor corrected, applies only to 1B

William Halton Parkway at Site Access #2
Future Total 2031

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	2738	456%	77%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	92	77%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	2676	446%	73%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	37	73%		

Notes
1. Refer to OTM Book 12, pg 88, Nov 2007
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4
4. T-intersection factor corrected, applies only to 1B

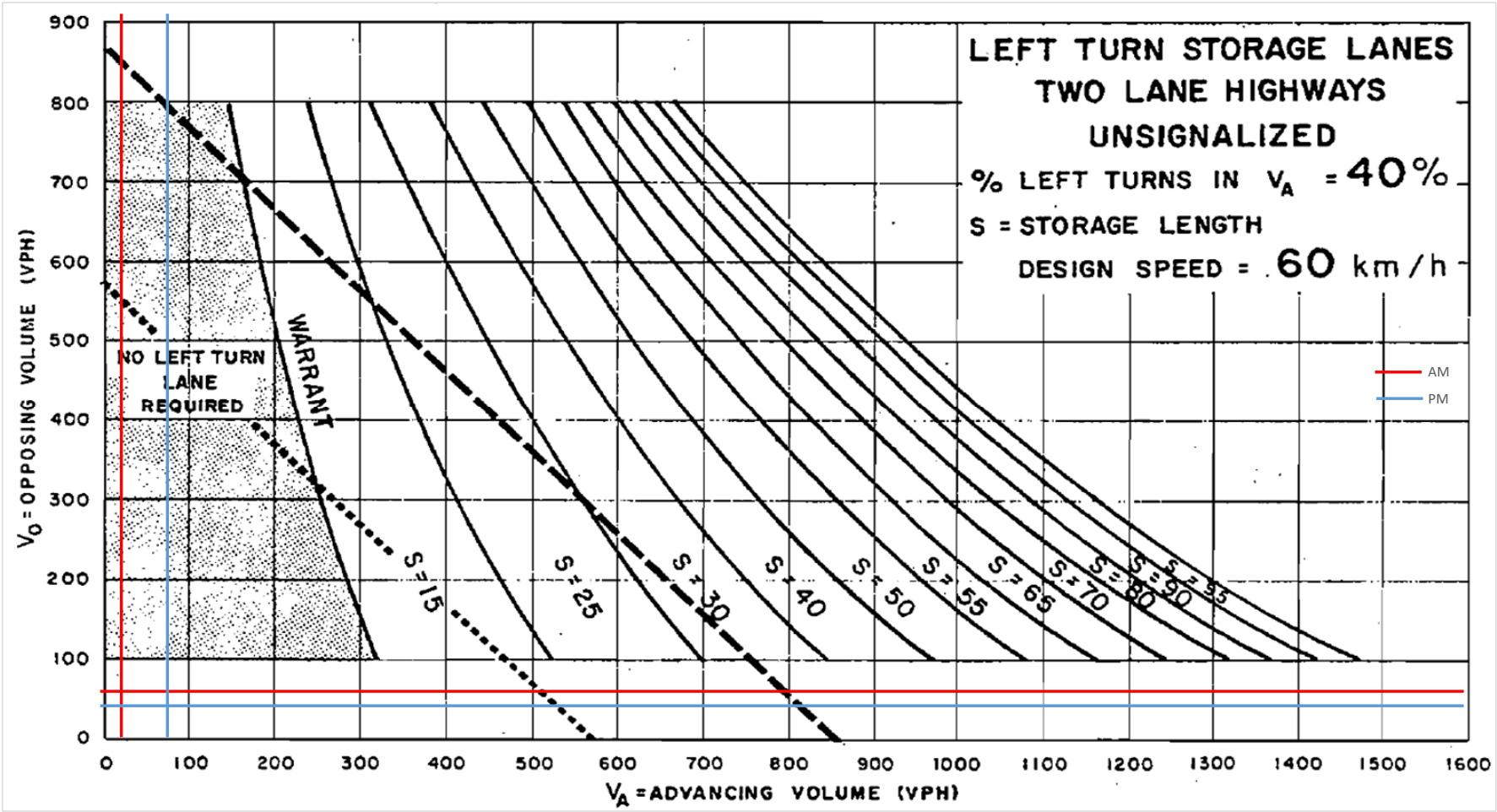
Appendix I

Left Turn Lane Warrants

Settlers Road West @ Carding Mill Trail

2026 Future Total

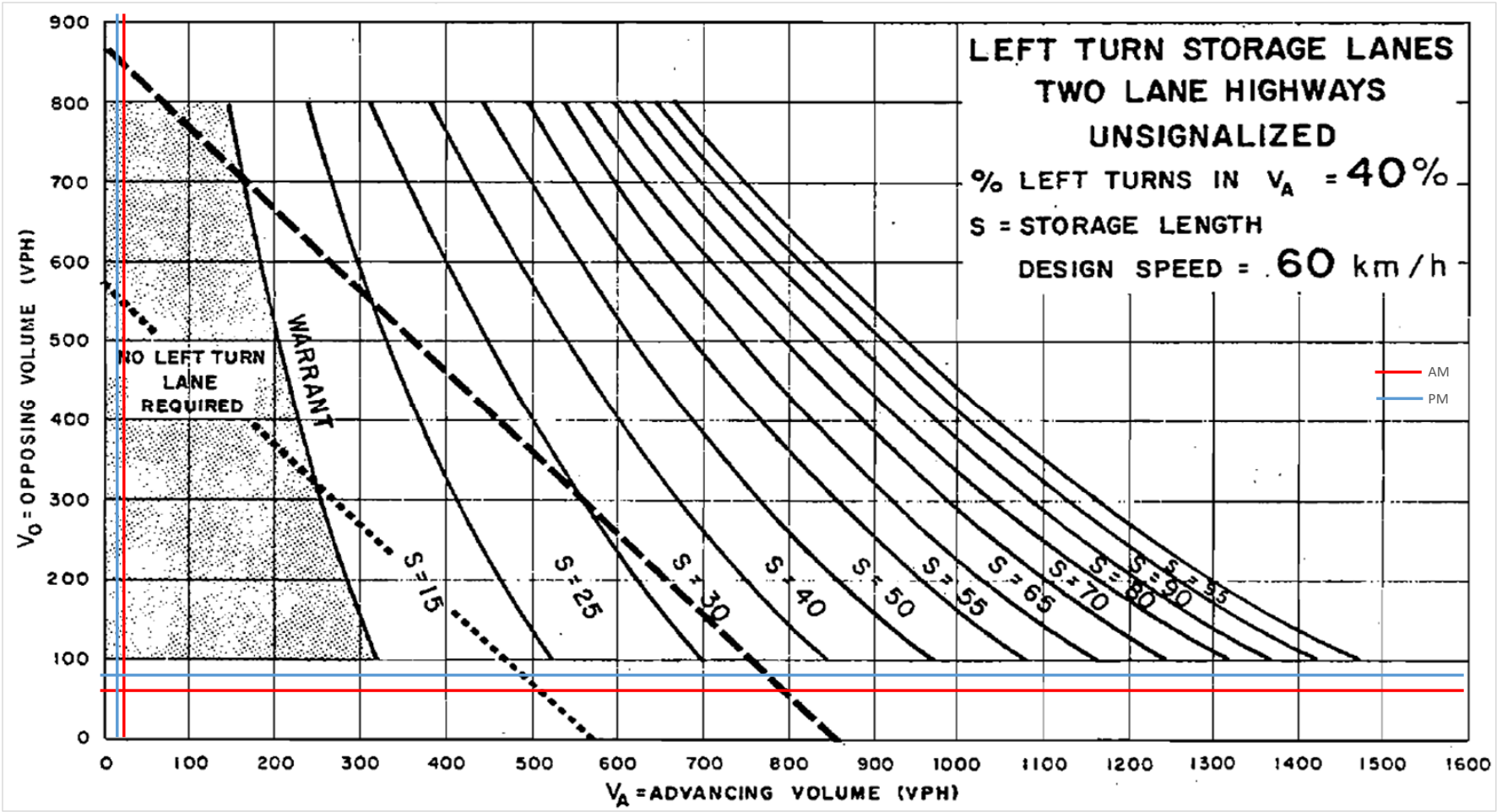
Design Speed	Eastbound Left	Yes																
60 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn		Volume Advancing		Volume Opposing
	AM	20	5			43	14	14	14		5	5	48	80.0%		25		57
	PM	63	16			29	10	10	10		16	16	45	79.7%		79		39


LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 40%
S = STORAGE LENGTH
DESIGN SPEED = 60 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S=15
S=25
S=30
S=40
S=50
S=55
S=65
S=70
S=80
S=90
S=95
AM
PM
V_O = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600

Settlers Road West @ Carding Mill Trail

2026 Future Total

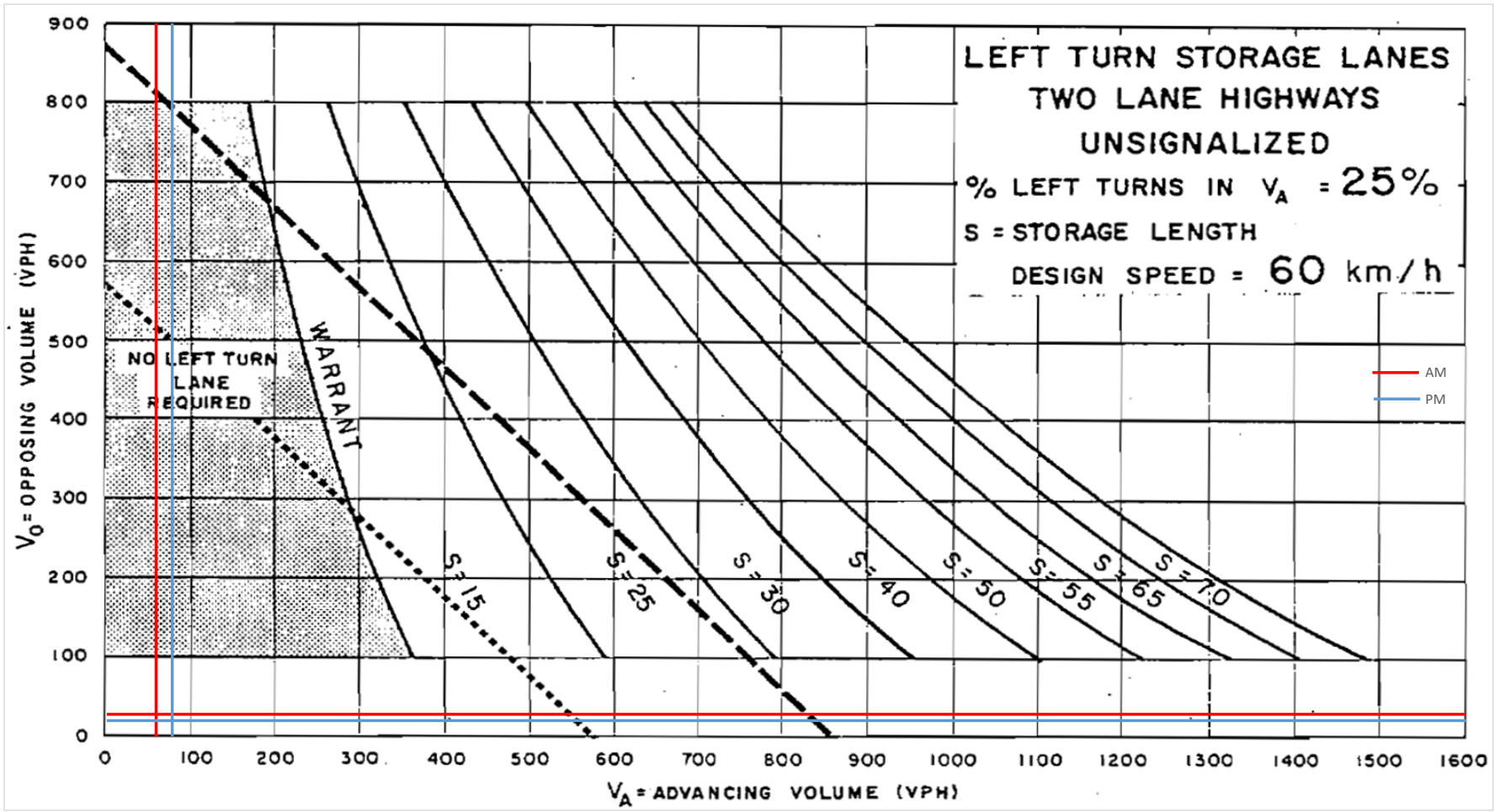
Design Speed	Northbound Left							Yes									
60 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing	
	AM	20	5			43		14	14	14		5	5	48	50.0%	28	58
	PM	63	16			29		10	10	10		16	16	45	50.0%	20	77


LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 40%
S = STORAGE LENGTH
DESIGN SPEED = 60 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S=15
S=25
S=30
S=40
S=50
S=55
S=65
S=70
S=80
S=90
S=95
AM
PM
V_O = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600

Settlers Road West @ Carding Mill Trail

2026 Future Total

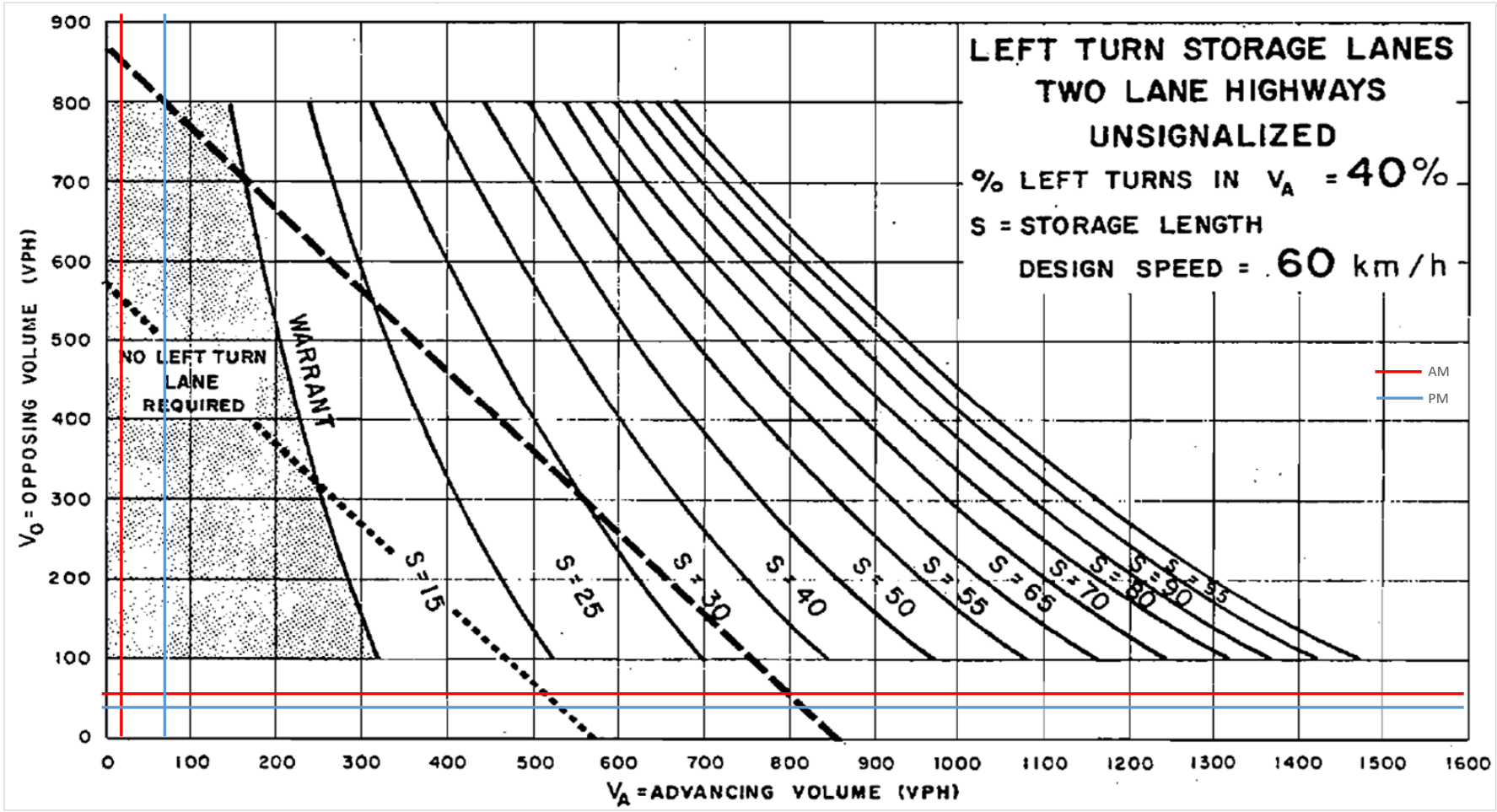
Design Speed	Southbound Left									Yes						
60 km/h	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing	
AM	20	5			43	14	14	14		5	5	48	8.6%	58	28	
PM	63	16			29	10	10	10		16	16	45	20.8%	77	20	


LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 25%
S = STORAGE LENGTH
DESIGN SPEED = 60 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S = 15
S = 25
S = 30
S = 40
S = 50
S = 55
S = 65
S = 70
AM
PM
V_O = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600

Settlers Road West @ Carding Mill Trail

2031 Future Total

Design Speed	Eastbound Left	Yes																
60 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing		
	AM	18	5			40	13	13	13		5	5	45	78.3%	23	53		
	PM	59	15			27	9	9	9		15	15	42	79.7%	74	36		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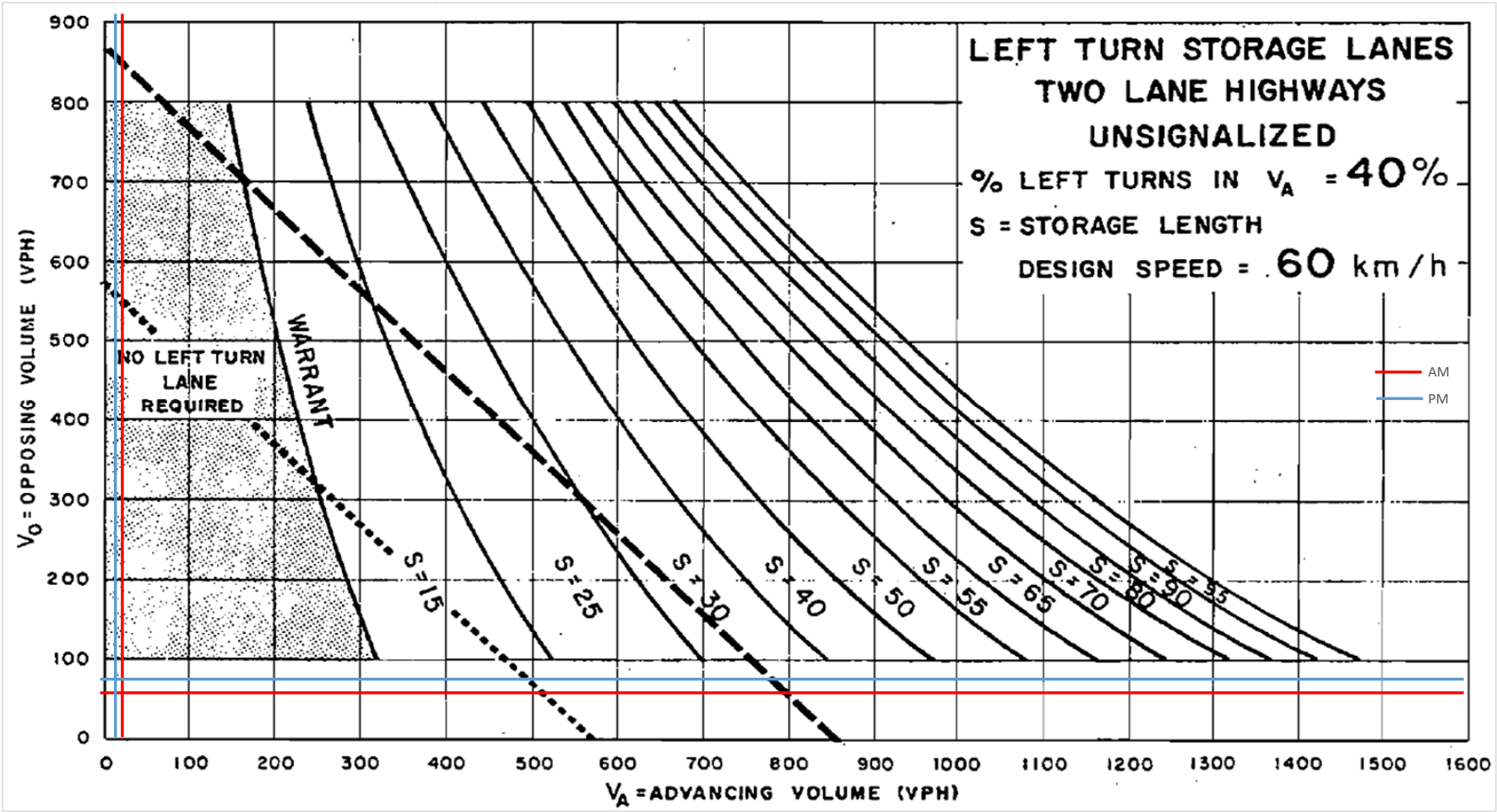
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 40%
S = STORAGE LENGTH
DESIGN SPEED = 60 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S=15
S=25
S=30
S=40
S=50
S=55
S=65
S=70
S=80
S=90
S=95
AM
PM
V_O = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600

Settlers Road West @ Carding Mill Trail

2031 Future Total

Design Speed	Northbound Left																
60 km/h		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing	
	AM	18	5			40		13	13	13		5	5	45	50.0%	26	55
	PM	59	15			27		9	9	9		15	15	42	50.0%	18	72

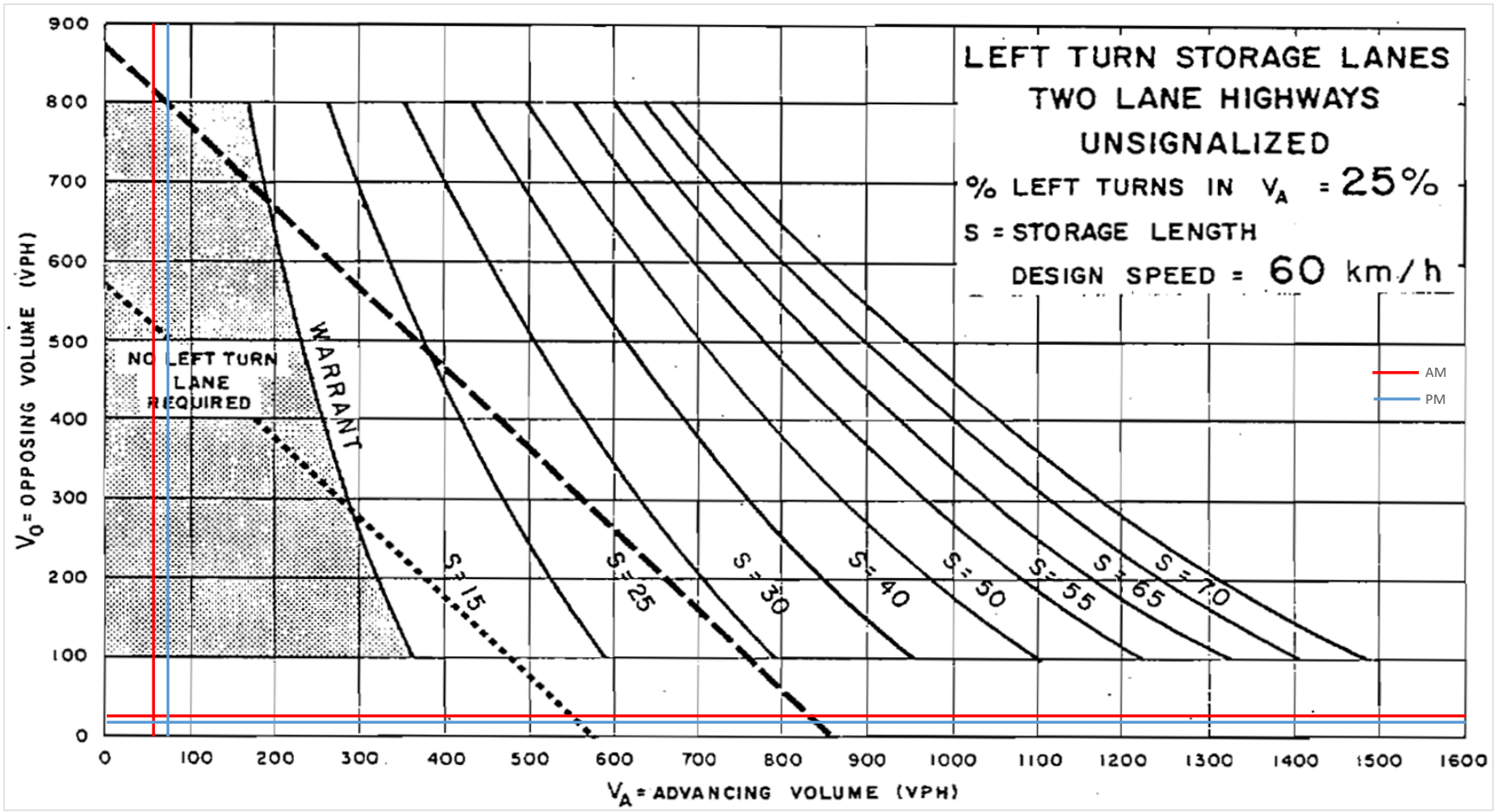
Yes


LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 40%
S = STORAGE LENGTH
DESIGN SPEED = 60 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S=15
S=25
S=30
S=40
S=50
S=55
S=65
S=70
S=80
S=90
S=95
AM
PM
V_O = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600

Settlers Road West @ Carding Mill Trail

2031 Future Total

Design Speed	Southbound Left									Yes						
60 km/h	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing	
AM	18	5			40	13	13	13		5	5	45	9.1%	55	26	
PM	59	15			27	9	9	9		15	15	42	20.8%	72	18	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TWO LANE HIGHWAYS
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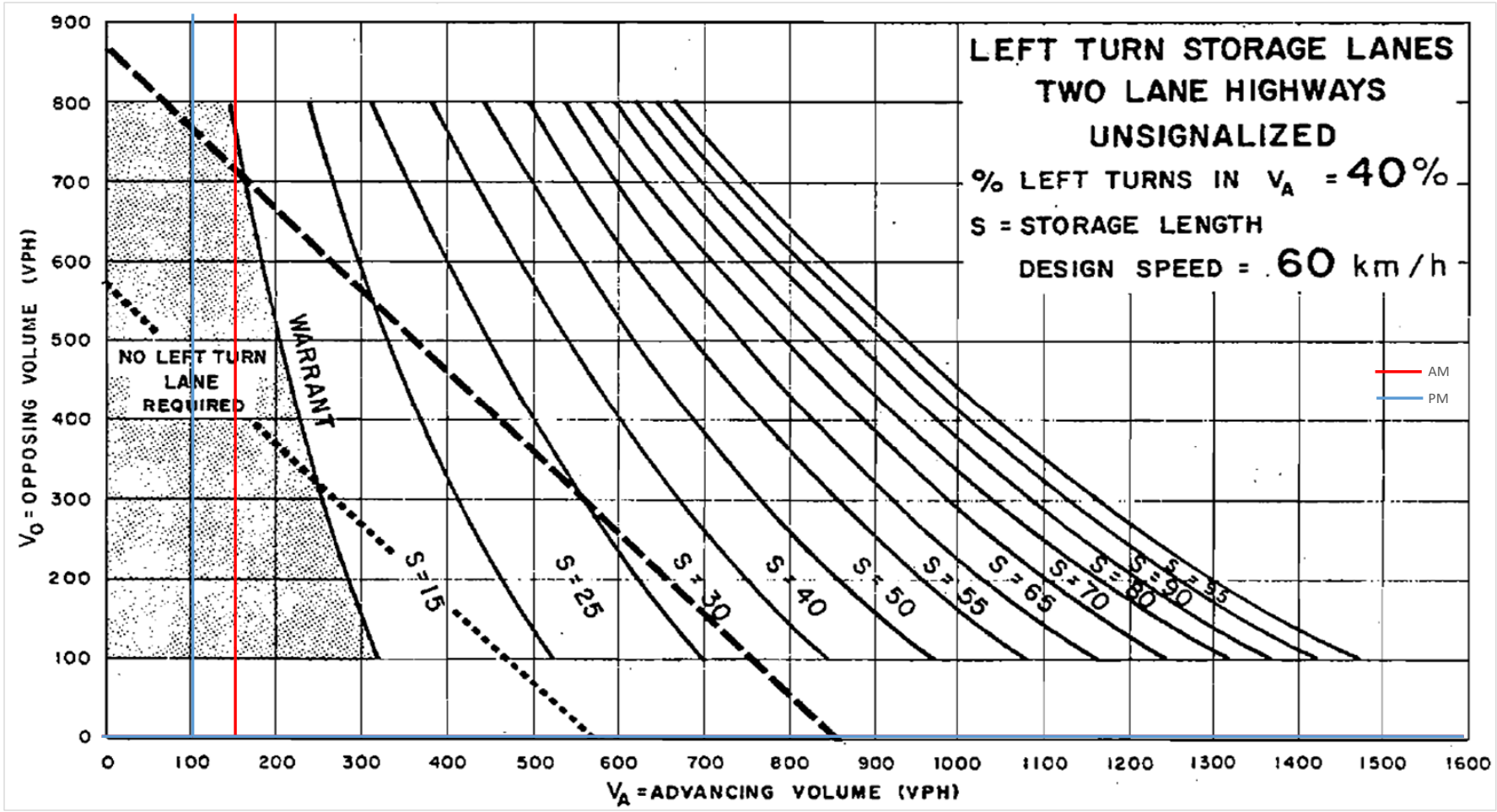
S = STORAGE LENGTH
DESIGN SPEED = 60 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S = 15
S = 25
S = 30
S = 40
S = 50
S = 55
S = 65
S = 70
AM
PM
V_O = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600

William Halton Parkway @ Carding Mill Trail
2026 Future Total

Design Speed	Northbound Left						Yes								
60 km/h	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		2560	29	29	2570		57		100				36.3%	157	0
PM		2635	95	95	2634		39		68				36.4%	107	0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TWO LANE HIGHWAYS
UNSIGNALIZED
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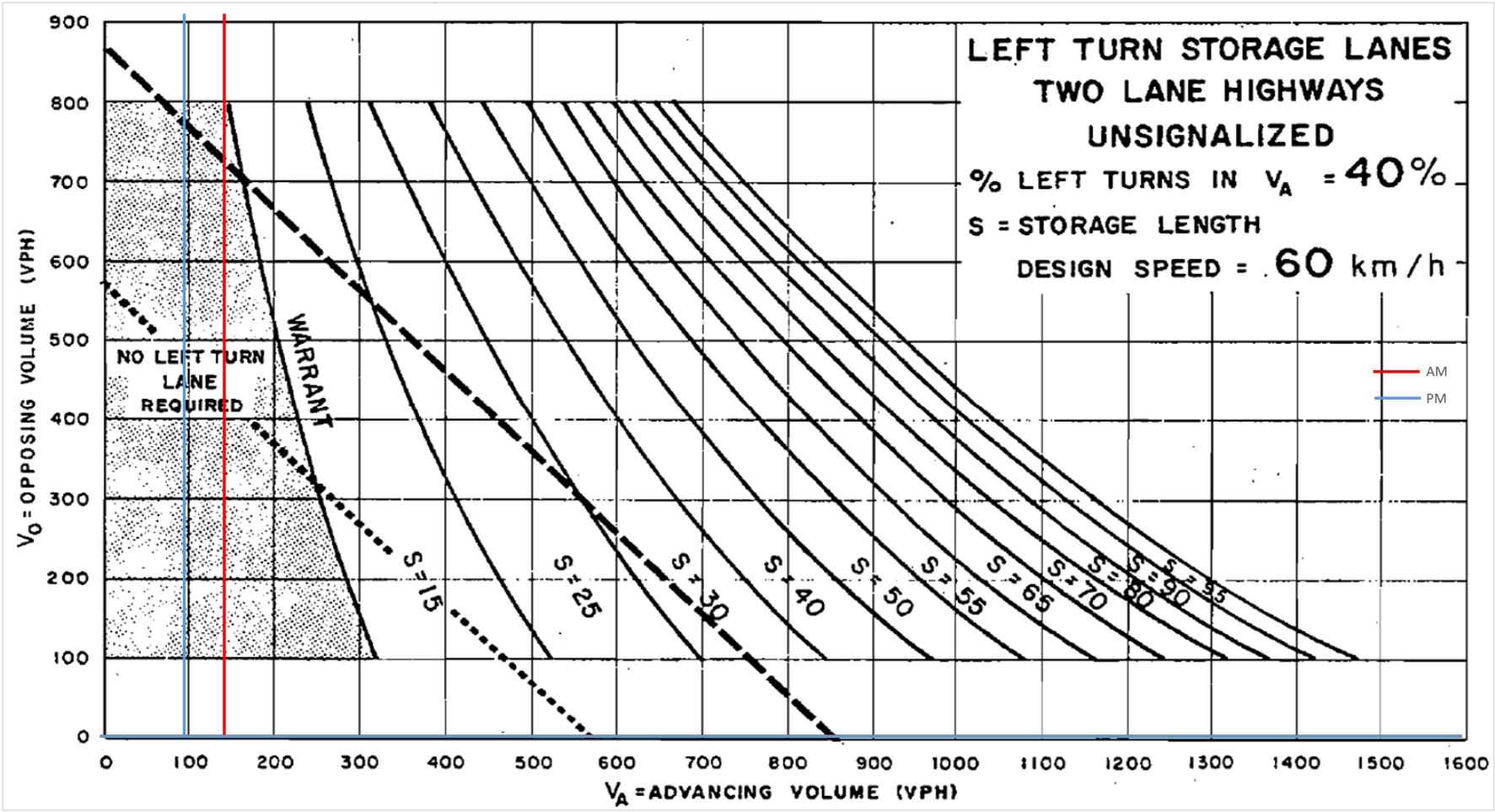
DESIGN SPEED = 60 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S=15
S=25
S=30
S=40
S=50
S=55
S=65
S=70
S=80
S=90
S=95
AM
PM
V_O = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600

William Halton Parkway @ Carding Mill Trail

2031 Future Total

Design Speed	Northbound Left						Yes								
60 km/h	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	%Left Turn	Volume Advancing	Volume Opposing
AM		2589	27	27	2581		53		93				36.3%	146	0
PM		2648	88	88	2657		36		63				36.4%	99	0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TWO LANE HIGHWAYS
UNSIGNALIZED
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DESIGN SPEED = 60 km/h
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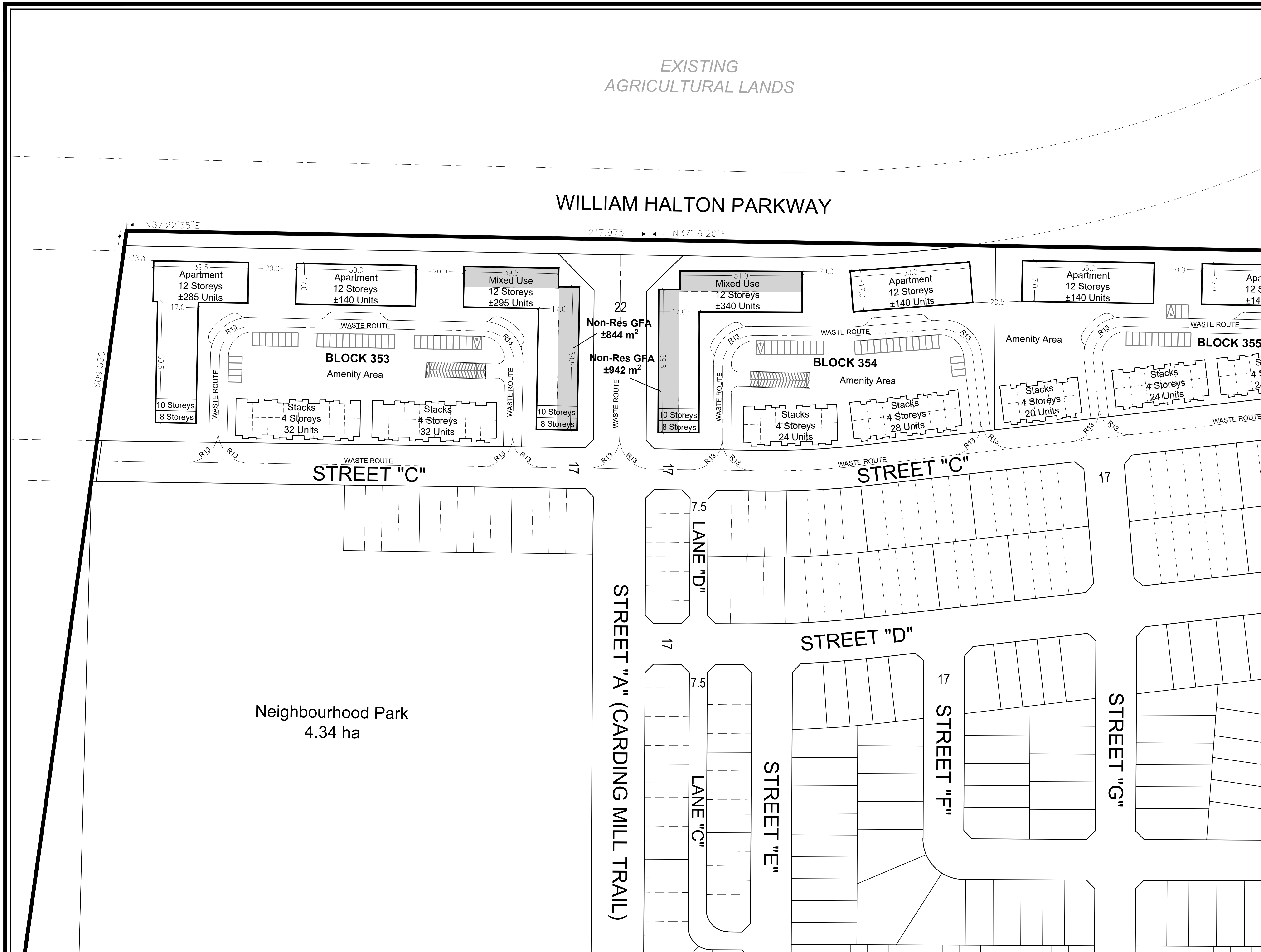
WARRANT
S=15
S=25
S=30
S=40
S=50
S=55
S=65
S=70
S=80
S=90
S=95
AM
PM
V_O = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600

Appendix J

High Density Block Waste Route



EXISTING
AGRICULTURAL LANDS
WILLIAM HALTON PARKWAY
BURNHAMTHORPE R
N37°22'35"E
217.975
N37°19'20"E
609.530
Apartment
12 Storeys
±285 Units
Apartment
12 Storeys
±140 Units
Mixed Use
12 Storeys
±295 Units
Mixed Use
12 Storeys
±340 Units
Apartment
12 Storeys
±140 Units
Apartment
12 Storeys
±140 Units
Apartment
12 Storeys
±140 Units
10 Storeys
8 Storeys
Non-Res GFA
±844 m²
Non-Res GFA
±942 m²
22
BLOCK 353
Amenity Area
BLOCK 354
Amenity Area
BLOCK 355
Amenity Area
Stacks
4 Storeys
32 Units
Stacks
4 Storeys
32 Units
Stacks
4 Storeys
24 Units
Stacks
4 Storeys
28 Units
Stacks
4 Storeys
20 Units
Stacks
4 Storeys
24 Units
Stacks
4 Storeys
24 Units
WASTE ROUTE
R13
STREET "C"
STREET "D"
STREET "A" (CARDING MILL TRAIL)
LANE "D"
LANE "C"
STREET "E"
STREET "F"
STREET "G"
17
7.5
Neighbourhood Park
4.34 ha

WASTE MANAGEMENT PLAN

Remington - Eno

PART OF LOT 17, 18 and 19
CONCESSION 1, NORTH OF DUNDAS STREET

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

THE REMINGTON GROUP

October 12, 2021

SCALE 1:1500

KORSIAK Urban Planning

206-277 Lakeshore Road East
Oakville, Ontario L6J 1H9
T: 905-257-0227
info@korsiak.com

S:\Korsiak & Company\REMINGTON\Eno - North Oakville\Waste Management Plan\2021-10\Remington - Eno - Waste Management Plan - Oct 12 21_ec.dwg

Appendix K

Heavy Vehicle % Calculations

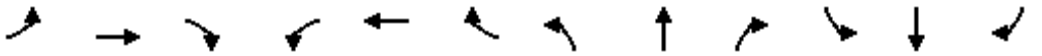
[1] Burnhamthorpe Road at Neyagawa Boulevard												
AM												
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
HV Volume	9	2	2	4	11	2	1	4	9	0	6	0
Total Volume	171	529	281	32	227	58	39	65	130	212	82	12
HV%	5%	0%	1%	13%	5%	3%	3%	6%	7%	0%	7%	0%
PM												
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
HV Volume	1	5	3	1	1	0	0	1	0	0	1	3
Total Volume	40	187	233	17	420	9	3	32	40	276	25	35
HV%	3%	3%	1%	6%	0%	0%	0%	3%	0%	0%	4%	9%

[10] Sixth Line at Burnhamthorpe Road												
AM												
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
HV Volume	1	2	2	8	6	1	4	1	3	1	6	0
Total Volume	9	167	243	132	194	91	94	263	24	55	195	15
HV%	11%	1%	1%	6%	3%	1%	4%	0%	13%	2%	3%	0%
PM												
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
HV Volume	3	1	2	1	1	0	1	2	0	0	1	0
Total Volume	29	242	87	24	124	115	105	182	11	91	205	118
HV%	10%	0%	2%	4%	1%	0%	1%	1%	0%	0%	0%	0%

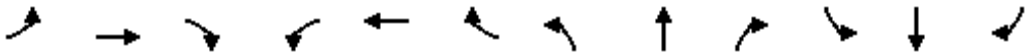
[24] Neyagawa Boulevard at Settlers Road West												
AM												
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
HV Volume	1	17			5	0	0		0			
Total Volume	68	306			262	5	8		31			
HV%	1%	6%	#DIV/0!	#DIV/0!	2%	0%	0%	#DIV/0!	0%	#DIV/0!	#DIV/0!	#DIV/0!
PM												
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
HV Volume	0	2			0	0	0		0			
Total Volume	28	220			295	2	2		14			
HV%	0%	1%	#DIV/0!	#DIV/0!	0%	0%	0%	#DIV/0!	0%	#DIV/0!	#DIV/0!	#DIV/0!

Appendix L

2021 Existing Conditions Synchro Worksheets



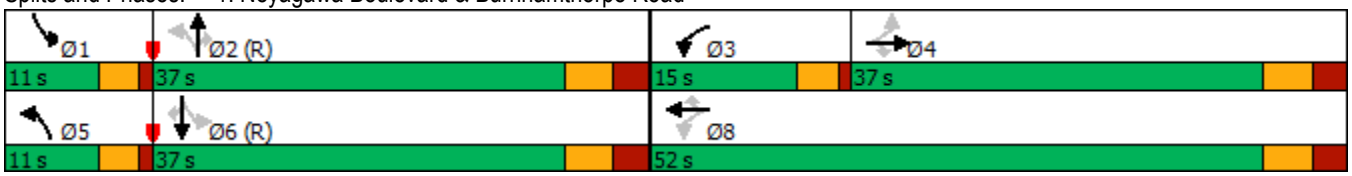
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	68	135	221	85	12	178	550	292	33	236	60
Future Volume (vph)	41	68	135	221	85	12	178	550	292	33	236	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	3406	1509	1770	3374	1583	1719	3539	1599	1597	3438	1568
Flt Permitted	0.694			0.514			0.547			0.426		
Satd. Flow (perm)	1280	3406	1509	957	3374	1583	990	3539	1599	716	3438	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			147			81			317			124
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		427.0			207.4			334.9			381.2	
Travel Time (s)		25.6			12.4			20.1			22.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	6%	7%	2%	7%	2%	5%	2%	1%	13%	5%	3%
Adj. Flow (vph)	45	74	147	240	92	13	193	598	317	36	257	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	45	74	147	240	92	13	193	598	317	36	257	65
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	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	0.2	0.2	3.0	0.2	0.2
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)	0	0	0		0	0		0	0		0	0
Act Effct Green (s)	10.7	10.7	10.7	28.1	25.7	25.7	63.7	54.8	54.8	56.9	47.4	47.4
Actuated g/C Ratio	0.11	0.11	0.11	0.28	0.26	0.26	0.64	0.55	0.55	0.57	0.47	0.47
v/c Ratio	0.33	0.20	0.50	0.67	0.11	0.03	0.27	0.31	0.31	0.08	0.16	0.08
Control Delay	47.9	41.9	13.3	40.4	28.5	0.1	7.9	11.3	1.6	7.8	16.0	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	47.9	41.9	13.3	40.4	28.5	0.1	7.9	11.3	1.6	7.8	16.0	0.3
LOS	D	D	B	D	C	A	A	B	A	A	B	A
Approach Delay		27.1			35.7			7.9			12.3	
Approach LOS		C			D			A			B	
Queue Length 50th (m)	8.7	7.4	0.0	41.1	7.6	0.0	12.6	22.1	0.1	2.4	14.8	0.0
Queue Length 95th (m)	19.6	14.1	17.9	62.7	13.6	0.0	19.2	27.9	7.9	6.5	25.6	0.8
Internal Link Dist (m)		403.0			183.4			310.9			357.2	
Turn Bay Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Base Capacity (vph)	391	1042	563	357	1538	765	704	1940	1019	469	1629	808
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	0.12	0.07	0.26	0.67	0.06	0.02	0.27	0.31	0.31	0.08	0.16	0.08

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: 0.67			
Intersection Signal Delay: 15.7		Intersection LOS: B	
Intersection Capacity Utilization 55.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: Neyagawa Boulevard & Burnhamthorpe Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	274	25	57	203	16	9	174	253	137	202	95
Future Volume (vph)	98	274	25	57	203	16	9	174	253	137	202	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.992			0.992			0.922			0.971	
Flt Protected		0.988			0.990			0.999			0.984	
Satd. Flow (prot)	0	1805	0	0	1816	0	0	1713	0	0	1750	0
Flt Permitted		0.988			0.990			0.999			0.984	
Satd. Flow (perm)	0	1805	0	0	1816	0	0	1713	0	0	1750	0
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		1172.3			376.8			423.6			523.0	
Travel Time (s)		70.3			22.6			19.1			23.5	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	2%	13%	2%	3%	2%	11%	2%	2%	6%	3%	2%
Adj. Flow (vph)	107	298	27	62	221	17	10	189	275	149	220	103
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	432	0	0	300	0	0	474	0	0	472	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

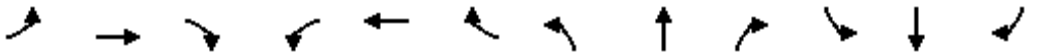
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 89.7%		ICU Level of Service E	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	111.7
Intersection LOS	F

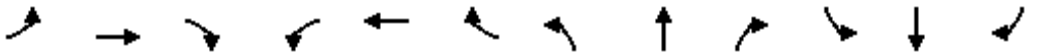
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	98	274	25	57	203	16	9	174	253	137	202	95
Future Vol, veh/h	98	274	25	57	203	16	9	174	253	137	202	95
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	4	2	13	2	3	2	11	2	2	6	3	2
Mvmt Flow	107	298	27	62	221	17	10	189	275	149	220	103
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	106.7	46.9	130.6	138.5
HCM LOS	F	E	F	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	25%	21%	32%
Vol Thru, %	40%	69%	74%	47%
Vol Right, %	58%	6%	6%	22%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	436	397	276	434
LT Vol	9	98	57	137
Through Vol	174	274	203	202
RT Vol	253	25	16	95
Lane Flow Rate	474	432	300	472
Geometry Grp	1	1	1	1
Degree of Util (X)	1.165	1.089	0.803	1.185
Departure Headway (Hd)	9.796	10.188	11.056	9.946
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	374	358	330	368
Service Time	7.796	8.188	9.056	7.946
HCM Lane V/C Ratio	1.267	1.207	0.909	1.283
HCM Control Delay	130.6	106.7	46.9	138.5
HCM Lane LOS	F	F	E	F
HCM 95th-tile Q	17	14.1	6.7	17.5



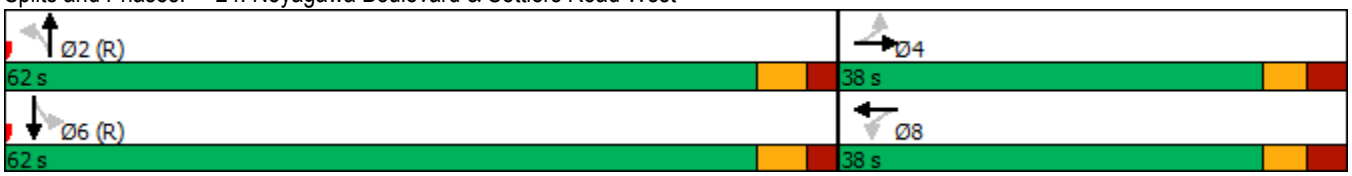
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	0	31	0	0	0	68	1012	0	0	587	5
Future Volume (vph)	8	0	31	0	0	0	68	1012	0	0	587	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	0.0		0.0	70.0		0.0	80.0		0.0
Storage Lanes	1		0	0		0	1		0	1		0
Taper Length (m)	15.0			7.5			40.0			40.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.850									0.999	
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1770	1583	0	0	1863	0	1770	3406	0	1863	3536	0
Flt Permitted	0.757						0.377					
Satd. Flow (perm)	1410	1583	0	0	1863	0	702	3406	0	1863	3536	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		205									1	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		242.5			41.6			186.4			334.9	
Travel Time (s)		17.5			3.0			11.2			20.1	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	6%	2%	2%	2%	2%
Adj. Flow (vph)	10	0	38	0	0	0	83	1234	0	0	716	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	38	0	0	0	0	83	1234	0	0	722	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA					Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	



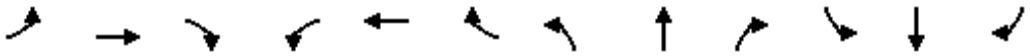
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	36.4	36.4		36.4	36.4		29.0	29.0		39.0	39.0	
Total Split (s)	38.0	38.0		38.0	38.0		62.0	62.0		62.0	62.0	
Total Split (%)	38.0%	38.0%		38.0%	38.0%		62.0%	62.0%		62.0%	62.0%	
Maximum Green (s)	31.6	31.6		31.6	31.6		56.0	56.0		56.0	56.0	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.1	3.1		3.1	3.1		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4			6.4		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		0.2	0.2		0.2	0.2		0.2	0.2	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	23.0	23.0		23.0	23.0		16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	10.0	10.0					86.6	86.6			86.6	
Actuated g/C Ratio	0.10	0.10					0.87	0.87			0.87	
v/c Ratio	0.07	0.11					0.14	0.42			0.24	
Control Delay	42.2	0.6					3.0	3.2			2.2	
Queue Delay	0.0	0.0					0.0	0.0			0.0	
Total Delay	42.2	0.6					3.0	3.2			2.2	
LOS	D	A					A	A			A	
Approach Delay		9.3						3.2			2.2	
Approach LOS		A						A			A	
Queue Length 50th (m)	1.9	0.0					3.4	37.1			22.4	
Queue Length 95th (m)	6.5	0.0					6.5	40.2			15.2	
Internal Link Dist (m)		218.5			17.6			162.4			310.9	
Turn Bay Length (m)	40.0						70.0					
Base Capacity (vph)	445	640					607	2948			3061	
Starvation Cap Reductn	0	0					0	0			0	
Spillback Cap Reductn	0	0					0	0			0	
Storage Cap Reductn	0	0					0	0			0	
Reduced v/c Ratio	0.02	0.06					0.14	0.42			0.24	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 59 (59%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.42			
Intersection Signal Delay: 3.0		Intersection LOS: A	
Intersection Capacity Utilization 64.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 24: Neyagawa Boulevard & Settlers Road West



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	33	42	287	26	36	42	195	242	18	437	9
Future Volume (vph)	3	33	42	287	26	36	42	195	242	18	437	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3505	1583	1770	3471	1482	1752	3505	1583	1703	3539	1583
Flt Permitted	0.738			0.488			0.464			0.619		
Satd. Flow (perm)	1375	3505	1583	909	3471	1482	856	3505	1583	1110	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			124			81			263			124
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		427.0			207.4			334.9			381.2	
Travel Time (s)		25.6			12.4			20.1			22.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	3%	2%	2%	4%	9%	3%	3%	2%	6%	2%	2%
Adj. Flow (vph)	3	36	46	312	28	39	46	212	263	20	475	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	36	46	312	28	39	46	212	263	20	475	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)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	



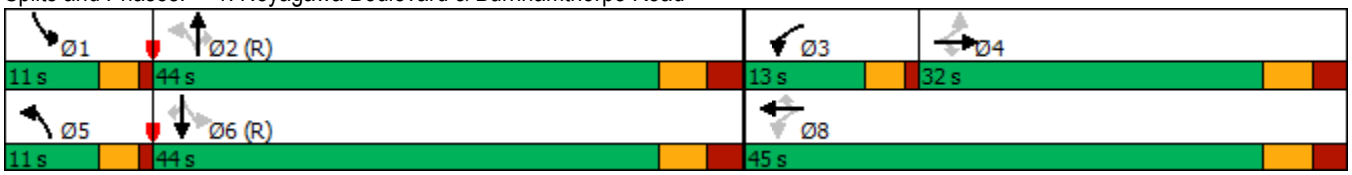
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	15.0	15.0	7.0	15.0	15.0
Minimum Split (s)	40.4	40.4	40.4	11.0	40.4	40.4	11.0	37.4	37.4	11.0	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	0.2	0.2	3.0	0.2	0.2
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)	0	0	0		0	0		0	0		0	0
Act Effct Green (s)	10.0	10.0	10.0	22.8	20.4	20.4	67.7	62.4	62.4	66.7	60.1	60.1
Actuated g/C Ratio	0.10	0.10	0.10	0.23	0.20	0.20	0.68	0.62	0.62	0.67	0.60	0.60
v/c Ratio	0.02	0.10	0.17	1.08	0.04	0.11	0.07	0.10	0.24	0.03	0.22	0.01
Control Delay	41.0	41.8	1.4	110.4	30.2	1.5	5.6	7.8	1.4	5.8	11.0	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	41.0	41.8	1.4	110.4	30.2	1.5	5.6	7.8	1.4	5.8	11.0	0.0
LOS	D	D	A	F	C	A	A	A	A	A	B	A
Approach Delay		19.9			93.3			4.4			10.6	
Approach LOS		B			F			A			B	
Queue Length 50th (m)	0.6	3.5	0.0	~58.7	2.3	0.0	2.9	7.8	0.0	1.2	26.2	0.0
Queue Length 95th (m)	3.4	8.6	0.0	#120.7	6.1	1.6	4.5	8.5	4.4	3.7	36.2	0.0
Internal Link Dist (m)		403.0			183.4			310.9			357.2	
Turn Bay Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Base Capacity (vph)	352	897	497	290	1339	621	642	2187	1086	782	2127	1001
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	0.01	0.04	0.09	1.08	0.02	0.06	0.07	0.10	0.24	0.03	0.22	0.01

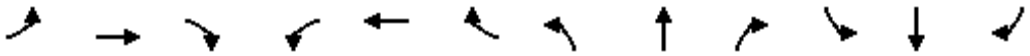
Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 94 (94%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.08			
Intersection Signal Delay: 30.0		Intersection LOS: C	
Intersection Capacity Utilization 54.9%		ICU Level of Service A	
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





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	109	189	11	95	213	123	30	252	91	25	129	120
Future Volume (vph)	109	189	11	95	213	123	30	252	91	25	129	120
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		0.995			0.961			0.967			0.941	
Flt Protected		0.983			0.989			0.996			0.995	
Satd. Flow (prot)	0	1822	0	0	1770	0	0	1783	0	0	1741	0
Flt Permitted		0.983			0.989			0.996			0.995	
Satd. Flow (perm)	0	1822	0	0	1770	0	0	1783	0	0	1741	0
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		1172.3			376.8			423.6			523.0	
Travel Time (s)		70.3			22.6			19.1			23.5	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	10%	2%	2%	4%	2%	2%
Adj. Flow (vph)	118	205	12	103	232	134	33	274	99	27	140	130
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	335	0	0	469	0	0	406	0	0	297	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		

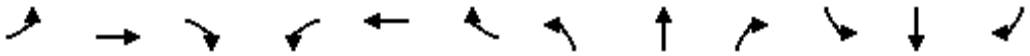
Intersection	
Intersection Delay, s/veh	65.5
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	109	189	11	95	213	123	30	252	91	25	129	120
Future Vol, veh/h	109	189	11	95	213	123	30	252	91	25	129	120
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	10	2	2	4	2	2
Mvmt Flow	118	205	12	103	232	134	33	274	99	27	140	130
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	43.6	100.6	66.4	33.7
HCM LOS	E	F	F	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	35%	22%	9%
Vol Thru, %	68%	61%	49%	47%
Vol Right, %	24%	4%	29%	44%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	373	309	431	274
LT Vol	30	109	95	25
Through Vol	252	189	213	129
RT Vol	91	11	123	120
Lane Flow Rate	405	336	468	298
Geometry Grp	1	1	1	1
Degree of Util (X)	0.963	0.825	1.094	0.73
Departure Headway (Hd)	8.929	9.275	8.41	9.293
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	409	393	431	393
Service Time	6.929	7.275	6.487	7.293
HCM Lane V/C Ratio	0.99	0.855	1.086	0.758
HCM Control Delay	66.4	43.6	100.6	33.7
HCM Lane LOS	F	E	F	D
HCM 95th-tile Q	11.2	7.5	15.9	5.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	14	0	0	0	28	477	0	0	764	2
Future Volume (vph)	2	0	14	0	0	0	28	477	0	0	764	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	0.0		0.0	70.0		0.0	80.0		0.0
Storage Lanes	1		0	0		0	1		0	1		0
Taper Length (m)	15.0			7.5			40.0			40.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.850										
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1770	1583	0	0	1863	0	1770	3539	0	1863	3539	0
Flt Permitted							0.353					
Satd. Flow (perm)	1863	1583	0	0	1863	0	658	3539	0	1863	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		125										
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		242.5			41.6			186.4			334.9	
Travel Time (s)		17.5			3.0			11.2			20.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	2	0	14	0	0	0	29	492	0	0	788	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	14	0	0	0	0	29	492	0	0	790	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA					Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

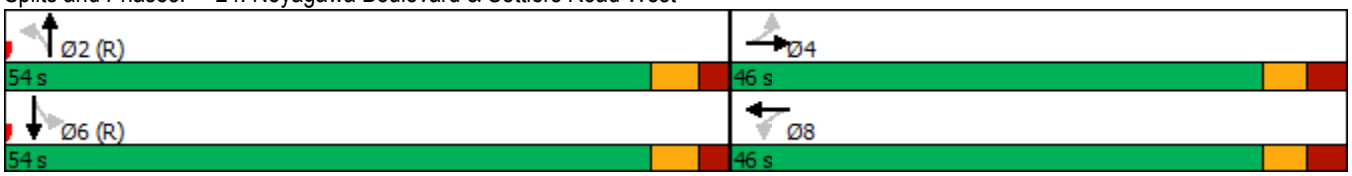


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	36.4	36.4		36.4	36.4		29.0	29.0		29.0	29.0	
Total Split (s)	46.0	46.0		46.0	46.0		54.0	54.0		54.0	54.0	
Total Split (%)	46.0%	46.0%		46.0%	46.0%		54.0%	54.0%		54.0%	54.0%	
Maximum Green (s)	39.6	39.6		39.6	39.6		48.0	48.0		48.0	48.0	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.1	3.1		3.1	3.1		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4			6.4		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	23.0	23.0		23.0	23.0		16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	10.0	10.0					91.0	91.0			91.0	
Actuated g/C Ratio	0.10	0.10					0.91	0.91			0.91	
v/c Ratio	0.01	0.05					0.05	0.15			0.25	
Control Delay	41.0	0.4					2.2	1.6			1.0	
Queue Delay	0.0	0.0					0.0	0.0			0.0	
Total Delay	41.0	0.4					2.2	1.6			1.0	
LOS	D	A					A	A			A	
Approach Delay		5.4						1.6			1.0	
Approach LOS		A						A			A	
Queue Length 50th (m)	0.4	0.0					0.0	0.0			0.0	
Queue Length 95th (m)	2.6	0.0					3.1	15.0			m12.0	
Internal Link Dist (m)		218.5			17.6			162.4			310.9	
Turn Bay Length (m)	40.0						70.0					
Base Capacity (vph)	737	702					599	3222			3222	
Starvation Cap Reductn	0	0					0	0			0	
Spillback Cap Reductn	0	0					0	0			0	
Storage Cap Reductn	0	0					0	0			0	
Reduced v/c Ratio	0.00	0.02					0.05	0.15			0.25	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 85 (85%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.25			
Intersection Signal Delay: 1.3		Intersection LOS: A	
Intersection Capacity Utilization 41.9%		ICU Level of Service A	
Analysis Period (min) 15			

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

Splits and Phases: 24: Neyagawa Boulevard & Settlers Road West



Appendix M

William Halton Parkway at Neyagawa Boulevard Geometry Confirmation

From: Williamson, John
To: Viktoriya Zaytseva; Collum, David
Cc: Mark Crockford
Subject: RE: William Halton Parkway at Neyagawa Boulevard - Final Intersection Design - RFI
Date: March 24, 2021 9:28:34 AM
Attachments: image001.png

Good morning Viktoriya,

The intersection of William Halton Parkway and Neyagawa Boulevard is completed. My project, east of the intersection, will be tying into what is currently there, and will be two lanes in each direction.

Regards,
John.

John Williamson
Senior Project Advisor
Engineering & Construction
Public Works
Halton Region
905-825-6000, ext. 7904 | 1-866-442-5866

From: Viktoriya Zaytseva [mailto:viktoriya.zaytseva@cghtransportation.com]
Sent: Tuesday, March 23, 2021 11:19 AM
To: Collum, David <David.Collum@halton.ca>; Williamson, John <John.Williamson@halton.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>
Subject: William Halton Parkway at Neyagawa Boulevard - Final Intersection Design - RFI

Good morning David and John,

CGH is preparing a TIS for a site in North Oakville, south of future William Halton Parkway, and approximately 500 metres east of Neyagawa Boulevard.

Through responses to our Terms of Reference by Halton Region staff, we've been referred to you to confirm the final design of William Halton Parkway and Neyagawa Boulevards intersection. In particular, we are looking to confirm the number of lanes on each approach and storage lengths for any auxiliary turning lanes.

Thank you beforehand for your help,

Kind regards,

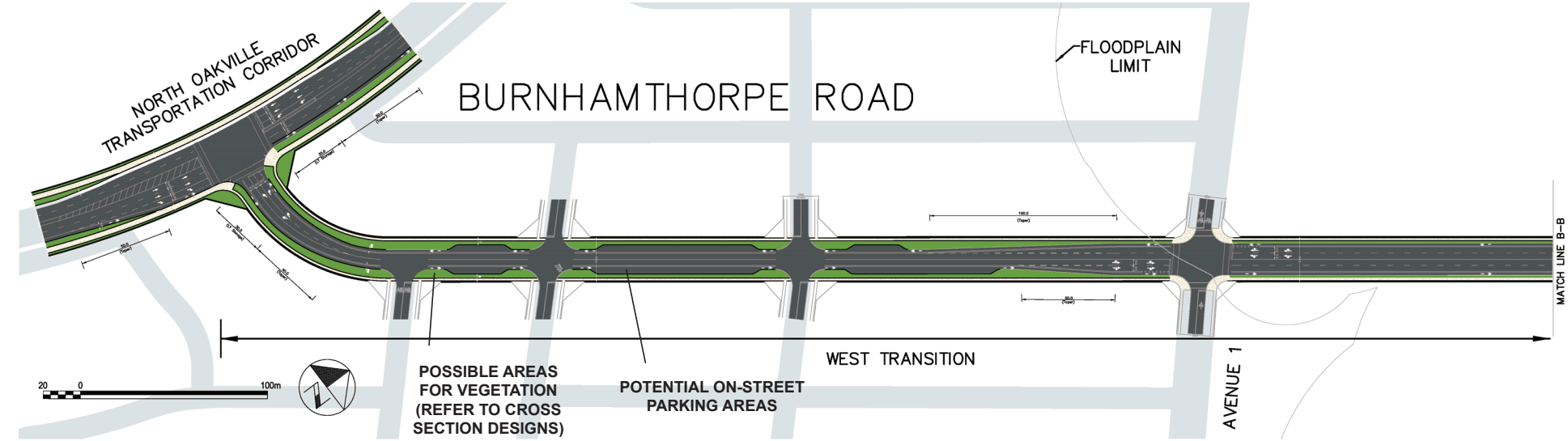
Viktoriya Zaytseva

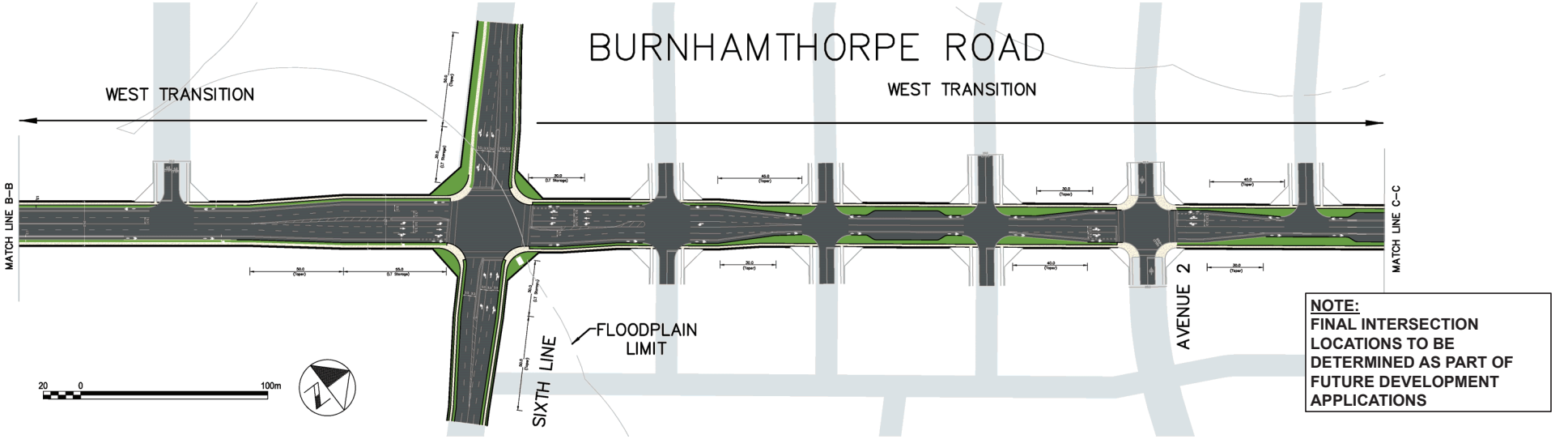
Viktoriya Zaytseva
CGH Transportation Inc.
P: 437-221-1343
E: viktoriya.zaytseva@cghtransportation.com

Appendix N

Burnhamthorpe Road Character Study and Municipal Class EA

Preliminary Preferred Alternative: Plan View

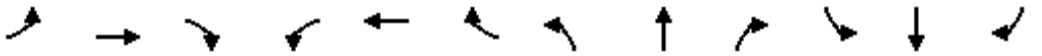




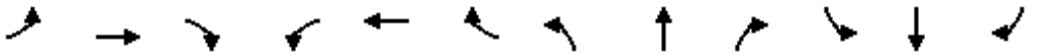
NOTE:
FINAL INTERSECTION LOCATIONS TO BE DETERMINED AS PART OF FUTURE DEVELOPMENT APPLICATIONS

Appendix O

2026 Future Background Conditions Synchro Worksheets



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	2148	149	310	2224	42	219	622	337	48	264	66
Future Volume (vph)	45	2148	149	310	2224	42	219	622	337	48	264	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	3406	1509	1770	3374	1583	1719	3539	1599	1597	3438	1568
Flt Permitted	0.131			0.116			0.551			0.279		
Satd. Flow (perm)	242	3406	1509	216	3374	1583	997	3539	1599	469	3438	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			124			81			352			124
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		433.0			199.8			327.6			277.5	
Travel Time (s)		26.0			12.0			19.7			16.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	6%	7%	2%	7%	2%	5%	2%	1%	13%	5%	3%
Adj. Flow (vph)	49	2335	162	337	2417	46	238	676	366	52	287	72
Shared Lane Traffic (%)												
Lane Group Flow (vph)	49	2335	162	337	2417	46	238	676	366	52	287	72
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	



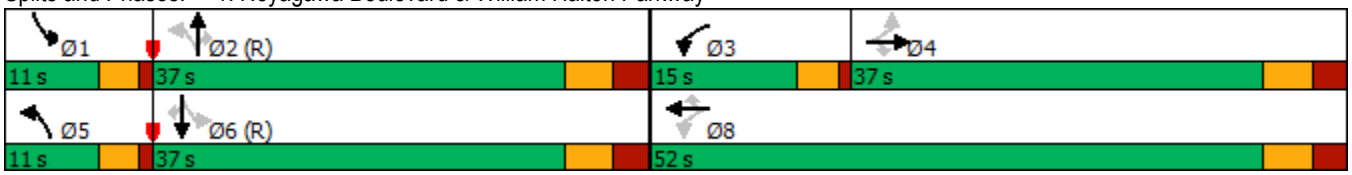
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	15.0	15.0	7.0	15.0	15.0
Minimum Split (s)	40.4	40.4	40.4	11.0	40.4	40.4	11.5	37.4	37.4	11.5	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	0.2	0.2	3.0	0.2	0.2
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)	0	0	0		0	0		0	0		0	0
Act Effct Green (s)	30.6	30.6	30.6	48.0	45.6	45.6	40.8	32.8	32.8	40.0	30.6	30.6
Actuated g/C Ratio	0.31	0.31	0.31	0.48	0.46	0.46	0.41	0.33	0.33	0.40	0.31	0.31
v/c Ratio	0.66	2.24	0.30	1.23	1.57	0.06	0.52	0.58	0.48	0.20	0.27	0.13
Control Delay	73.9	583.2	9.5	155.8	285.3	1.2	20.7	27.9	5.0	18.2	27.2	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.9	583.2	9.5	155.8	285.3	1.2	20.7	27.9	5.0	18.2	27.2	1.3
LOS	E	F	A	F	F	A	C	C	A	B	C	A
Approach Delay		536.9			265.0			20.0			21.5	
Approach LOS		F			F			B			C	
Queue Length 50th (m)	8.7	~407.5	5.5	~68.0	~370.2	0.0	21.2	62.0	18.6	6.0	23.2	0.0
Queue Length 95th (m)	#29.5	#451.5	21.0	#124.2	#414.0	2.3	36.0	81.6	29.2	13.3	34.4	2.3
Internal Link Dist (m)		409.0			175.8			303.6			253.5	
Turn Bay Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Base Capacity (vph)	74	1042	547	274	1538	765	457	1160	760	266	1052	565
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	0.66	2.24	0.30	1.23	1.57	0.06	0.52	0.58	0.48	0.20	0.27	0.13

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: 145			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 2.24			
Intersection Signal Delay: 304.6		Intersection LOS: F	
Intersection Capacity Utilization 118.5%		ICU Level of Service H	
Analysis Period (min) 15			

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

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

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



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2134	168	2	2127	322	6
Future Volume (vph)	2134	168	2	2127	322	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)	3539	1583	1770	3539	1770	1583
Flt Permitted			0.049		0.950	
Satd. Flow (perm)	3539	1583	91	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		57				7
Link Speed (k/h)	60			60	60	
Link Distance (m)	272.7			591.4	424.3	
Travel Time (s)	16.4			35.5	25.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2320	183	2	2312	350	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2320	183	2	2312	350	7
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8

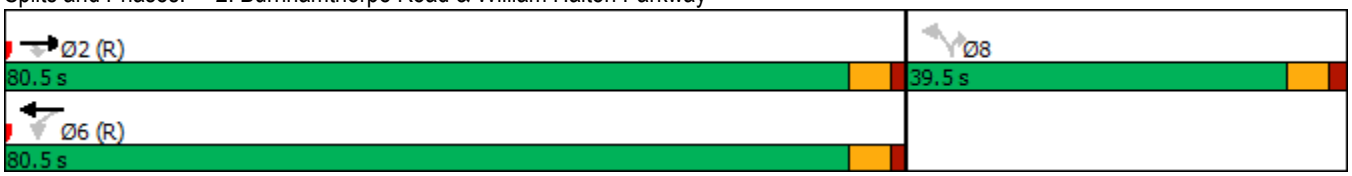
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	33.1	33.1	33.1	33.1	39.5	39.5
Total Split (s)	80.5	80.5	80.5	80.5	39.5	39.5
Total Split (%)	67.1%	67.1%	67.1%	67.1%	32.9%	32.9%
Maximum Green (s)	75.4	75.4	75.4	75.4	34.0	34.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.4	1.4	1.4	1.4	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	27.0	27.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	81.2	81.2	81.2	81.2	28.2	28.2
Actuated g/C Ratio	0.68	0.68	0.68	0.68	0.24	0.24
v/c Ratio	0.97	0.17	0.03	0.97	0.84	0.02
Control Delay	32.0	5.9	10.0	31.4	61.9	17.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.0	5.9	10.0	31.4	61.9	17.8
LOS	C	A	A	C	E	B
Approach Delay	30.1			31.4	61.0	
Approach LOS	C			C	E	
Queue Length 50th (m)	264.4	10.2	0.2	261.6	82.5	0.0
Queue Length 95th (m)	#371.1	21.8	1.4	#368.9	112.9	3.8
Internal Link Dist (m)	248.7			567.4	400.3	
Turn Bay Length (m)		30.0	30.0		30.0	
Base Capacity (vph)	2395	1090	61	2395	501	453
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	0.97	0.17	0.03	0.97	0.70	0.02

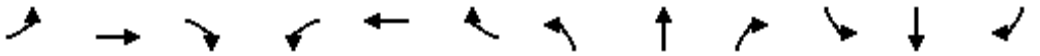
Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 32.8	Intersection LOS: C
Intersection Capacity Utilization 85.7%	ICU Level of Service E
Analysis Period (min) 15	

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

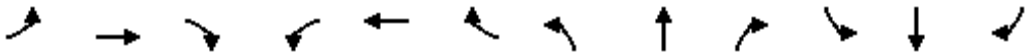
Queue shown is maximum after two cycles.

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





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	104	33	127	109	29	31	376	348	155	312	42
Future Volume (vph)	43	104	33	127	109	29	31	376	348	155	312	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	30.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			25.0			50.0			50.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00				1.00							
Frt		0.964			0.968			0.928			0.982	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3325	0	1770	3390	0	1626	3284	0	1703	3446	0
Flt Permitted	0.657			0.537			0.524			0.279		
Satd. Flow (perm)	1199	3325	0	1000	3390	0	897	3284	0	500	3446	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36			32			240			19	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		496.4			163.7			507.3			449.2	
Travel Time (s)		29.8			9.8			30.4			27.0	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	2%	13%	2%	3%	2%	11%	2%	2%	6%	3%	2%
Adj. Flow (vph)	47	113	36	138	118	32	34	409	378	168	339	46
Shared Lane Traffic (%)												
Lane Group Flow (vph)	47	149	0	138	150	0	34	787	0	168	385	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

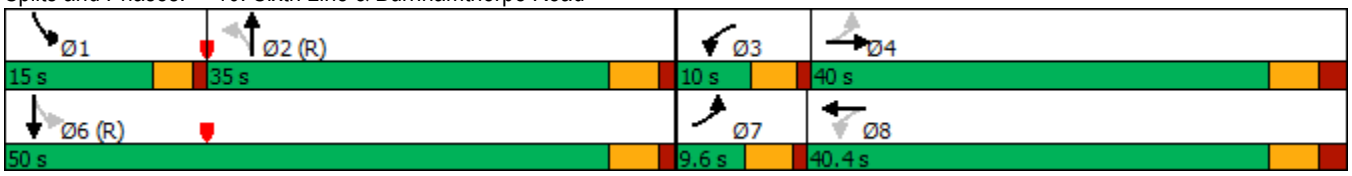


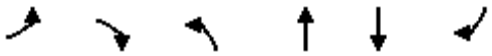
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	40.0		9.5	40.0		33.1	33.1		9.5	33.1	
Total Split (s)	9.6	40.0		10.0	40.4		35.0	35.0		15.0	50.0	
Total Split (%)	9.6%	40.0%		10.0%	40.4%		35.0%	35.0%		15.0%	50.0%	
Maximum Green (s)	5.1	34.0		5.5	34.4		29.9	29.9		11.0	44.9	
Yellow Time (s)	3.5	3.7		3.5	3.7		3.7	3.7		3.0	3.7	
All-Red Time (s)	1.0	2.3		1.0	2.3		1.4	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	6.0		4.5	6.0		5.1	5.1		4.0	5.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0		7.0	7.0			7.0	
Flash Dont Walk (s)		27.0			27.0		21.0	21.0			21.0	
Pedestrian Calls (#/hr)		0			0		0	0			0	
Act Effct Green (s)	15.4	8.8		17.9	13.1		56.7	56.7		71.2	70.1	
Actuated g/C Ratio	0.15	0.09		0.18	0.13		0.57	0.57		0.71	0.70	
v/c Ratio	0.22	0.46		0.62	0.32		0.07	0.40		0.36	0.16	
Control Delay	34.5	36.8		48.7	33.7		11.9	9.3		7.1	5.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	34.5	36.8		48.7	33.7		11.9	9.3		7.1	5.2	
LOS	C	D		D	C		B	A		A	A	
Approach Delay		36.2			40.9			9.4			5.8	
Approach LOS		D			D			A			A	
Queue Length 50th (m)	7.9	11.6		24.5	12.1		2.9	28.5		9.5	11.4	
Queue Length 95th (m)	17.4	21.1		41.4	21.6		9.0	50.2		18.0	18.4	
Internal Link Dist (m)		472.4			139.7			483.3			425.2	
Turn Bay Length (m)	55.0			30.0			30.0			30.0		
Base Capacity (vph)	212	1154		221	1187		508	1967		494	2420	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.22	0.13		0.62	0.13		0.07	0.40		0.34	0.16	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.62	
Intersection Signal Delay: 16.0	Intersection LOS: B

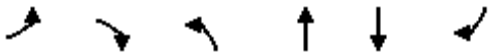
Intersection Capacity Utilization 57.7% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 10: Sixth Line & Burnhamthorpe Road





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	8	31	68	1117	648	5
Future Volume (vph)	8	31	68	1117	648	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0	0.0	70.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	15.0		40.0			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.850			0.999	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3406	3536	0
Flt Permitted	0.950		0.351			
Satd. Flow (perm)	1770	1583	654	3406	3536	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		38			1	
Link Speed (k/h)	50			60	60	
Link Distance (m)	242.4			254.4	327.6	
Travel Time (s)	17.5			15.3	19.7	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	2%	2%	2%	6%	2%	2%
Adj. Flow (vph)	10	38	83	1362	790	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	38	83	1362	796	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1	1	2	2	
Detector Template	Left	Right	Left	Thru	Thru	
Leading Detector (m)	2.0	2.0	2.0	10.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	2.0	2.0	0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	

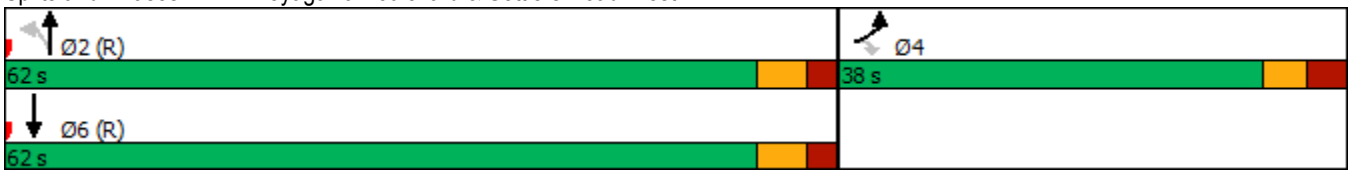


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Permitted Phases		4	2			
Detector Phase	4	4	2	2	6	
Switch Phase						
Minimum Initial (s)	10.0	10.0	15.0	15.0	15.0	
Minimum Split (s)	36.4	36.4	29.0	29.0	29.0	
Total Split (s)	38.0	38.0	62.0	62.0	62.0	
Total Split (%)	38.0%	38.0%	62.0%	62.0%	62.0%	
Maximum Green (s)	31.6	31.6	56.0	56.0	56.0	
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	
All-Red Time (s)	3.1	3.1	2.3	2.3	2.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.4	6.4	6.0	6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	0.2	0.2	0.2	
Recall Mode	None	None	C-Max	C-Max	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	23.0	23.0	16.0	16.0	16.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	
Act Effct Green (s)	10.0	10.0	86.6	86.6	86.6	
Actuated g/C Ratio	0.10	0.10	0.87	0.87	0.87	
v/c Ratio	0.06	0.20	0.15	0.46	0.26	
Control Delay	41.6	16.1	3.1	3.5	2.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	41.6	16.1	3.1	3.5	2.5	
LOS	D	B	A	A	A	
Approach Delay	21.4			3.5	2.5	
Approach LOS	C			A	A	
Queue Length 50th (m)	1.9	0.0	3.5	43.7	28.4	
Queue Length 95th (m)	6.5	8.3	6.6	46.5	m23.6	
Internal Link Dist (m)	218.4			230.4	303.6	
Turn Bay Length (m)	40.0		70.0			
Base Capacity (vph)	559	526	566	2948	3061	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.02	0.07	0.15	0.46	0.26	

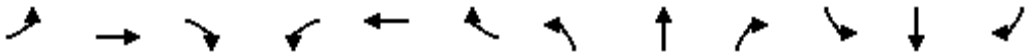
Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 59 (59%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.46			
Intersection Signal Delay: 3.5		Intersection LOS: A	
Intersection Capacity Utilization 54.2%		ICU Level of Service A	
Analysis Period (min) 15			

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

Splits and Phases: 24: Neyagawa Boulevard & Settlers Road West



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	2261	46	400	2181	59	64	227	318	60	491	10
Future Volume (vph)	3	2261	46	400	2181	59	64	227	318	60	491	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3505	1583	1770	3471	1482	1752	3505	1583	1703	3539	1583
Flt Permitted	0.156			0.135			0.397			0.599		
Satd. Flow (perm)	291	3505	1583	251	3471	1482	732	3505	1583	1074	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			124			81			346			124
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		433.0			199.8			327.6			277.5	
Travel Time (s)		26.0			12.0			19.7			16.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	3%	2%	2%	4%	9%	3%	3%	2%	6%	2%	2%
Adj. Flow (vph)	3	2458	50	435	2371	64	70	247	346	65	534	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	2458	50	435	2371	64	70	247	346	65	534	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)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	



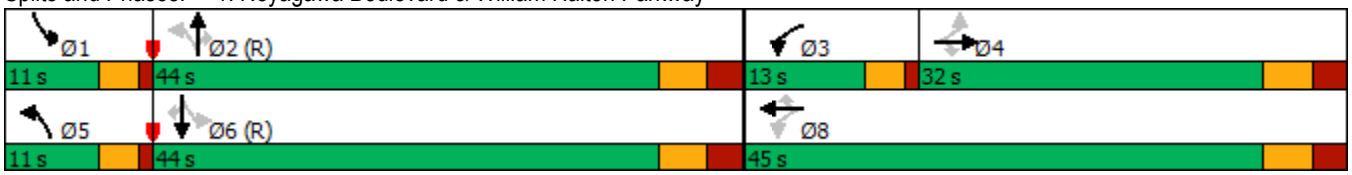
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	15.0	15.0	7.0	15.0	15.0
Minimum Split (s)	40.4	40.4	40.4	11.0	40.4	40.4	11.5	37.4	37.4	11.5	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	0.2	0.2	3.0	0.2	0.2
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)	0	0	0		0	0		0	0		0	0
Act Effct Green (s)	25.6	25.6	25.6	41.0	38.6	38.6	47.8	39.8	39.8	47.8	39.8	39.8
Actuated g/C Ratio	0.26	0.26	0.26	0.41	0.39	0.39	0.48	0.40	0.40	0.48	0.40	0.40
v/c Ratio	0.04	2.74	0.10	1.82	1.77	0.10	0.17	0.18	0.41	0.12	0.38	0.02
Control Delay	30.0	805.1	0.4	406.0	374.4	3.5	11.6	19.1	5.1	13.2	23.0	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	30.0	805.1	0.4	406.0	374.4	3.5	11.6	19.1	5.1	13.2	23.0	0.0
LOS	C	F	A	F	F	A	B	B	A	B	C	A
Approach Delay		788.2			370.9			11.0			21.6	
Approach LOS		F			F			B			C	
Queue Length 50th (m)	0.5	~451.4	0.0	~118.4	~382.2	0.0	7.0	17.5	0.0	6.5	41.4	0.0
Queue Length 95th (m)	2.9	#495.0	0.0	#180.3	#426.2	6.1	14.3	26.6	33.8	13.6	56.2	0.0
Internal Link Dist (m)		409.0			175.8			303.6			253.5	
Turn Bay Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Base Capacity (vph)	74	897	497	239	1339	621	421	1394	838	557	1408	704
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	2.74	0.10	1.82	1.77	0.10	0.17	0.18	0.41	0.12	0.38	0.02

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: 145			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 2.74			
Intersection Signal Delay: 460.5		Intersection LOS: F	
Intersection Capacity Utilization 121.4%		ICU Level of Service H	
Analysis Period (min) 15			

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

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

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



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2140	243	7	2145	323	4
Future Volume (vph)	2140	243	7	2145	323	4
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)	3539	1583	1770	3539	1770	1583
Flt Permitted			0.049		0.950	
Satd. Flow (perm)	3539	1583	91	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		83				4
Link Speed (k/h)	60			60	60	
Link Distance (m)	272.7			591.4	410.6	
Travel Time (s)	16.4			35.5	24.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2326	264	8	2332	351	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2326	264	8	2332	351	4
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8

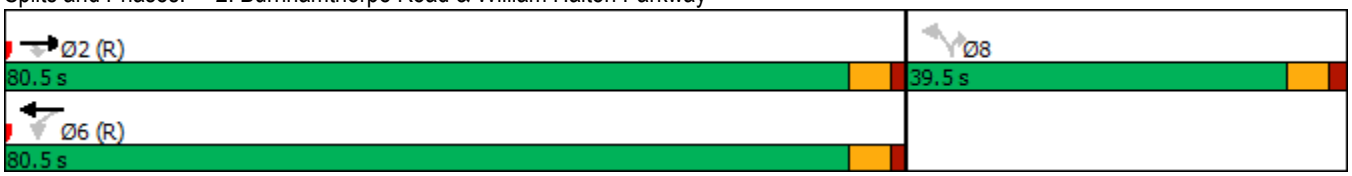
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	33.1	33.1	33.1	33.1	39.5	39.5
Total Split (s)	80.5	80.5	80.5	80.5	39.5	39.5
Total Split (%)	67.1%	67.1%	67.1%	67.1%	32.9%	32.9%
Maximum Green (s)	75.4	75.4	75.4	75.4	34.0	34.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.4	1.4	1.4	1.4	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	27.0	27.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	81.2	81.2	81.2	81.2	28.2	28.2
Actuated g/C Ratio	0.68	0.68	0.68	0.68	0.24	0.24
v/c Ratio	0.97	0.24	0.13	0.97	0.84	0.01
Control Delay	32.6	6.2	14.9	33.1	61.9	19.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.6	6.2	14.9	33.1	61.9	19.8
LOS	C	A	B	C	E	B
Approach Delay	29.9			33.0	61.4	
Approach LOS	C			C	E	
Queue Length 50th (m)	267.0	15.3	0.7	269.0	82.7	0.0
Queue Length 95th (m)	#372.7	30.6	3.9	#374.1	113.2	2.9
Internal Link Dist (m)	248.7			567.4	386.6	
Turn Bay Length (m)		30.0	30.0		30.0	
Base Capacity (vph)	2394	1097	61	2394	501	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	0.97	0.24	0.13	0.97	0.70	0.01

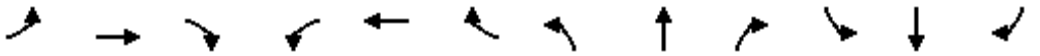
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 33.4		Intersection LOS: C	
Intersection Capacity Utilization 86.0%		ICU Level of Service E	
Analysis Period (min) 15			

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

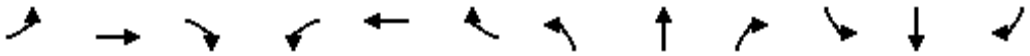
Queue shown is maximum after two cycles.

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





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	68	36	193	158	143	54	442	135	40	371	85
Future Volume (vph)	30	68	36	193	158	143	54	442	135	40	371	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	30.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			25.0			50.0			50.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		1.00		1.00								
Frt		0.948			0.929			0.965			0.972	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3340	0	1770	3288	0	1641	3415	0	1736	3440	0
Flt Permitted	0.554			0.462			0.462			0.392		
Satd. Flow (perm)	1032	3340	0	860	3288	0	798	3415	0	716	3440	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		39			155			47			32	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		510.4			161.7			507.3			449.2	
Travel Time (s)		30.6			9.7			30.4			27.0	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	10%	2%	2%	4%	2%	2%
Adj. Flow (vph)	33	74	39	210	172	155	59	480	147	43	403	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	113	0	210	327	0	59	627	0	43	495	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

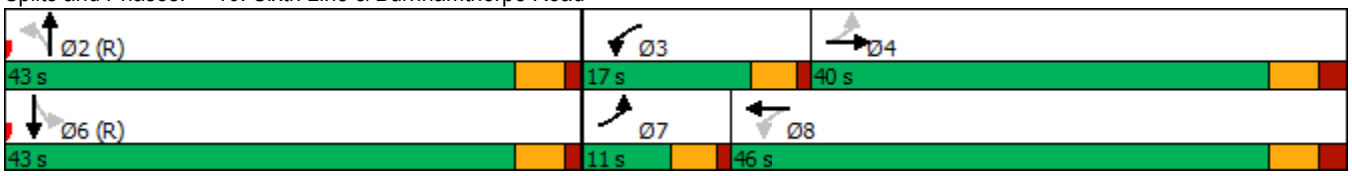


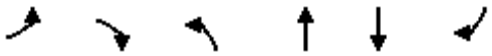
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	40.0		9.5	40.0		33.1	33.1		33.1	33.1	
Total Split (s)	11.0	40.0		17.0	46.0		43.0	43.0		43.0	43.0	
Total Split (%)	11.0%	40.0%		17.0%	46.0%		43.0%	43.0%		43.0%	43.0%	
Maximum Green (s)	6.5	34.0		12.5	40.0		37.9	37.9		37.9	37.9	
Yellow Time (s)	3.5	3.7		3.5	3.7		3.7	3.7		3.7	3.7	
All-Red Time (s)	1.0	2.3		1.0	2.3		1.4	1.4		1.4	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	6.0		4.5	6.0		5.1	5.1		5.1	5.1	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		27.0			27.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	15.4	7.7		25.9	17.8		64.5	64.5		64.5	64.5	
Actuated g/C Ratio	0.15	0.08		0.26	0.18		0.64	0.64		0.64	0.64	
v/c Ratio	0.16	0.39		0.63	0.46		0.11	0.28		0.09	0.22	
Control Delay	29.5	32.6		40.0	22.0		8.1	7.7		8.0	7.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	29.5	32.6		40.0	22.0		8.1	7.7		8.0	7.4	
LOS	C	C		D	C		A	A		A	A	
Approach Delay		31.9			29.0			7.7			7.4	
Approach LOS		C			C			A			A	
Queue Length 50th (m)	5.1	7.6		36.0	17.0		4.2	24.3		3.0	18.6	
Queue Length 95th (m)	12.4	16.1		56.4	30.4		10.3	35.7		8.0	28.0	
Internal Link Dist (m)		486.4			137.7			483.3			425.2	
Turn Bay Length (m)	55.0			30.0			30.0			30.0		
Base Capacity (vph)	209	1161		336	1408		515	2219		461	2231	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.16	0.10		0.63	0.23		0.11	0.28		0.09	0.22	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 85	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 15.5	Intersection LOS: B

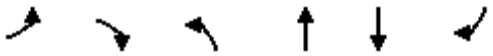
Intersection Capacity Utilization 53.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 10: Sixth Line & Burnhamthorpe Road





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	14	28	527	844	2
Future Volume (vph)	2	14	28	527	844	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0	0.0	70.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	15.0		40.0			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.850				
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3539	0
Flt Permitted	0.950		0.274			
Satd. Flow (perm)	1770	1583	510	3539	3539	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		17				
Link Speed (k/h)	50			60	60	
Link Distance (m)	242.4			254.4	327.6	
Travel Time (s)	17.5			15.3	19.7	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	2	17	34	643	1029	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	17	34	643	1031	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1	1	2	2	
Detector Template	Left	Right	Left	Thru	Thru	
Leading Detector (m)	2.0	2.0	2.0	10.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	2.0	2.0	0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Perm	Perm	Perm	NA	NA	
Protected Phases				2	6	
Permitted Phases	4	4	2			

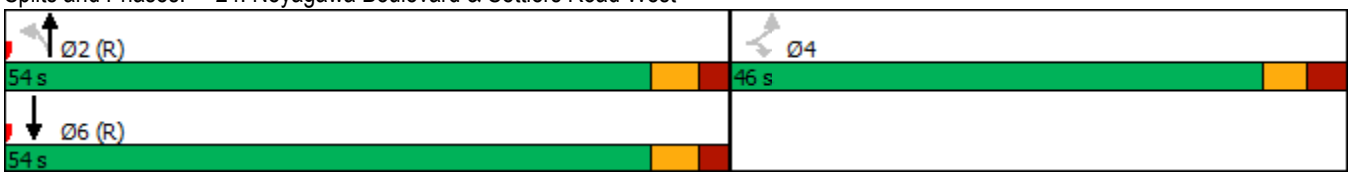


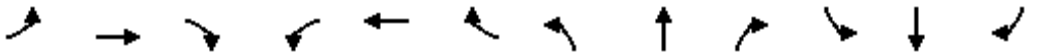
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4	4	2	2	6	
Switch Phase						
Minimum Initial (s)	10.0	10.0	15.0	15.0	15.0	
Minimum Split (s)	36.4	36.4	29.0	29.0	29.0	
Total Split (s)	46.0	46.0	54.0	54.0	54.0	
Total Split (%)	46.0%	46.0%	54.0%	54.0%	54.0%	
Maximum Green (s)	39.6	39.6	48.0	48.0	48.0	
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	
All-Red Time (s)	3.1	3.1	2.3	2.3	2.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.4	6.4	6.0	6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	0.2	0.2	0.2	
Recall Mode	None	None	C-Max	C-Max	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	23.0	23.0	16.0	16.0	16.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	
Act Effct Green (s)	10.0	10.0	91.0	91.0	91.0	
Actuated g/C Ratio	0.10	0.10	0.91	0.91	0.91	
v/c Ratio	0.01	0.10	0.07	0.20	0.32	
Control Delay	41.0	19.6	2.4	1.7	1.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	41.0	19.6	2.4	1.7	1.2	
LOS	D	B	A	A	A	
Approach Delay	21.9			1.7	1.2	
Approach LOS	C			A	A	
Queue Length 50th (m)	0.4	0.0	0.0	0.0	0.5	
Queue Length 95th (m)	2.5	5.9	3.2	17.7	m14.8	
Internal Link Dist (m)	218.4			230.4	303.6	
Turn Bay Length (m)	40.0		70.0			
Base Capacity (vph)	700	637	464	3222	3222	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.00	0.03	0.07	0.20	0.32	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 80 (80%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.32			
Intersection Signal Delay: 1.6		Intersection LOS: A	
Intersection Capacity Utilization 42.1%		ICU Level of Service A	
Analysis Period (min) 15			

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

Splits and Phases: 24: Neyagawa Boulevard & Settlers Road West





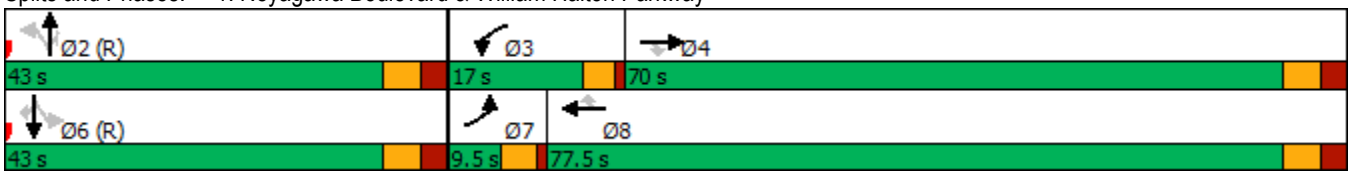
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	2148	149	310	2224	42	219	622	337	48	264	66
Future Volume (vph)	45	2148	149	310	2224	42	219	622	337	48	264	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Storage Lanes	2		1	2		1	1		1	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3400	4893	1509	3433	4848	1583	1719	3539	1599	1597	3438	1568
Flt Permitted	0.950			0.950			0.540			0.209		
Satd. Flow (perm)	3400	4893	1509	3433	4848	1583	977	3539	1599	351	3438	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			113			66			130			100
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		433.0			199.8			327.6			277.5	
Travel Time (s)		26.0			12.0			19.7			16.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	6%	7%	2%	7%	2%	5%	2%	1%	13%	5%	3%
Adj. Flow (vph)	49	2335	162	337	2417	46	238	676	366	52	287	72
Shared Lane Traffic (%)												
Lane Group Flow (vph)	49	2335	162	337	2417	46	238	676	366	52	287	72
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	

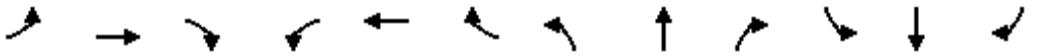
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8	2		2	6		6
Detector Phase	7	4	4	3	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	7.0	10.0	10.0	15.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	9.5	40.4	40.4	11.0	40.4	40.4	37.4	37.4	37.4	37.4	37.4	37.4
Total Split (s)	9.5	70.0	70.0	17.0	77.5	77.5	43.0	43.0	43.0	43.0	43.0	43.0
Total Split (%)	7.3%	53.8%	53.8%	13.1%	59.6%	59.6%	33.1%	33.1%	33.1%	33.1%	33.1%	33.1%
Maximum Green (s)	5.0	63.6	63.6	13.0	71.1	71.1	36.6	36.6	36.6	36.6	36.6	36.6
Yellow Time (s)	3.5	3.7	3.7	3.0	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.4	6.4	4.0	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	0.2	0.2	0.2	0.2	0.2	0.2
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		27.0	27.0		27.0	27.0	24.0	24.0	24.0	24.0	24.0	24.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	5.0	63.6	63.6	13.0	73.0	73.0	36.6	36.6	36.6	36.6	36.6	36.6
Actuated g/C Ratio	0.04	0.49	0.49	0.10	0.56	0.56	0.28	0.28	0.28	0.28	0.28	0.28
v/c Ratio	0.38	0.98	0.20	0.98	0.89	0.05	0.87	0.68	0.67	0.53	0.30	0.14
Control Delay	69.5	46.1	6.9	102.5	30.6	1.6	73.9	45.6	33.1	61.8	37.7	3.3
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	69.5	46.1	6.9	102.5	30.6	1.6	73.9	45.6	33.1	61.8	37.7	3.3
LOS	E	D	A	F	C	A	E	D	C	E	D	A
Approach Delay		44.1			38.8			47.3			34.7	
Approach LOS		D			D			D			C	
Queue Length 50th (m)	6.8	219.8	6.8	47.5	207.6	0.0	61.1	85.4	57.3	11.9	32.0	0.0
Queue Length 95th (m)	13.9	#262.8	19.5	#79.2	233.6	3.5	#110.6	107.5	94.4	#30.0	45.0	6.1
Internal Link Dist (m)		409.0			175.8			303.6			253.5	
Turn Bay Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Base Capacity (vph)	130	2393	795	343	2722	917	275	996	543	98	967	513
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	0.38	0.98	0.20	0.98	0.89	0.05	0.87	0.68	0.67	0.53	0.30	0.14

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 42.0		Intersection LOS: D	
Intersection Capacity Utilization 99.4%		ICU Level of Service F	
Analysis Period (min) 15			

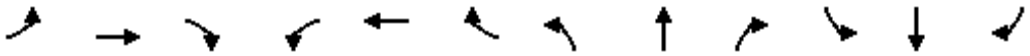
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	2261	46	400	2181	59	64	227	318	60	491	10
Future Volume (vph)	3	2261	46	400	2181	59	64	227	318	60	491	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Storage Lanes	2		1	2		1	1		1	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	5036	1583	3433	4988	1482	1752	3505	1583	1703	3539	1583
Flt Permitted	0.950			0.950			0.251			0.566		
Satd. Flow (perm)	3433	5036	1583	3433	4988	1482	463	3505	1583	1015	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			100			66			178			100
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		433.0			199.8			327.6			277.5	
Travel Time (s)		26.0			12.0			19.7			16.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	3%	2%	2%	4%	9%	3%	3%	2%	6%	2%	2%
Adj. Flow (vph)	3	2458	50	435	2371	64	70	247	346	65	534	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	2458	50	435	2371	64	70	247	346	65	534	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)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	

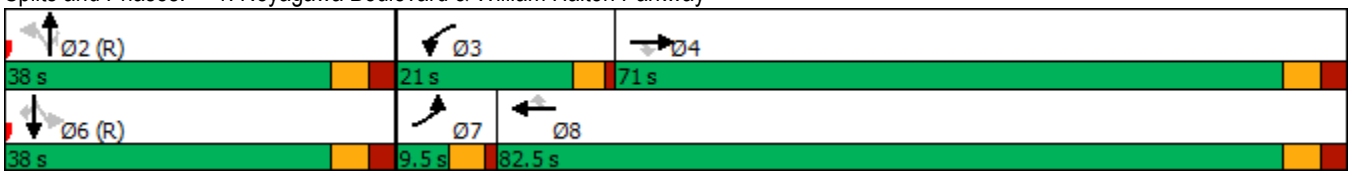


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8	2		2	6		6
Detector Phase	7	4	4	3	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	7.0	10.0	10.0	15.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	9.5	40.4	40.4	11.0	40.4	40.4	37.4	37.4	37.4	37.4	37.4	37.4
Total Split (s)	9.5	71.0	71.0	21.0	82.5	82.5	38.0	38.0	38.0	38.0	38.0	38.0
Total Split (%)	7.3%	54.6%	54.6%	16.2%	63.5%	63.5%	29.2%	29.2%	29.2%	29.2%	29.2%	29.2%
Maximum Green (s)	5.0	64.6	64.6	17.0	76.1	76.1	31.6	31.6	31.6	31.6	31.6	31.6
Yellow Time (s)	3.5	3.7	3.7	3.0	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.4	6.4	4.0	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	0.2	0.2	0.2	0.2	0.2	0.2
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		27.0	27.0		27.0	27.0	24.0	24.0	24.0	24.0	24.0	24.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	5.0	64.6	64.6	17.0	83.7	83.7	31.6	31.6	31.6	31.6	31.6	31.6
Actuated g/C Ratio	0.04	0.50	0.50	0.13	0.64	0.64	0.24	0.24	0.24	0.24	0.24	0.24
v/c Ratio	0.02	0.98	0.06	0.97	0.74	0.07	0.62	0.29	0.67	0.26	0.62	0.02
Control Delay	60.7	46.6	0.1	92.0	18.0	2.5	69.9	41.2	28.0	43.3	47.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.7	46.6	0.1	92.0	18.0	2.5	69.9	41.2	28.0	43.3	47.6	0.1
LOS	E	D	A	F	B	A	E	D	C	D	D	A
Approach Delay		45.7			28.9			37.3			46.3	
Approach LOS		D			C			D			D	
Queue Length 50th (m)	0.4	232.4	0.0	61.0	141.3	0.0	16.9	28.7	41.2	14.3	67.9	0.0
Queue Length 95th (m)	2.2	#276.3	0.0	#95.1	197.5	6.0	#40.2	41.3	76.9	28.5	87.7	0.0
Internal Link Dist (m)		409.0			175.8			303.6			253.5	
Turn Bay Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Base Capacity (vph)	132	2502	836	448	3211	977	112	851	519	246	860	460
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	0.02	0.98	0.06	0.97	0.74	0.07	0.63	0.29	0.67	0.26	0.62	0.02

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 37.7		Intersection LOS: D	
Intersection Capacity Utilization 100.5%		ICU Level of Service G	
Analysis Period (min) 15			

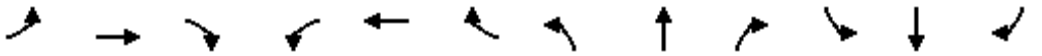
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

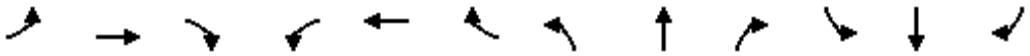


Appendix P

2031 Future Background Conditions Operational Analysis



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	2144	165	329	2215	43	237	684	369	52	291	73
Future Volume (vph)	50	2144	165	329	2215	43	237	684	369	52	291	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Storage Lanes	2		1	2		1	1		1	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3400	4893	1509	3433	4848	1583	1719	3539	1599	1597	3438	1568
Flt Permitted	0.950			0.950			0.513			0.173		
Satd. Flow (perm)	3400	4893	1509	3433	4848	1583	928	3539	1599	291	3438	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			121			66			147			100
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		433.0			199.8			327.6			277.5	
Travel Time (s)		26.0			12.0			19.7			16.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	6%	7%	2%	7%	2%	5%	2%	1%	13%	5%	3%
Adj. Flow (vph)	54	2330	179	358	2408	47	258	743	401	57	316	79
Shared Lane Traffic (%)												
Lane Group Flow (vph)	54	2330	179	358	2408	47	258	743	401	57	316	79
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	



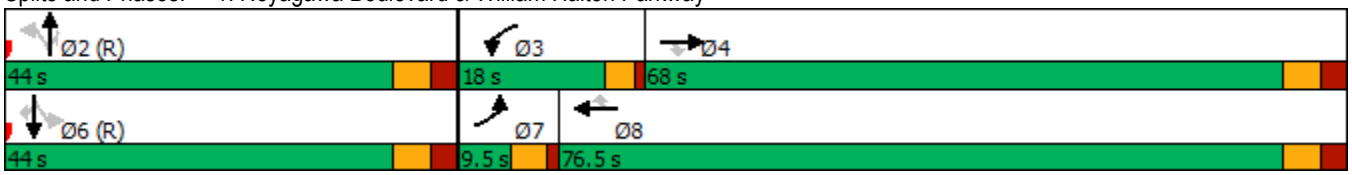
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8	2		2	6		6
Detector Phase	7	4	4	3	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	7.0	10.0	10.0	15.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	9.5	40.4	40.4	11.0	40.4	40.4	37.4	37.4	37.4	37.4	37.4	37.4
Total Split (s)	9.5	68.0	68.0	18.0	76.5	76.5	44.0	44.0	44.0	44.0	44.0	44.0
Total Split (%)	7.3%	52.3%	52.3%	13.8%	58.8%	58.8%	33.8%	33.8%	33.8%	33.8%	33.8%	33.8%
Maximum Green (s)	5.0	61.6	61.6	14.0	70.1	70.1	37.6	37.6	37.6	37.6	37.6	37.6
Yellow Time (s)	3.5	3.7	3.7	3.0	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.4	6.4	4.0	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	0.2	0.2	0.2	0.2	0.2	0.2
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		27.0	27.0		27.0	27.0	24.0	24.0	24.0	24.0	24.0	24.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	5.0	61.6	61.6	14.0	72.0	72.0	37.6	37.6	37.6	37.6	37.6	37.6
Actuated g/C Ratio	0.04	0.47	0.47	0.11	0.55	0.55	0.29	0.29	0.29	0.29	0.29	0.29
v/c Ratio	0.42	1.01	0.23	0.97	0.90	0.05	0.96	0.73	0.71	0.68	0.32	0.15
Control Delay	70.9	54.1	7.7	97.5	31.8	1.7	92.2	46.4	33.4	80.7	37.3	4.3
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	70.9	54.1	7.7	97.5	31.8	1.7	92.2	46.4	33.4	80.7	37.3	4.3
LOS	E	D	A	F	C	A	F	D	C	F	D	A
Approach Delay		51.2			39.7			51.1			37.0	
Approach LOS		D			D			D			D	
Queue Length 50th (m)	7.4	~228.2	8.4	50.3	210.0	0.0	68.6	95.0	62.5	13.6	35.1	0.0
Queue Length 95th (m)	14.8	#269.5	22.4	#82.3	236.1	3.6	#124.8	118.5	102.1	#38.1	48.7	7.9
Internal Link Dist (m)		409.0			175.8			303.6			253.5	
Turn Bay Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Base Capacity (vph)	130	2318	778	369	2685	906	268	1023	566	84	994	524
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	0.42	1.01	0.23	0.97	0.90	0.05	0.96	0.73	0.71	0.68	0.32	0.15

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.01			
Intersection Signal Delay: 45.8		Intersection LOS: D	
Intersection Capacity Utilization 101.6%		ICU Level of Service G	
Analysis Period (min) 15			

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

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

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



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2128	172	2	2125	321	6
Future Volume (vph)	2128	172	2	2125	321	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)	3539	1583	1770	3539	1770	1583
Flt Permitted			0.049		0.950	
Satd. Flow (perm)	3539	1583	91	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		59				7
Link Speed (k/h)	60			60	60	
Link Distance (m)	272.7			591.4	424.3	
Travel Time (s)	16.4			35.5	25.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2313	187	2	2310	349	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2313	187	2	2310	349	7
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8

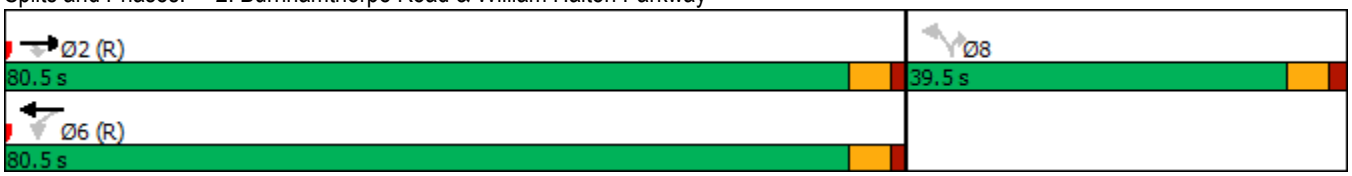
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	33.1	33.1	33.1	33.1	39.5	39.5
Total Split (s)	80.5	80.5	80.5	80.5	39.5	39.5
Total Split (%)	67.1%	67.1%	67.1%	67.1%	32.9%	32.9%
Maximum Green (s)	75.4	75.4	75.4	75.4	34.0	34.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.4	1.4	1.4	1.4	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	27.0	27.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	81.3	81.3	81.3	81.3	28.1	28.1
Actuated g/C Ratio	0.68	0.68	0.68	0.68	0.23	0.23
v/c Ratio	0.96	0.17	0.03	0.96	0.84	0.02
Control Delay	31.4	5.8	10.0	31.2	61.7	17.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.4	5.8	10.0	31.2	61.7	17.8
LOS	C	A	A	C	E	B
Approach Delay	29.5			31.1	60.9	
Approach LOS	C			C	E	
Queue Length 50th (m)	262.0	10.4	0.2	261.1	82.3	0.0
Queue Length 95th (m)	#368.9	22.0	1.4	#368.4	112.2	3.8
Internal Link Dist (m)	248.7			567.4	400.3	
Turn Bay Length (m)		30.0	30.0		30.0	
Base Capacity (vph)	2397	1091	61	2397	501	453
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	0.96	0.17	0.03	0.96	0.70	0.02

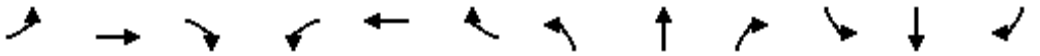
Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 32.4	Intersection LOS: C
Intersection Capacity Utilization 85.4%	ICU Level of Service E
Analysis Period (min) 15	

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

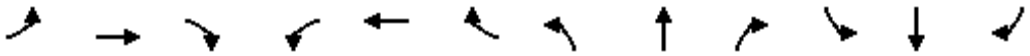
Queue shown is maximum after two cycles.

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





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	107	32	130	115	31	29	481	376	171	355	46
Future Volume (vph)	43	107	32	130	115	31	29	481	376	171	355	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	30.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			25.0			50.0			50.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00				1.00							
Frt		0.965			0.968			0.934			0.983	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3332	0	1770	3390	0	1626	3306	0	1703	3449	0
Flt Permitted	0.651			0.555			0.499			0.219		
Satd. Flow (perm)	1188	3332	0	1034	3390	0	854	3306	0	393	3449	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		35			34			203			18	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		496.4			163.7			507.3			449.2	
Travel Time (s)		29.8			9.8			30.4			27.0	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	2%	13%	2%	3%	2%	11%	2%	2%	6%	3%	2%
Adj. Flow (vph)	47	116	35	141	125	34	32	523	409	186	386	50
Shared Lane Traffic (%)												
Lane Group Flow (vph)	47	151	0	141	159	0	32	932	0	186	436	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	40.0		9.5	40.0		33.1	33.1		9.5	33.1	
Total Split (s)	9.6	40.0		9.6	40.0		35.2	35.2		15.2	50.4	
Total Split (%)	9.6%	40.0%		9.6%	40.0%		35.2%	35.2%		15.2%	50.4%	
Maximum Green (s)	5.1	34.0		5.1	34.0		30.1	30.1		11.2	45.3	
Yellow Time (s)	3.5	3.7		3.5	3.7		3.7	3.7		3.0	3.7	
All-Red Time (s)	1.0	2.3		1.0	2.3		1.4	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	6.0		4.5	6.0		5.1	5.1		4.0	5.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0		7.0	7.0			7.0	
Flash Dont Walk (s)		27.0			27.0		21.0	21.0			21.0	
Pedestrian Calls (#/hr)		0			0		0	0			0	
Act Effct Green (s)	15.6	9.0		17.4	12.9		55.2	55.2		71.4	70.3	
Actuated g/C Ratio	0.16	0.09		0.17	0.13		0.55	0.55		0.71	0.70	
v/c Ratio	0.22	0.45		0.65	0.34		0.07	0.49		0.44	0.18	
Control Delay	34.6	36.9		50.7	34.1		13.2	12.2		8.3	5.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	34.6	36.9		50.7	34.1		13.2	12.2		8.3	5.3	
LOS	C	D		D	C		B	B		A	A	
Approach Delay		36.3			41.9			12.2			6.2	
Approach LOS		D			D			B			A	
Queue Length 50th (m)	7.9	11.9		25.2	12.8		2.9	43.7		10.6	13.2	
Queue Length 95th (m)	17.4	21.4		#42.6	22.6		9.1	72.6		19.8	20.8	
Internal Link Dist (m)		472.4			139.7			483.3			425.2	
Turn Bay Length (m)	55.0			30.0			30.0			30.0		
Base Capacity (vph)	213	1155		217	1175		471	1915		444	2428	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.22	0.13		0.65	0.14		0.07	0.49		0.42	0.18	

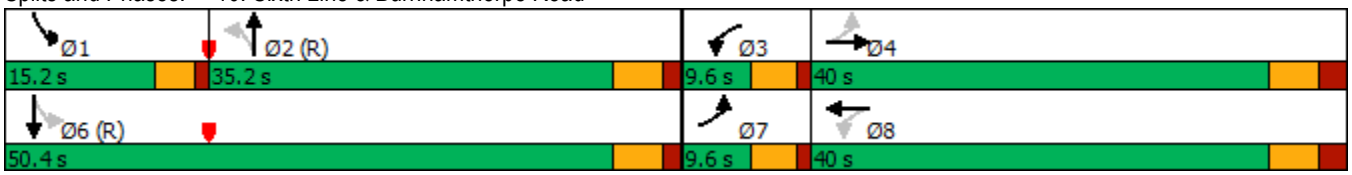
Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 17.0	Intersection LOS: B

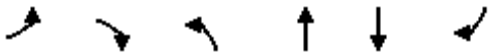
Intersection Capacity Utilization 62.5% ICU Level of Service B

Analysis Period (min) 15

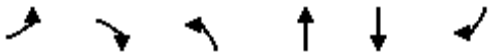
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: Sixth Line & Burnhamthorpe Road





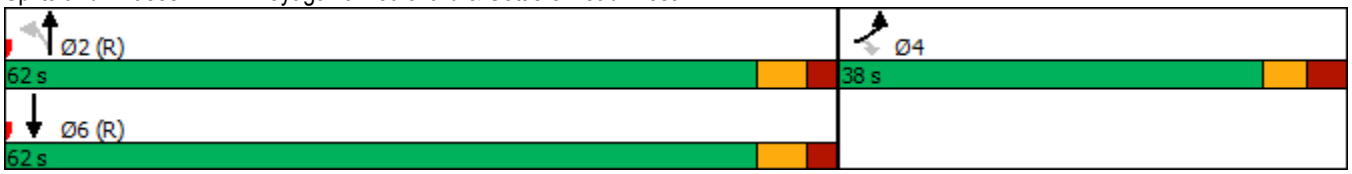
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	8	31	68	1234	716	5
Future Volume (vph)	8	31	68	1234	716	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0	0.0	70.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	15.0		40.0			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.850			0.999	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3406	3536	0
Flt Permitted	0.950		0.322			
Satd. Flow (perm)	1770	1583	600	3406	3536	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		38			1	
Link Speed (k/h)	50			60	60	
Link Distance (m)	242.4			254.4	327.6	
Travel Time (s)	17.5			15.3	19.7	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	2%	2%	2%	6%	2%	2%
Adj. Flow (vph)	10	38	83	1505	873	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	38	83	1505	879	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1	1	2	2	
Detector Template	Left	Right	Left	Thru	Thru	
Leading Detector (m)	2.0	2.0	2.0	10.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	2.0	2.0	0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	

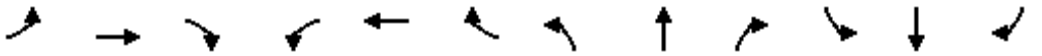


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Permitted Phases		4	2			
Detector Phase	4	4	2	2	6	
Switch Phase						
Minimum Initial (s)	10.0	10.0	15.0	15.0	15.0	
Minimum Split (s)	36.4	36.4	29.0	29.0	29.0	
Total Split (s)	38.0	38.0	62.0	62.0	62.0	
Total Split (%)	38.0%	38.0%	62.0%	62.0%	62.0%	
Maximum Green (s)	31.6	31.6	56.0	56.0	56.0	
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	
All-Red Time (s)	3.1	3.1	2.3	2.3	2.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.4	6.4	6.0	6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	0.2	0.2	0.2	
Recall Mode	None	None	C-Max	C-Max	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	23.0	23.0	16.0	16.0	16.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	
Act Effct Green (s)	10.0	10.0	86.6	86.6	86.6	
Actuated g/C Ratio	0.10	0.10	0.87	0.87	0.87	
v/c Ratio	0.06	0.20	0.16	0.51	0.29	
Control Delay	41.6	16.1	3.3	3.8	2.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	41.6	16.1	3.3	3.8	2.6	
LOS	D	B	A	A	A	
Approach Delay	21.4			3.8	2.6	
Approach LOS	C			A	A	
Queue Length 50th (m)	1.9	0.0	3.5	51.8	22.4	
Queue Length 95th (m)	6.5	8.3	6.8	54.5	25.3	
Internal Link Dist (m)	218.4			230.4	303.6	
Turn Bay Length (m)	40.0		70.0			
Base Capacity (vph)	559	526	519	2948	3061	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.02	0.07	0.16	0.51	0.29	

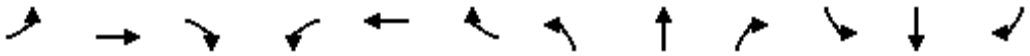
Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 59 (59%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.51			
Intersection Signal Delay: 3.7		Intersection LOS: A	
Intersection Capacity Utilization 56.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 24: Neyagawa Boulevard & Settlers Road West





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	2251	51	426	2175	62	67	249	343	59	541	11
Future Volume (vph)	4	2251	51	426	2175	62	67	249	343	59	541	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Storage Lanes	2		1	2		1	1		1	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	5036	1583	3433	4988	1482	1752	3505	1583	1703	3539	1583
Flt Permitted	0.950			0.950			0.196			0.533		
Satd. Flow (perm)	3433	5036	1583	3433	4988	1482	362	3505	1583	955	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			100			66			190			100
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		433.0			199.8			327.6			277.5	
Travel Time (s)		26.0			12.0			19.7			16.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	3%	2%	2%	4%	9%	3%	3%	2%	6%	2%	2%
Adj. Flow (vph)	4	2447	55	463	2364	67	73	271	373	64	588	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	2447	55	463	2364	67	73	271	373	64	588	12
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	

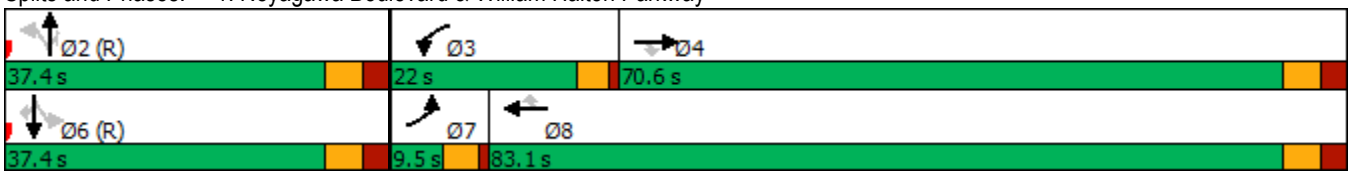


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8	2		2	6		6
Detector Phase	7	4	4	3	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	7.0	10.0	10.0	15.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	9.5	40.4	40.4	11.0	40.4	40.4	37.4	37.4	37.4	37.4	37.4	37.4
Total Split (s)	9.5	70.6	70.6	22.0	83.1	83.1	37.4	37.4	37.4	37.4	37.4	37.4
Total Split (%)	7.3%	54.3%	54.3%	16.9%	63.9%	63.9%	28.8%	28.8%	28.8%	28.8%	28.8%	28.8%
Maximum Green (s)	5.0	64.2	64.2	18.0	76.7	76.7	31.0	31.0	31.0	31.0	31.0	31.0
Yellow Time (s)	3.5	3.7	3.7	3.0	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.4	6.4	4.0	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	0.2	0.2	0.2	0.2	0.2	0.2
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		27.0	27.0		27.0	27.0	24.0	24.0	24.0	24.0	24.0	24.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	5.0	64.2	64.2	18.0	84.3	84.3	31.0	31.0	31.0	31.0	31.0	31.0
Actuated g/C Ratio	0.04	0.49	0.49	0.14	0.65	0.65	0.24	0.24	0.24	0.24	0.24	0.24
v/c Ratio	0.03	0.98	0.07	0.97	0.73	0.07	0.85	0.32	0.71	0.28	0.70	0.03
Control Delay	60.8	47.2	0.5	88.5	12.1	2.5	111.0	42.2	30.3	44.5	50.3	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	60.8	47.2	0.5	88.5	12.1	2.5	111.0	42.2	30.3	44.5	50.3	0.1
LOS	E	D	A	F	B	A	F	D	C	D	D	A
Approach Delay		46.2			24.1			43.0			48.9	
Approach LOS		D			C			D			D	
Queue Length 50th (m)	0.5	231.7	0.0	68.5	82.1	0.4	18.9	31.9	46.2	14.2	76.7	0.0
Queue Length 95th (m)	2.6	#275.8	0.9	m#78.3	m129.8	m1.1	#49.8	45.3	84.6	28.4	97.9	0.0
Internal Link Dist (m)		409.0			175.8			303.6			253.5	
Turn Bay Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Base Capacity (vph)	132	2487	832	475	3234	983	86	835	522	227	843	453
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	0.03	0.98	0.07	0.97	0.73	0.07	0.85	0.32	0.71	0.28	0.70	0.03

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 36.7		Intersection LOS: D	
Intersection Capacity Utilization 102.4%		ICU Level of Service G	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

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



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2137	233	6	2141	329	4
Future Volume (vph)	2137	233	6	2141	329	4
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)	3539	1583	1770	3539	1770	1583
Flt Permitted			0.045		0.950	
Satd. Flow (perm)	3539	1583	84	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		79				4
Link Speed (k/h)	60			60	60	
Link Distance (m)	272.7			591.4	410.6	
Travel Time (s)	16.4			35.5	24.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2323	253	7	2327	358	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2323	253	7	2327	358	4
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	33.1	33.1	33.1	33.1	39.5	39.5
Total Split (s)	90.5	90.5	90.5	90.5	39.5	39.5
Total Split (%)	69.6%	69.6%	69.6%	69.6%	30.4%	30.4%
Maximum Green (s)	85.4	85.4	85.4	85.4	34.0	34.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.4	1.4	1.4	1.4	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	27.0	27.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	89.3	89.3	89.3	89.3	30.1	30.1
Actuated g/C Ratio	0.69	0.69	0.69	0.69	0.23	0.23
v/c Ratio	0.96	0.23	0.12	0.96	0.88	0.01
Control Delay	21.9	1.1	14.2	30.6	69.9	22.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	1.1	14.2	30.6	69.9	22.0
LOS	C	A	B	C	E	C
Approach Delay	19.9			30.5	69.4	
Approach LOS	B			C	E	
Queue Length 50th (m)	349.5	5.0	0.6	288.8	92.1	0.0
Queue Length 95th (m)	m#364.6	m8.1	3.4	#385.8	#130.7	3.0
Internal Link Dist (m)	248.7			567.4	386.6	
Turn Bay Length (m)		30.0	30.0		30.0	
Base Capacity (vph)	2430	1112	57	2430	462	416
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	0.96	0.23	0.12	0.96	0.77	0.01

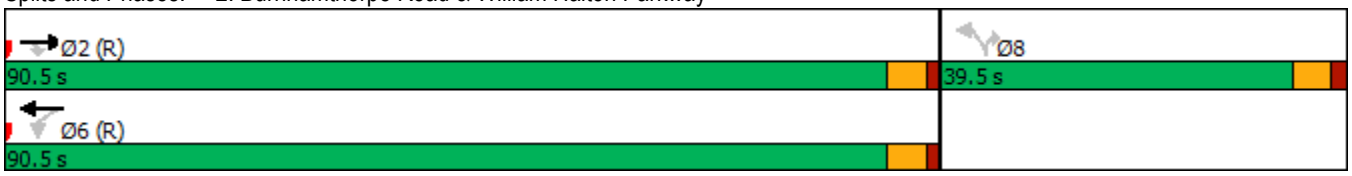
Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 28.0	Intersection LOS: C
Intersection Capacity Utilization 86.2%	ICU Level of Service E
Analysis Period (min) 15	

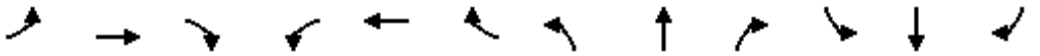
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

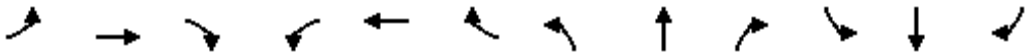
m Volume for 95th percentile queue is metered by upstream signal.

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





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	78	35	202	169	157	54	493	144	42	470	90
Future Volume (vph)	31	78	35	202	169	157	54	493	144	42	470	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	30.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			25.0			50.0			50.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		1.00		1.00								
Frt		0.954			0.928			0.966			0.976	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3363	0	1770	3284	0	1641	3419	0	1736	3454	0
Flt Permitted	0.539			0.462			0.401			0.361		
Satd. Flow (perm)	1004	3363	0	860	3284	0	693	3419	0	660	3454	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		38			171			44			25	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		510.4			161.7			507.3			449.2	
Travel Time (s)		30.6			9.7			30.4			27.0	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	10%	2%	2%	4%	2%	2%
Adj. Flow (vph)	34	85	38	220	184	171	59	536	157	46	511	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	123	0	220	355	0	59	693	0	46	609	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

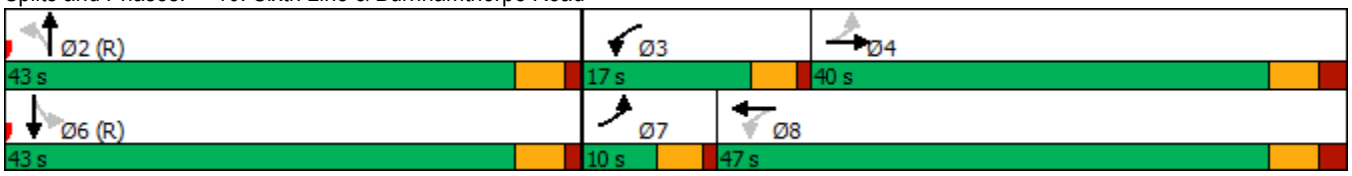


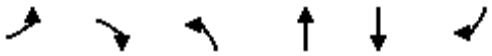
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	40.0		9.5	40.0		33.1	33.1		33.1	33.1	
Total Split (s)	10.0	40.0		17.0	47.0		43.0	43.0		43.0	43.0	
Total Split (%)	10.0%	40.0%		17.0%	47.0%		43.0%	43.0%		43.0%	43.0%	
Maximum Green (s)	5.5	34.0		12.5	41.0		37.9	37.9		37.9	37.9	
Yellow Time (s)	3.5	3.7		3.5	3.7		3.7	3.7		3.7	3.7	
All-Red Time (s)	1.0	2.3		1.0	2.3		1.4	1.4		1.4	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	6.0		4.5	6.0		5.1	5.1		5.1	5.1	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		27.0			27.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	15.0	8.0		26.1	18.6		64.3	64.3		64.3	64.3	
Actuated g/C Ratio	0.15	0.08		0.26	0.19		0.64	0.64		0.64	0.64	
v/c Ratio	0.18	0.41		0.66	0.47		0.13	0.31		0.11	0.27	
Control Delay	29.6	33.6		41.0	21.2		8.6	8.1		8.4	8.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	29.6	33.6		41.0	21.2		8.6	8.1		8.4	8.0	
LOS	C	C		D	C		A	A		A	A	
Approach Delay		32.8			28.8			8.2			8.0	
Approach LOS		C			C			A			A	
Queue Length 50th (m)	5.2	8.7		37.7	18.0		4.3	28.2		3.3	24.7	
Queue Length 95th (m)	12.6	17.5		58.4	31.8		10.7	41.0		8.8	36.2	
Internal Link Dist (m)		486.4			137.7			483.3			425.2	
Turn Bay Length (m)	55.0			30.0			30.0			30.0		
Base Capacity (vph)	192	1168		338	1447		445	2214		424	2230	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.18	0.11		0.65	0.25		0.13	0.31		0.11	0.27	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 85	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay: 15.5	Intersection LOS: B

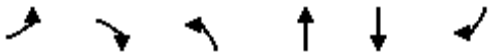
Intersection Capacity Utilization 55.8% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 10: Sixth Line & Burnhamthorpe Road





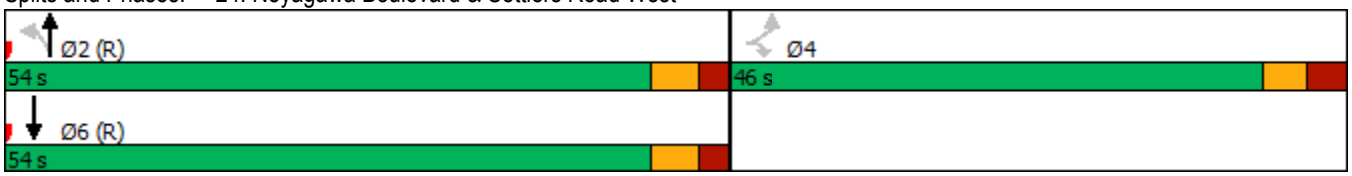
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	14	28	581	931	2
Future Volume (vph)	2	14	28	581	931	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0	0.0	70.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	15.0		40.0			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.850				
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	3539	3539	0
Flt Permitted	0.950		0.244			
Satd. Flow (perm)	1770	1583	455	3539	3539	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		17				
Link Speed (k/h)	50			60	60	
Link Distance (m)	242.4			254.4	327.6	
Travel Time (s)	17.5			15.3	19.7	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	2	17	34	709	1135	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	17	34	709	1137	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1	1	2	2	
Detector Template	Left	Right	Left	Thru	Thru	
Leading Detector (m)	2.0	2.0	2.0	10.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	2.0	2.0	0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Perm	Perm	Perm	NA	NA	
Protected Phases				2	6	
Permitted Phases	4	4	2			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4	4	2	2	6	
Switch Phase						
Minimum Initial (s)	10.0	10.0	15.0	15.0	15.0	
Minimum Split (s)	36.4	36.4	29.0	29.0	29.0	
Total Split (s)	46.0	46.0	54.0	54.0	54.0	
Total Split (%)	46.0%	46.0%	54.0%	54.0%	54.0%	
Maximum Green (s)	39.6	39.6	48.0	48.0	48.0	
Yellow Time (s)	3.3	3.3	3.7	3.7	3.7	
All-Red Time (s)	3.1	3.1	2.3	2.3	2.3	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.4	6.4	6.0	6.0	6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	0.2	0.2	0.2	
Recall Mode	None	None	C-Max	C-Max	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	23.0	23.0	16.0	16.0	16.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	
Act Effct Green (s)	10.0	10.0	91.0	91.0	91.0	
Actuated g/C Ratio	0.10	0.10	0.91	0.91	0.91	
v/c Ratio	0.01	0.10	0.08	0.22	0.35	
Control Delay	41.0	19.6	2.5	1.7	2.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	41.0	19.6	2.5	1.7	2.2	
LOS	D	B	A	A	A	
Approach Delay	21.9			1.8	2.2	
Approach LOS	C			A	A	
Queue Length 50th (m)	0.4	0.0	0.0	0.0	0.0	
Queue Length 95th (m)	2.5	5.9	3.3	19.7	35.1	
Internal Link Dist (m)	218.4			230.4	303.6	
Turn Bay Length (m)	40.0		70.0			
Base Capacity (vph)	700	637	414	3222	3222	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.00	0.03	0.08	0.22	0.35	

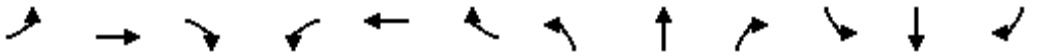
Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 80 (80%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.35			
Intersection Signal Delay: 2.2		Intersection LOS: A	
Intersection Capacity Utilization 44.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 24: Neyagawa Boulevard & Settlers Road West

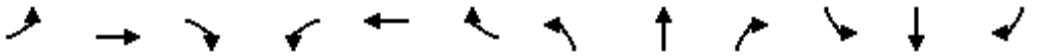


Appendix Q

2026 Total Future Conditions Synchro Worksheets



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	2173	154	310	2281	42	248	622	337	53	264	66
Future Volume (vph)	45	2173	154	310	2281	42	248	622	337	53	264	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Storage Lanes	2		1	2		1	1		1	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3400	4893	1509	3433	4848	1583	1719	3539	1599	1597	3438	1568
Flt Permitted	0.950			0.950			0.542			0.216		
Satd. Flow (perm)	3400	4893	1509	3433	4848	1583	981	3539	1599	363	3438	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			113			66			131			100
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		433.0			199.8			327.6			277.5	
Travel Time (s)		26.0			12.0			19.7			16.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	6%	7%	2%	7%	2%	5%	2%	1%	13%	5%	3%
Adj. Flow (vph)	49	2362	167	337	2479	46	270	676	366	58	287	72
Shared Lane Traffic (%)												
Lane Group Flow (vph)	49	2362	167	337	2479	46	270	676	366	58	287	72
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	



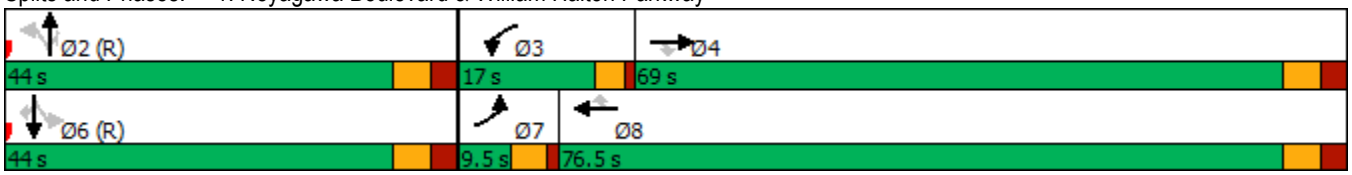
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8	2		2	6		6
Detector Phase	7	4	4	3	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	7.0	10.0	10.0	15.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	9.5	40.4	40.4	11.0	40.4	40.4	37.4	37.4	37.4	37.4	37.4	37.4
Total Split (s)	9.5	69.0	69.0	17.0	76.5	76.5	44.0	44.0	44.0	44.0	44.0	44.0
Total Split (%)	7.3%	53.1%	53.1%	13.1%	58.8%	58.8%	33.8%	33.8%	33.8%	33.8%	33.8%	33.8%
Maximum Green (s)	5.0	62.6	62.6	13.0	70.1	70.1	37.6	37.6	37.6	37.6	37.6	37.6
Yellow Time (s)	3.5	3.7	3.7	3.0	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.4	6.4	4.0	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	0.2	0.2	0.2	0.2	0.2	0.2
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		27.0	27.0		27.0	27.0	24.0	24.0	24.0	24.0	24.0	24.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	5.0	62.6	62.6	13.0	72.0	72.0	37.6	37.6	37.6	37.6	37.6	37.6
Actuated g/C Ratio	0.04	0.48	0.48	0.10	0.55	0.55	0.29	0.29	0.29	0.29	0.29	0.29
v/c Ratio	0.38	1.00	0.21	0.98	0.92	0.05	0.95	0.66	0.66	0.56	0.29	0.14
Control Delay	69.5	52.9	7.5	102.5	34.1	1.7	88.8	44.3	31.9	62.1	36.8	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.5	52.9	7.5	102.5	34.1	1.7	88.8	44.3	31.9	62.1	36.8	3.2
LOS	E	D	A	F	C	A	F	D	C	E	D	A
Approach Delay		50.2			41.6			50.0			34.5	
Approach LOS		D			D			D			C	
Queue Length 50th (m)	6.8	~229.4	7.7	47.5	222.6	0.0	71.6	84.4	56.3	13.3	31.6	0.0
Queue Length 95th (m)	13.9	#272.3	20.8	#79.2	#251.0	3.6	#128.4	106.2	93.0	#33.3	44.5	6.1
Internal Link Dist (m)		409.0			175.8			303.6			253.5	
Turn Bay Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Base Capacity (vph)	130	2356	785	343	2685	906	283	1023	555	104	994	524
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	0.38	1.00	0.21	0.98	0.92	0.05	0.95	0.66	0.66	0.56	0.29	0.14

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay: 45.8		Intersection LOS: D	
Intersection Capacity Utilization 99.9%		ICU Level of Service F	
Analysis Period (min) 15			

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

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

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



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2191	211	2	2137	342	6
Future Volume (vph)	2191	211	2	2137	342	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)	3539	1583	1770	3539	1770	1583
Flt Permitted			0.050		0.950	
Satd. Flow (perm)	3539	1583	93	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		70				6
Link Speed (k/h)	60			60	60	
Link Distance (m)	272.7			591.4	424.3	
Travel Time (s)	16.4			35.5	25.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2382	229	2	2323	372	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2382	229	2	2323	372	7
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	33.1	33.1	33.1	33.1	39.5	39.5
Total Split (s)	80.5	80.5	80.5	80.5	39.5	39.5
Total Split (%)	67.1%	67.1%	67.1%	67.1%	32.9%	32.9%
Maximum Green (s)	75.4	75.4	75.4	75.4	34.0	34.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.4	1.4	1.4	1.4	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	27.0	27.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	80.1	80.1	80.1	80.1	29.3	29.3
Actuated g/C Ratio	0.67	0.67	0.67	0.67	0.24	0.24
v/c Ratio	1.01	0.21	0.03	0.98	0.86	0.02
Control Delay	41.8	6.4	10.0	35.7	62.7	19.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.8	6.4	10.0	35.7	62.7	19.7
LOS	D	A	A	D	E	B
Approach Delay	38.7			35.7	61.9	
Approach LOS	D			D	E	
Queue Length 50th (m)	~330.4	13.8	0.2	277.0	87.5	0.2
Queue Length 95th (m)	#387.6	26.9	1.4	#371.6	120.8	4.0
Internal Link Dist (m)	248.7			567.4	400.3	
Turn Bay Length (m)		30.0	30.0		30.0	
Base Capacity (vph)	2361	1079	62	2361	501	452
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.21	0.03	0.98	0.74	0.02

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay: 39.0	Intersection LOS: D
Intersection Capacity Utilization 88.3%	ICU Level of Service E
Analysis Period (min) 15	

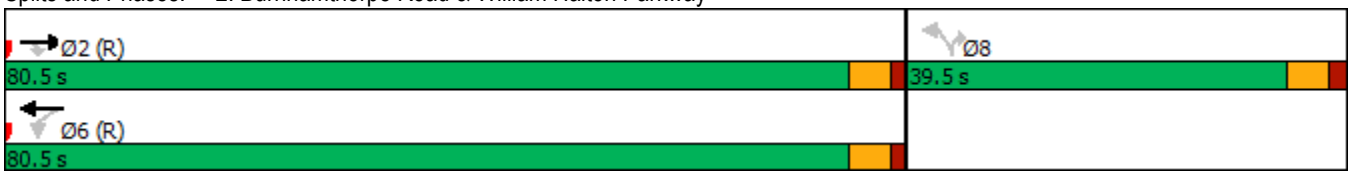
~ Volume exceeds capacity, queue is theoretically infinite.

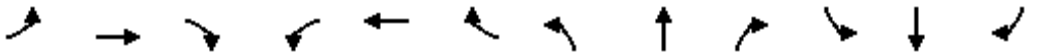
Queue shown is maximum after two cycles.

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

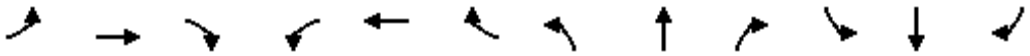
Queue shown is maximum after two cycles.

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





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	147	33	127	129	29	31	376	348	155	312	42
Future Volume (vph)	43	147	33	127	129	29	31	376	348	155	312	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	30.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			25.0			50.0			50.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00				1.00							
Frt		0.972			0.972			0.928			0.982	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3373	0	1770	3404	0	1626	3284	0	1703	3446	0
Flt Permitted	0.643			0.525			0.524			0.274		
Satd. Flow (perm)	1173	3373	0	978	3404	0	897	3284	0	491	3446	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		29			30			240			19	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		496.4			163.7			507.3			449.2	
Travel Time (s)		29.8			9.8			30.4			27.0	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	2%	13%	2%	3%	2%	11%	2%	2%	6%	3%	2%
Adj. Flow (vph)	47	160	36	138	140	32	34	409	378	168	339	46
Shared Lane Traffic (%)												
Lane Group Flow (vph)	47	196	0	138	172	0	34	787	0	168	385	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

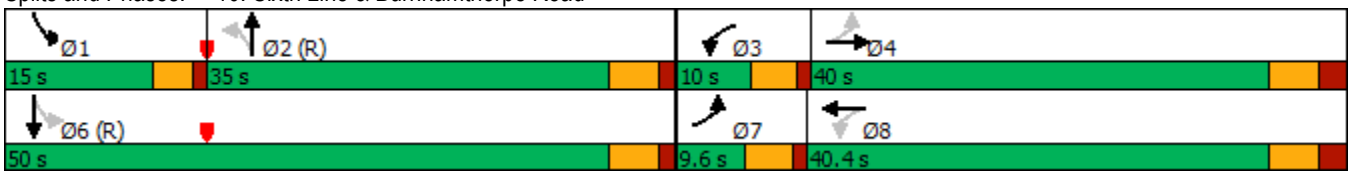


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	40.0		9.5	40.0		33.1	33.1		9.5	33.1	
Total Split (s)	9.6	40.0		10.0	40.4		35.0	35.0		15.0	50.0	
Total Split (%)	9.6%	40.0%		10.0%	40.4%		35.0%	35.0%		15.0%	50.0%	
Maximum Green (s)	5.1	34.0		5.5	34.4		29.9	29.9		11.0	44.9	
Yellow Time (s)	3.5	3.7		3.5	3.7		3.7	3.7		3.0	3.7	
All-Red Time (s)	1.0	2.3		1.0	2.3		1.4	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	6.0		4.5	6.0		5.1	5.1		4.0	5.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0		7.0	7.0			7.0	
Flash Dont Walk (s)		27.0			27.0		21.0	21.0			21.0	
Pedestrian Calls (#/hr)		0			0		0	0			0	
Act Effct Green (s)	17.0	10.4		19.4	14.6		55.1	55.1		69.6	68.5	
Actuated g/C Ratio	0.17	0.10		0.19	0.15		0.55	0.55		0.70	0.68	
v/c Ratio	0.21	0.52		0.59	0.33		0.07	0.41		0.37	0.16	
Control Delay	32.7	40.7		45.1	34.1		12.9	10.0		7.9	5.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	32.7	40.7		45.1	34.1		12.9	10.0		7.9	5.7	
LOS	C	D		D	C		B	B		A	A	
Approach Delay		39.1			39.0			10.1			6.4	
Approach LOS		D			D			B			A	
Queue Length 50th (m)	7.8	17.2		24.0	14.4		3.0	30.0		10.1	12.2	
Queue Length 95th (m)	16.9	27.8		40.3	24.3		9.4	52.5		19.4	19.6	
Internal Link Dist (m)		472.4			139.7			483.3			425.2	
Turn Bay Length (m)	55.0			30.0			30.0			30.0		
Base Capacity (vph)	228	1165		233	1190		494	1917		481	2366	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.21	0.17		0.59	0.14		0.07	0.41		0.35	0.16	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 17.4		Intersection LOS: B	

Intersection Capacity Utilization 58.6% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 10: Sixth Line & Burnhamthorpe Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2560	29	29	2570	57	100
Future Volume (vph)	2560	29	29	2570	57	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		25.0	45.0		0.0	0.0
Storage Lanes		1	1		1	0
Taper Length (m)			15.0		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850			0.914	
Flt Protected			0.950		0.982	
Satd. Flow (prot)	3539	1583	1770	3539	1672	0
Flt Permitted			0.950		0.982	
Satd. Flow (perm)	3539	1583	1770	3539	1672	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	375.9			272.7	375.1	
Travel Time (s)	22.6			16.4	27.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2783	32	32	2793	62	109
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2783	32	32	2793	171	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	87.0%	ICU Level of Service	E
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	808.5

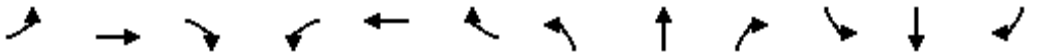
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2560	29	29	2570	57	100
Future Vol, veh/h	2560	29	29	2570	57	100
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	450	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2783	32	32	2793	62	109

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2815	0	4244	1392
Stage 1	-	-	-	-	2783	-
Stage 2	-	-	-	-	1461	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	134	-	~ 1	132
Stage 1	-	-	-	-	~ 33	-
Stage 2	-	-	-	-	180	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	134	-	~ 1	132
Mov Cap-2 Maneuver	-	-	-	-	~ 1	-
Stage 1	-	-	-	-	~ 33	-
Stage 2	-	-	-	-	137	-

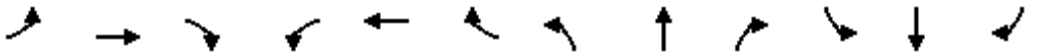
Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	$ 27520.1
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	3	-	-	134	-
HCM Lane V/C Ratio	56.884	-	-	0.235	-
HCM Control Delay (s)	$ 27520.1	-	-	39.9	-
HCM Lane LOS	F	-	-	E	-
HCM 95th %tile Q(veh)	23.7	-	-	0.9	-

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



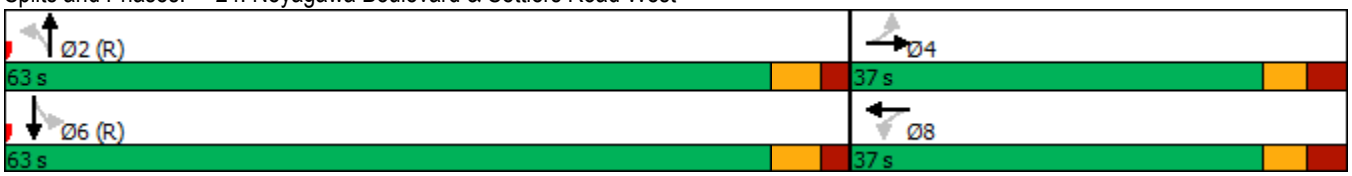
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	0	31	138	0	66	68	1117	52	26	648	5
Future Volume (vph)	8	0	31	138	0	66	68	1117	52	26	648	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	40.0		0.0	70.0		0.0	80.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			7.5			40.0			40.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.850			0.850			0.994			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1583	0	1770	1583	0	1770	3390	0	1770	3536	0
Flt Permitted	0.710			0.732			0.337			0.150		
Satd. Flow (perm)	1323	1583	0	1364	1583	0	628	3390	0	279	3536	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		177			44			7			1	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		242.4			672.4			254.4			327.6	
Travel Time (s)		17.5			48.4			15.3			19.7	
Peak Hour Factor	0.82	0.92	0.82	0.92	0.92	0.92	0.82	0.82	0.92	0.92	0.82	0.82
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	6%	2%	2%	2%	2%
Adj. Flow (vph)	10	0	38	150	0	72	83	1362	57	28	790	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	38	0	150	72	0	83	1419	0	28	796	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	

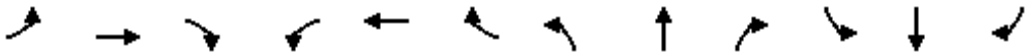


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	36.4	36.4		36.4	36.4		29.0	29.0		29.0	29.0	
Total Split (s)	37.0	37.0		37.0	37.0		63.0	63.0		63.0	63.0	
Total Split (%)	37.0%	37.0%		37.0%	37.0%		63.0%	63.0%		63.0%	63.0%	
Maximum Green (s)	30.6	30.6		30.6	30.6		57.0	57.0		57.0	57.0	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.1	3.1		3.1	3.1		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		0.2	0.2		0.2	0.2	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	23.0	23.0		23.0	23.0		16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	16.4	16.4		16.4	16.4		71.2	71.2		71.2	71.2	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.71	0.71		0.71	0.71	
v/c Ratio	0.05	0.09		0.67	0.24		0.19	0.59		0.14	0.32	
Control Delay	32.4	0.5		53.1	18.1		7.1	9.1		8.1	6.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	32.4	0.5		53.1	18.1		7.1	9.1		8.1	6.3	
LOS	C	A		D	B		A	A		A	A	
Approach Delay		7.1			41.8			9.0			6.4	
Approach LOS		A			D			A			A	
Queue Length 50th (m)	1.8	0.0		29.1	4.9		4.8	64.4		1.6	27.3	
Queue Length 95th (m)	5.5	0.0		46.8	16.1		12.1	89.3		6.4	40.5	
Internal Link Dist (m)		218.4			648.4			230.4			303.6	
Turn Bay Length (m)	40.0			40.0			70.0			80.0		
Base Capacity (vph)	404	607		417	514		446	2414		198	2516	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.02	0.06		0.36	0.14		0.19	0.59		0.14	0.32	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 59 (59%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 10.9		Intersection LOS: B	
Intersection Capacity Utilization 74.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 24: Neyagawa Boulevard & Settlers Road West





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	5	0	0	43	14	14	14	0	5	5	48
Future Volume (vph)	20	5	0	0	43	14	14	14	0	5	5	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.967						0.887	
Flt Protected		0.961						0.976			0.996	
Satd. Flow (prot)	0	1790	0	0	1801	0	0	1818	0	0	1646	0
Flt Permitted		0.961						0.976			0.996	
Satd. Flow (perm)	0	1790	0	0	1801	0	0	1818	0	0	1646	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		672.4			141.3			155.6			375.1	
Travel Time (s)		48.4			10.2			11.2			27.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	5	0	0	47	15	15	15	0	5	5	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	27	0	0	62	0	0	30	0	0	62	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.0%		ICU Level of Service A	
Analysis Period (min) 15			

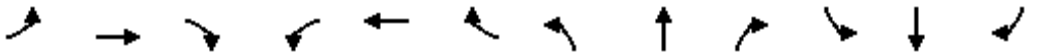
Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	5	0	0	43	14	14	14	0	5	5	48
Future Vol, veh/h	20	5	0	0	43	14	14	14	0	5	5	48
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	5	0	0	47	15	15	15	0	5	5	52
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.5	7.3	7.4	6.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	50%	80%	0%	9%
Vol Thru, %	50%	20%	75%	9%
Vol Right, %	0%	0%	25%	83%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	28	25	57	58
LT Vol	14	20	0	5
Through Vol	14	5	43	5
RT Vol	0	0	14	48
Lane Flow Rate	30	27	62	63
Geometry Grp	1	1	1	1
Degree of Util (X)	0.036	0.032	0.068	0.064
Departure Headway (Hd)	4.237	4.304	3.969	3.631
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	841	828	899	979
Service Time	2.285	2.349	2.009	1.68
HCM Lane V/C Ratio	0.036	0.033	0.069	0.064
HCM Control Delay	7.4	7.5	7.3	6.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0.2	0.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	2340	62	400	2220	59	83	227	318	76	491	10
Future Volume (vph)	3	2340	62	400	2220	59	83	227	318	76	491	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Storage Lanes	2		1	2		1	1		1	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	5036	1583	3433	4988	1482	1752	3505	1583	1703	3539	1583
Flt Permitted	0.950			0.950			0.261			0.568		
Satd. Flow (perm)	3433	5036	1583	3433	4988	1482	481	3505	1583	1018	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			100			66			166			100
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		433.0			199.8			327.6			277.5	
Travel Time (s)		26.0			12.0			19.7			16.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	3%	2%	2%	4%	9%	3%	3%	2%	6%	2%	2%
Adj. Flow (vph)	3	2543	67	435	2413	64	90	247	346	83	534	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	2543	67	435	2413	64	90	247	346	83	534	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)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	



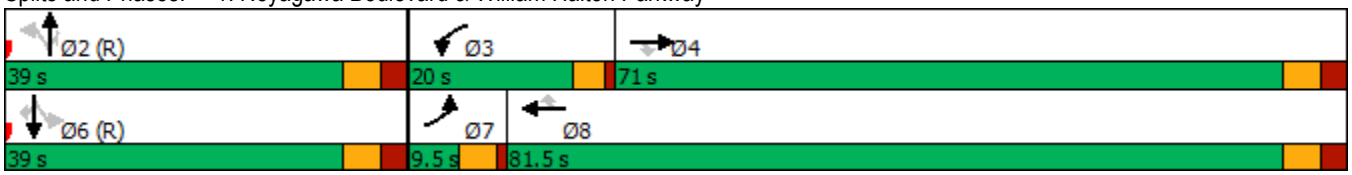
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8	2		2	6		6
Detector Phase	7	4	4	3	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	7.0	10.0	10.0	15.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	9.5	40.4	40.4	11.0	40.4	40.4	37.4	37.4	37.4	37.4	37.4	37.4
Total Split (s)	9.5	71.0	71.0	20.0	81.5	81.5	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	7.3%	54.6%	54.6%	15.4%	62.7%	62.7%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Maximum Green (s)	5.0	64.6	64.6	16.0	75.1	75.1	32.6	32.6	32.6	32.6	32.6	32.6
Yellow Time (s)	3.5	3.7	3.7	3.0	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.4	6.4	4.0	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	0.2	0.2	0.2	0.2	0.2	0.2
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		27.0	27.0		27.0	27.0	24.0	24.0	24.0	24.0	24.0	24.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	5.0	64.6	64.6	16.0	82.7	82.7	32.6	32.6	32.6	32.6	32.6	32.6
Actuated g/C Ratio	0.04	0.50	0.50	0.12	0.64	0.64	0.25	0.25	0.25	0.25	0.25	0.25
v/c Ratio	0.02	1.02	0.08	1.03	0.76	0.07	0.75	0.28	0.66	0.33	0.60	0.02
Control Delay	60.7	54.8	1.3	107.1	19.2	2.6	81.5	40.3	29.1	44.0	46.3	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	60.7	54.8	1.3	107.1	19.2	2.6	81.5	40.3	29.1	44.0	46.3	0.1
LOS	E	D	A	F	B	A	F	D	C	D	D	A
Approach Delay		53.4			32.0			40.1			45.2	
Approach LOS		D			C			D			D	
Queue Length 50th (m)	0.4	~265.0	0.0	~64.6	149.9	0.0	22.5	28.4	44.0	18.4	67.2	0.0
Queue Length 95th (m)	2.2	#293.5	3.2	#98.9	208.4	6.1	#53.1	40.9	79.7	34.6	86.8	0.0
Internal Link Dist (m)		409.0			175.8			303.6			253.5	
Turn Bay Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Base Capacity (vph)	132	2502	836	422	3173	966	120	878	521	255	887	471
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	0.02	1.02	0.08	1.03	0.76	0.07	0.75	0.28	0.66	0.33	0.60	0.02

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 42.2		Intersection LOS: D	
Intersection Capacity Utilization 102.0%		ICU Level of Service G	
Analysis Period (min) 15			

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

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

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



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2179	272	7	2177	386	4
Future Volume (vph)	2179	272	7	2177	386	4
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)	3539	1583	1770	3539	1770	1583
Flt Permitted			0.051		0.950	
Satd. Flow (perm)	3539	1583	95	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		91				4
Link Speed (k/h)	60			60	60	
Link Distance (m)	272.7			591.4	410.6	
Travel Time (s)	16.4			35.5	24.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2368	296	8	2366	420	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2368	296	8	2366	420	4
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	33.1	33.1	33.1	33.1	39.5	39.5
Total Split (s)	80.5	80.5	80.5	80.5	39.5	39.5
Total Split (%)	67.1%	67.1%	67.1%	67.1%	32.9%	32.9%
Maximum Green (s)	75.4	75.4	75.4	75.4	34.0	34.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.4	1.4	1.4	1.4	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	27.0	27.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	77.9	77.9	77.9	77.9	31.5	31.5
Actuated g/C Ratio	0.65	0.65	0.65	0.65	0.26	0.26
v/c Ratio	1.03	0.28	0.13	1.03	0.90	0.01
Control Delay	49.7	7.2	15.1	49.4	66.3	19.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.7	7.2	15.1	49.4	66.3	19.5
LOS	D	A	B	D	E	B
Approach Delay	44.9			49.3	65.9	
Approach LOS	D			D	E	
Queue Length 50th (m)	~341.0	20.2	0.8	~340.4	98.0	0.0
Queue Length 95th (m)	#383.6	34.8	3.8	#383.3	#151.8	2.9
Internal Link Dist (m)	248.7			567.4	386.6	
Turn Bay Length (m)		30.0	30.0		30.0	
Base Capacity (vph)	2296	1059	61	2296	501	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	1.03	0.28	0.13	1.03	0.84	0.01

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 48.5		Intersection LOS: D	
Intersection Capacity Utilization 90.5%		ICU Level of Service E	
Analysis Period (min) 15			

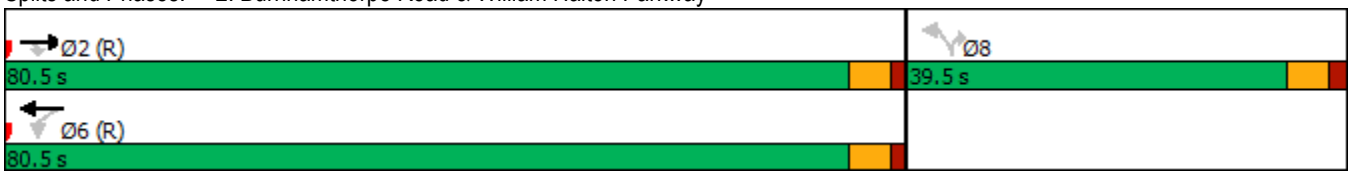
~ Volume exceeds capacity, queue is theoretically infinite.

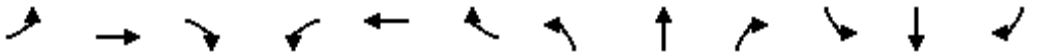
Queue shown is maximum after two cycles.

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

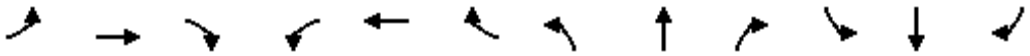
Queue shown is maximum after two cycles.

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





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	97	36	193	221	143	54	442	135	40	371	85
Future Volume (vph)	30	97	36	193	221	143	54	442	135	40	371	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	30.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			25.0			50.0			50.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		1.00		1.00								
Frt		0.959			0.941			0.965			0.972	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3382	0	1770	3330	0	1641	3415	0	1736	3440	0
Flt Permitted	0.519			0.461			0.461			0.391		
Satd. Flow (perm)	967	3382	0	858	3330	0	796	3415	0	714	3440	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		39			155			47			32	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		510.4			161.7			507.3			449.2	
Travel Time (s)		30.6			9.7			30.4			27.0	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	10%	2%	2%	4%	2%	2%
Adj. Flow (vph)	33	105	39	210	240	155	59	480	147	43	403	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	144	0	210	395	0	59	627	0	43	495	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

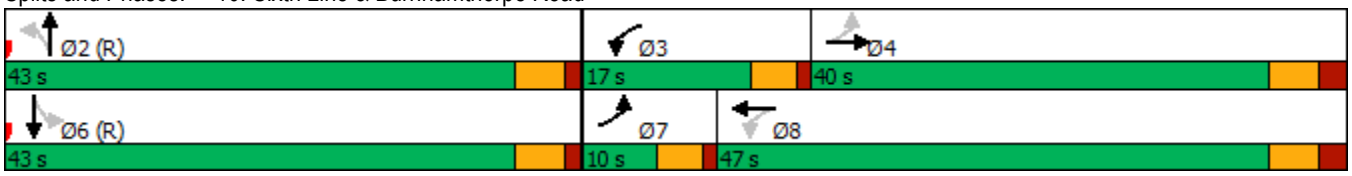


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	40.0		9.5	40.0		33.1	33.1		33.1	33.1	
Total Split (s)	10.0	40.0		17.0	47.0		43.0	43.0		43.0	43.0	
Total Split (%)	10.0%	40.0%		17.0%	47.0%		43.0%	43.0%		43.0%	43.0%	
Maximum Green (s)	5.5	34.0		12.5	41.0		37.9	37.9		37.9	37.9	
Yellow Time (s)	3.5	3.7		3.5	3.7		3.7	3.7		3.7	3.7	
All-Red Time (s)	1.0	2.3		1.0	2.3		1.4	1.4		1.4	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	6.0		4.5	6.0		5.1	5.1		5.1	5.1	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		27.0			27.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	15.5	8.5		26.6	19.1		63.8	63.8		63.8	63.8	
Actuated g/C Ratio	0.16	0.08		0.27	0.19		0.64	0.64		0.64	0.64	
v/c Ratio	0.17	0.44		0.62	0.52		0.12	0.29		0.09	0.22	
Control Delay	29.0	35.4		38.9	24.8		8.6	8.0		8.4	7.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	29.0	35.4		38.9	24.8		8.6	8.0		8.4	7.7	
LOS	C	D		D	C		A	A		A	A	
Approach Delay		34.2			29.7			8.1			7.8	
Approach LOS		C			C			A			A	
Queue Length 50th (m)	5.0	10.8		35.5	23.7		4.3	25.1		3.1	19.1	
Queue Length 95th (m)	12.1	20.2		55.3	38.4		10.7	37.1		8.3	29.1	
Internal Link Dist (m)		486.4			137.7			483.3			425.2	
Turn Bay Length (m)	55.0			30.0			30.0			30.0		
Base Capacity (vph)	194	1175		341	1456		508	2196		455	2207	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.17	0.12		0.62	0.27		0.12	0.29		0.09	0.22	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 85	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.62	
Intersection Signal Delay: 16.8	Intersection LOS: B

Intersection Capacity Utilization 53.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 10: Sixth Line & Burnhamthorpe Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2635	95	95	2634	39	68
Future Volume (vph)	2635	95	95	2634	39	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		25.0	45.0		0.0	0.0
Storage Lanes		1	1		1	0
Taper Length (m)			15.0		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850			0.914	
Flt Protected			0.950		0.982	
Satd. Flow (prot)	3539	1583	1770	3539	1672	0
Flt Permitted			0.950		0.982	
Satd. Flow (perm)	3539	1583	1770	3539	1672	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	375.9			272.7	375.9	
Travel Time (s)	22.6			16.4	27.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2864	103	103	2863	42	74
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2864	103	103	2863	116	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	92.0%	ICU Level of Service	F
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4.6

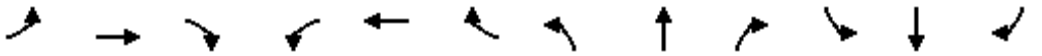
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2635	95	95	2634	39	68
Future Vol, veh/h	2635	95	95	2634	39	68
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	250	450	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2864	103	103	2863	42	74

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2967	0	4502	1432
Stage 1	-	-	-	-	2864	-
Stage 2	-	-	-	-	1638	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	117	-	~ 1	124
Stage 1	-	-	-	-	~ 29	-
Stage 2	-	-	-	-	144	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	117	-	0	124
Mov Cap-2 Maneuver	-	-	-	-	0	-
Stage 1	-	-	-	-	~ 29	-
Stage 2	-	-	-	-	~ 17	-

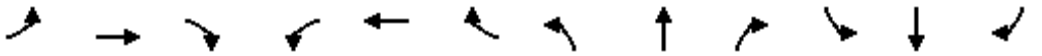
Approach	EB	WB	NB
HCM Control Delay, s	0	4.3	131.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	124	-	-	117	-
HCM Lane V/C Ratio	0.938	-	-	0.883	-
HCM Control Delay (s)	131.6	-	-	123	-
HCM Lane LOS	F	-	-	F	-
HCM 95th %tile Q(veh)	6.1	-	-	5.4	-

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



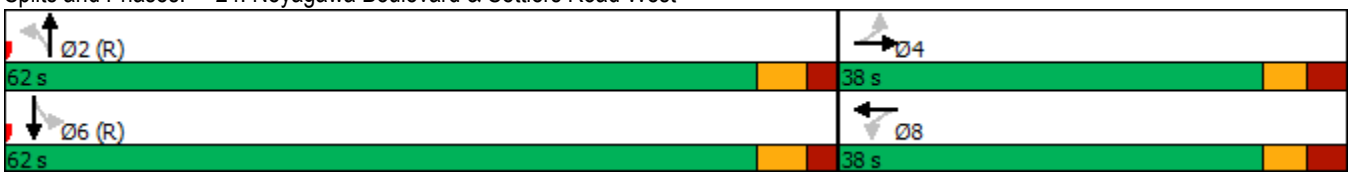
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	14	103	0	49	28	527	157	77	844	2
Future Volume (vph)	2	0	14	103	0	49	28	527	157	77	844	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	40.0		0.0	70.0		0.0	80.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			7.5			40.0			40.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.850			0.850			0.968				
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1583	0	1770	1583	0	1770	3426	0	1770	3539	0
Flt Permitted	0.722			0.746			0.258			0.334		
Satd. Flow (perm)	1345	1583	0	1390	1583	0	481	3426	0	622	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		95			244			54				
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		242.4			665.7			254.4			327.6	
Travel Time (s)		17.5			47.9			15.3			19.7	
Peak Hour Factor	0.82	0.92	0.82	0.92	0.92	0.92	0.82	0.82	0.92	0.92	0.82	0.82
Adj. Flow (vph)	2	0	17	112	0	53	34	643	171	84	1029	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	17	0	112	53	0	34	814	0	84	1031	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

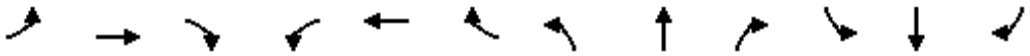


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	36.4	36.4		36.4	36.4		29.0	29.0		29.0	29.0	
Total Split (s)	38.0	38.0		38.0	38.0		62.0	62.0		62.0	62.0	
Total Split (%)	38.0%	38.0%		38.0%	38.0%		62.0%	62.0%		62.0%	62.0%	
Maximum Green (s)	31.6	31.6		31.6	31.6		56.0	56.0		56.0	56.0	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.1	3.1		3.1	3.1		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		0.2	0.2		0.2	0.2	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	23.0	23.0		23.0	23.0		16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	13.9	13.9		13.9	13.9		73.7	73.7		73.7	73.7	
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.74	0.74		0.74	0.74	
v/c Ratio	0.01	0.06		0.58	0.12		0.10	0.32		0.18	0.40	
Control Delay	34.0	0.4		51.8	0.6		5.4	4.9		5.9	5.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	34.0	0.4		51.8	0.6		5.4	4.9		5.9	5.8	
LOS	C	A		D	A		A	A		A	A	
Approach Delay		3.9			35.3			4.9			5.8	
Approach LOS		A			D			A			A	
Queue Length 50th (m)	0.4	0.0		21.8	0.0		1.6	22.7		4.3	33.8	
Queue Length 95th (m)	2.2	0.0		37.4	0.0		5.1	33.8		12.0	48.2	
Internal Link Dist (m)		218.4			641.7			230.4			303.6	
Turn Bay Length (m)	40.0			40.0			70.0			80.0		
Base Capacity (vph)	425	565		439	667		354	2539		458	2608	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.00	0.03		0.26	0.08		0.10	0.32		0.18	0.40	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 80 (80%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 7.7		Intersection LOS: A	
Intersection Capacity Utilization 63.6%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 24: Neyagawa Boulevard & Settlers Road West





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	16	0	0	29	10	10	10	0	16	16	45
Future Volume (vph)	63	16	0	0	29	10	10	10	0	16	16	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.965						0.920	
Flt Protected		0.962						0.976			0.990	
Satd. Flow (prot)	0	1792	0	0	1798	0	0	1818	0	0	1697	0
Flt Permitted		0.962						0.976			0.990	
Satd. Flow (perm)	0	1792	0	0	1798	0	0	1818	0	0	1697	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		665.7			142.8			193.2			375.9	
Travel Time (s)		47.9			10.3			13.9			27.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	68	17	0	0	32	11	11	11	0	17	17	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	85	0	0	43	0	0	22	0	0	83	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	63	16	0	0	29	10	10	10	0	16	16	45
Future Vol, veh/h	63	16	0	0	29	10	10	10	0	16	16	45
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	68	17	0	0	32	11	11	11	0	17	17	49
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.9	7.3	7.5	7.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	50%	80%	0%	21%
Vol Thru, %	50%	20%	74%	21%
Vol Right, %	0%	0%	26%	58%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	20	79	39	77
LT Vol	10	63	0	16
Through Vol	10	16	29	16
RT Vol	0	0	10	45
Lane Flow Rate	22	86	42	84
Geometry Grp	1	1	1	1
Degree of Util (X)	0.026	0.103	0.047	0.09
Departure Headway (Hd)	4.321	4.308	4.028	3.863
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	817	827	879	916
Service Time	2.406	2.361	2.097	1.938
HCM Lane V/C Ratio	0.027	0.104	0.048	0.092
HCM Control Delay	7.5	7.9	7.3	7.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.3	0.1	0.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2560	29	29	2570	57	100
Future Volume (vph)	2560	29	29	2570	57	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		25.0	45.0		55.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			15.0		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted			0.038		0.950	
Satd. Flow (perm)	3539	1583	71	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		9				6
Link Speed (k/h)	60			60	50	
Link Distance (m)	375.9			272.7	375.1	
Travel Time (s)	22.6			16.4	27.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2783	32	32	2793	62	109
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2783	32	32	2793	62	109
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.6	22.6	22.6	22.6	29.5	29.5
Total Split (s)	100.5	100.5	100.5	100.5	29.5	29.5
Total Split (%)	77.3%	77.3%	77.3%	77.3%	22.7%	22.7%
Maximum Green (s)	95.4	95.4	95.4	95.4	24.5	24.5
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	3.3
All-Red Time (s)	1.4	1.4	1.4	1.4	1.7	1.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	10.5	10.5	10.5	10.5	17.5	17.5
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	106.1	106.1	106.1	106.1	13.8	13.8
Actuated g/C Ratio	0.82	0.82	0.82	0.82	0.11	0.11
v/c Ratio	0.96	0.02	0.56	0.97	0.33	0.63
Control Delay	39.0	4.0	47.5	22.6	57.0	67.8
Queue Delay	0.0	0.0	0.0	17.9	0.0	0.0
Total Delay	39.0	4.0	47.5	40.5	57.0	67.8
LOS	D	A	D	D	E	E
Approach Delay	38.6			40.6	63.9	
Approach LOS	D			D	E	
Queue Length 50th (m)	421.5	1.7	2.3	278.4	15.7	27.0
Queue Length 95th (m)	m#434.9	m2.6	#10.5	#459.5	29.1	45.2
Internal Link Dist (m)	351.9			248.7	351.1	
Turn Bay Length (m)		25.0	45.0		55.0	
Base Capacity (vph)	2888	1293	57	2888	333	303
Starvation Cap Reductn	0	0	0	202	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.02	0.56	1.04	0.19	0.36

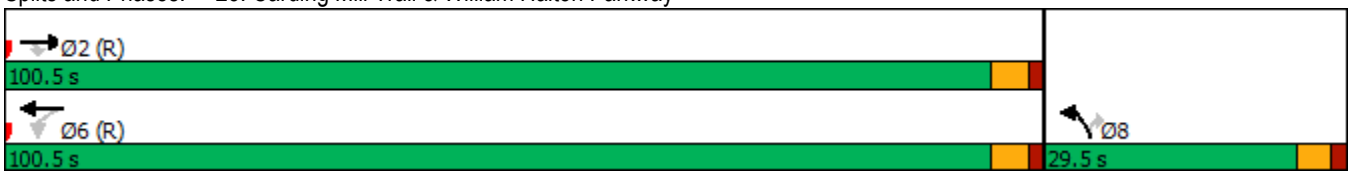
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 40.3		Intersection LOS: D	
Intersection Capacity Utilization 85.4%		ICU Level of Service E	
Analysis Period (min) 15			

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 23: Carding Mill Trail & William Halton Parkway



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2635	95	95	2634	39	68
Future Volume (vph)	2635	95	95	2634	39	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		25.0	45.0		55.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			15.0		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted			0.039		0.950	
Satd. Flow (perm)	3539	1583	73	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		23				62
Link Speed (k/h)	60			60	50	
Link Distance (m)	375.9			272.7	375.9	
Travel Time (s)	22.6			16.4	27.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2864	103	103	2863	42	74
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2864	103	103	2863	42	74
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2	6			8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.6	22.6	9.5	22.6	29.5	29.5
Total Split (s)	91.0	91.0	9.5	100.5	29.5	29.5
Total Split (%)	70.0%	70.0%	7.3%	77.3%	22.7%	22.7%
Maximum Green (s)	85.9	85.9	5.0	95.4	24.5	24.5
Yellow Time (s)	3.7	3.7	3.5	3.7	3.3	3.3
All-Red Time (s)	1.4	1.4	1.0	1.4	1.7	1.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	4.5	5.1	5.0	5.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	10.5	10.5		10.5	17.5	17.5
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	99.3	99.3	114.1	114.5	8.5	8.5
Actuated g/C Ratio	0.76	0.76	0.88	0.88	0.07	0.07
v/c Ratio	1.06	0.08	0.54	0.92	0.36	0.46
Control Delay	62.5	4.5	32.2	13.5	66.0	27.2
Queue Delay	0.0	0.0	0.0	4.1	0.0	0.0
Total Delay	62.5	4.5	32.2	17.7	66.0	27.2
LOS	E	A	C	B	E	C
Approach Delay	60.5			18.2	41.2	
Approach LOS	E			B	D	
Queue Length 50th (m)	~467.8	6.6	10.2	221.8	11.1	3.1
Queue Length 95th (m)	m#490.7	m10.0	29.8	#448.2	23.1	18.5
Internal Link Dist (m)	351.9			248.7	351.9	
Turn Bay Length (m)		25.0	45.0		55.0	
Base Capacity (vph)	2701	1214	190	3116	333	348
Starvation Cap Reductn	0	0	0	203	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.06	0.08	0.54	0.98	0.13	0.21

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.06	
Intersection Signal Delay: 39.4	Intersection LOS: D
Intersection Capacity Utilization 91.5%	ICU Level of Service F
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.

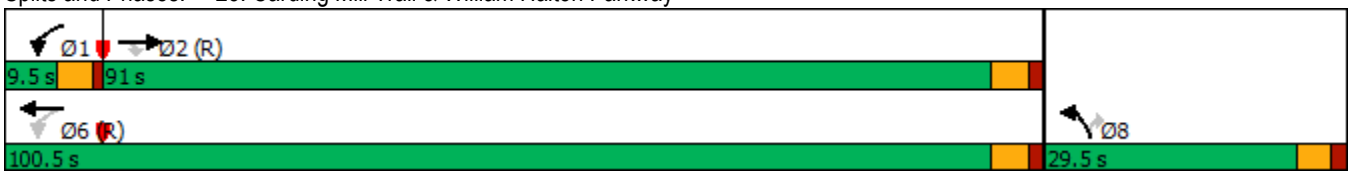
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

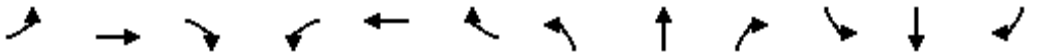
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 23: Carding Mill Trail & William Halton Parkway

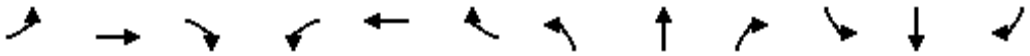


Appendix R

2031 Total Future Conditions Synchro Worksheets



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	2167	170	329	2268	43	264	684	369	57	291	73
Future Volume (vph)	50	2167	170	329	2268	43	264	684	369	57	291	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Storage Lanes	2		1	2		1	1		1	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3400	4893	1509	3433	4848	1583	1719	3539	1599	1597	3438	1568
Flt Permitted	0.950			0.950			0.518			0.189		
Satd. Flow (perm)	3400	4893	1509	3433	4848	1583	937	3539	1599	318	3438	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			122			66			135			100
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		433.0			199.8			327.6			277.5	
Travel Time (s)		26.0			12.0			19.7			16.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	6%	7%	2%	7%	2%	5%	2%	1%	13%	5%	3%
Adj. Flow (vph)	54	2355	185	358	2465	47	287	743	401	62	316	79
Shared Lane Traffic (%)												
Lane Group Flow (vph)	54	2355	185	358	2465	47	287	743	401	62	316	79
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	

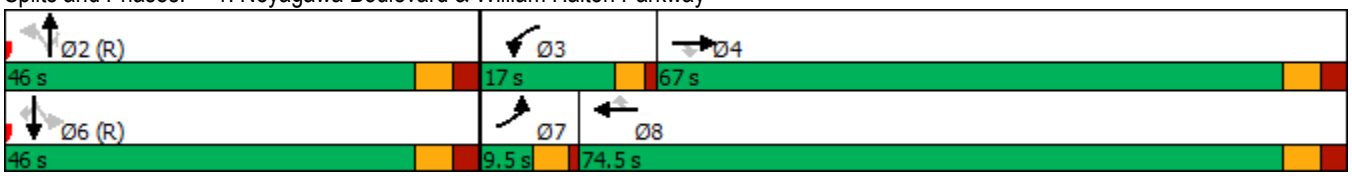


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8	2		2	6		6
Detector Phase	7	4	4	3	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	7.0	10.0	10.0	15.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	9.5	40.4	40.4	11.0	40.4	40.4	37.4	37.4	37.4	37.4	37.4	37.4
Total Split (s)	9.5	67.0	67.0	17.0	74.5	74.5	46.0	46.0	46.0	46.0	46.0	46.0
Total Split (%)	7.3%	51.5%	51.5%	13.1%	57.3%	57.3%	35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	5.0	60.6	60.6	13.0	68.1	68.1	39.6	39.6	39.6	39.6	39.6	39.6
Yellow Time (s)	3.5	3.7	3.7	3.0	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.4	6.4	4.0	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	0.2	0.2	0.2	0.2	0.2	0.2
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		27.0	27.0		27.0	27.0	24.0	24.0	24.0	24.0	24.0	24.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	5.0	60.6	60.6	13.0	70.0	70.0	39.6	39.6	39.6	39.6	39.6	39.6
Actuated g/C Ratio	0.04	0.47	0.47	0.10	0.54	0.54	0.30	0.30	0.30	0.30	0.30	0.30
v/c Ratio	0.42	1.03	0.24	1.04	0.94	0.05	1.01	0.69	0.69	0.65	0.30	0.14
Control Delay	70.9	62.3	8.2	101.0	23.7	0.8	100.4	43.8	32.9	71.5	35.6	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.9	62.3	8.2	101.0	23.7	0.8	100.4	43.8	32.9	71.5	35.6	4.1
LOS	E	E	A	F	C	A	F	D	C	E	D	A
Approach Delay		58.6			33.0			52.1			35.0	
Approach LOS		E			C			D			D	
Queue Length 50th (m)	7.4	~249.2	9.3	~53.6	207.7	0.0	~78.3	92.8	64.2	14.5	34.3	0.0
Queue Length 95th (m)	14.8	#278.5	24.0	m#57.7	m#231.9	m0.0	#139.1	115.7	103.3	#38.4	47.6	7.7
Internal Link Dist (m)		409.0			175.8			303.6			253.5	
Turn Bay Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Base Capacity (vph)	130	2280	768	343	2610	882	285	1078	580	96	1047	547
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	0.42	1.03	0.24	1.04	0.94	0.05	1.01	0.69	0.69	0.65	0.30	0.14

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.04			
Intersection Signal Delay: 45.9		Intersection LOS: D	
Intersection Capacity Utilization 102.0%		ICU Level of Service G	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

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



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2181	212	2	2134	339	6
Future Volume (vph)	2181	212	2	2134	339	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)	3539	1583	1770	3539	1770	1583
Flt Permitted			0.045		0.950	
Satd. Flow (perm)	3539	1583	84	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		71				7
Link Speed (k/h)	60			60	60	
Link Distance (m)	272.7			591.4	424.3	
Travel Time (s)	16.4			35.5	25.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2371	230	2	2320	368	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2371	230	2	2320	368	7
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	33.1	33.1	33.1	33.1	39.5	39.5
Total Split (s)	90.5	90.5	90.5	90.5	39.5	39.5
Total Split (%)	69.6%	69.6%	69.6%	69.6%	30.4%	30.4%
Maximum Green (s)	85.4	85.4	85.4	85.4	34.0	34.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.4	1.4	1.4	1.4	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	27.0	27.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	88.8	88.8	88.8	88.8	30.6	30.6
Actuated g/C Ratio	0.68	0.68	0.68	0.68	0.24	0.24
v/c Ratio	0.98	0.21	0.04	0.96	0.88	0.02
Control Delay	21.3	5.2	9.5	31.2	70.8	19.5
Queue Delay	12.8	0.0	0.0	3.5	0.0	0.0
Total Delay	34.1	5.2	9.5	34.7	70.8	19.5
LOS	C	A	A	C	E	B
Approach Delay	31.5			34.7	69.9	
Approach LOS	C			C	E	
Queue Length 50th (m)	~265.6	9.0	0.2	293.7	94.3	0.0
Queue Length 95th (m)	m#377.4	m11.9	1.3	#383.4	#139.8	4.1
Internal Link Dist (m)	248.7			567.4	400.3	
Turn Bay Length (m)		30.0	30.0		30.0	
Base Capacity (vph)	2417	1103	57	2417	462	419
Starvation Cap Reductn	116	0	0	0	0	0
Spillback Cap Reductn	0	0	0	69	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.03	0.21	0.04	0.99	0.80	0.02

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 35.6		Intersection LOS: D	
Intersection Capacity Utilization 87.9%		ICU Level of Service E	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.

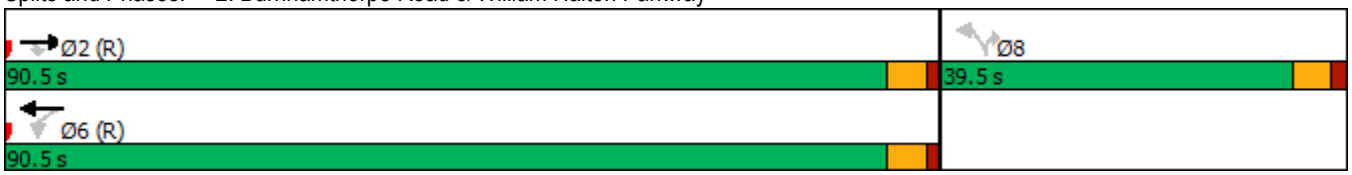
Queue shown is maximum after two cycles.

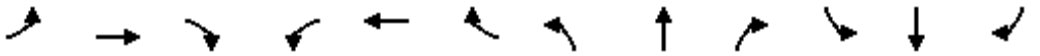
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

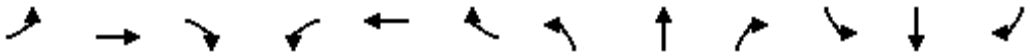
m Volume for 95th percentile queue is metered by upstream signal.

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





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	147	32	130	133	31	29	481	376	171	355	46
Future Volume (vph)	43	147	32	130	133	31	29	481	376	171	355	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	30.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			25.0			50.0			50.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00				1.00							
Frt		0.973			0.972			0.934			0.983	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3378	0	1770	3404	0	1626	3306	0	1703	3449	0
Flt Permitted	0.639			0.541			0.499			0.214		
Satd. Flow (perm)	1166	3378	0	1008	3404	0	854	3306	0	384	3449	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		28			31			203			18	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		496.4			163.7			507.3			449.2	
Travel Time (s)		29.8			9.8			30.4			27.0	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	2%	13%	2%	3%	2%	11%	2%	2%	6%	3%	2%
Adj. Flow (vph)	47	160	35	141	145	34	32	523	409	186	386	50
Shared Lane Traffic (%)												
Lane Group Flow (vph)	47	195	0	141	179	0	32	932	0	186	436	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

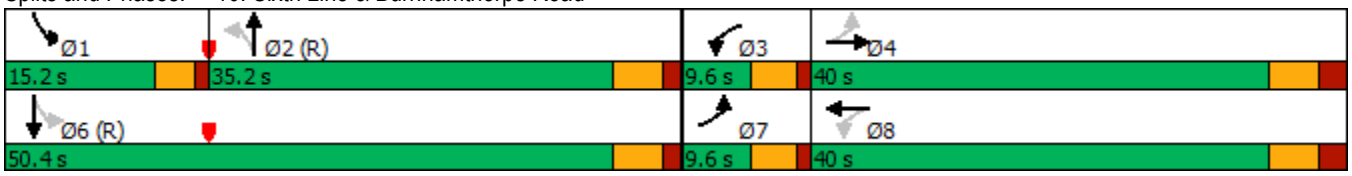


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	40.0		9.5	40.0		33.1	33.1		9.5	33.1	
Total Split (s)	9.6	40.0		9.6	40.0		35.2	35.2		15.2	50.4	
Total Split (%)	9.6%	40.0%		9.6%	40.0%		35.2%	35.2%		15.2%	50.4%	
Maximum Green (s)	5.1	34.0		5.1	34.0		30.1	30.1		11.2	45.3	
Yellow Time (s)	3.5	3.7		3.5	3.7		3.7	3.7		3.0	3.7	
All-Red Time (s)	1.0	2.3		1.0	2.3		1.4	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	6.0		4.5	6.0		5.1	5.1		4.0	5.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0		7.0	7.0			7.0	
Flash Dont Walk (s)		27.0			27.0		21.0	21.0			21.0	
Pedestrian Calls (#/hr)		0			0		0	0			0	
Act Effct Green (s)	17.0	10.4		18.8	14.2		53.8	53.8		70.0	68.9	
Actuated g/C Ratio	0.17	0.10		0.19	0.14		0.54	0.54		0.70	0.69	
v/c Ratio	0.21	0.52		0.62	0.35		0.07	0.50		0.45	0.18	
Control Delay	33.1	40.9		47.4	34.7		14.0	12.9		8.9	5.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	33.1	40.9		47.4	34.7		14.0	12.9		8.9	5.7	
LOS	C	D		D	C		B	B		A	A	
Approach Delay		39.4			40.3			13.0			6.7	
Approach LOS		D			D			B			A	
Queue Length 50th (m)	7.8	17.2		24.7	15.1		3.0	45.3		11.2	14.0	
Queue Length 95th (m)	17.1	27.8		41.2	25.3		9.4	75.0		21.0	22.0	
Internal Link Dist (m)		472.4			139.7			483.3			425.2	
Turn Bay Length (m)	55.0			30.0			30.0			30.0		
Base Capacity (vph)	226	1167		228	1177		459	1873		434	2383	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.21	0.17		0.62	0.15		0.07	0.50		0.43	0.18	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay: 18.2		Intersection LOS: B	

Intersection Capacity Utilization 63.5% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 10: Sixth Line & Burnhamthorpe Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2589	27	27	2581	53	93
Future Volume (vph)	2589	27	27	2581	53	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		25.0	45.0		55.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			15.0		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted			0.037		0.950	
Satd. Flow (perm)	3539	1583	69	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		8				5
Link Speed (k/h)	60			60	50	
Link Distance (m)	375.9			272.7	375.1	
Travel Time (s)	22.6			16.4	27.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2814	29	29	2805	58	101
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2814	29	29	2805	58	101
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.6	22.6	22.6	22.6	29.5	29.5
Total Split (s)	100.5	100.5	100.5	100.5	29.5	29.5
Total Split (%)	77.3%	77.3%	77.3%	77.3%	22.7%	22.7%
Maximum Green (s)	95.4	95.4	95.4	95.4	24.5	24.5
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	3.3
All-Red Time (s)	1.4	1.4	1.4	1.4	1.7	1.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	10.5	10.5	10.5	10.5	17.5	17.5
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	106.7	106.7	106.7	106.7	13.2	13.2
Actuated g/C Ratio	0.82	0.82	0.82	0.82	0.10	0.10
v/c Ratio	0.97	0.02	0.52	0.97	0.32	0.61
Control Delay	37.0	3.2	21.6	11.9	57.5	68.0
Queue Delay	25.6	0.0	0.0	0.0	0.0	0.0
Total Delay	62.6	3.2	21.6	11.9	57.5	68.0
LOS	E	A	C	B	E	E
Approach Delay	62.0			12.0	64.2	
Approach LOS	E			B	E	
Queue Length 50th (m)	426.3	1.3	0.9	89.7	14.8	25.2
Queue Length 95th (m)	m#421.1	m2.0	m1.6	m#453.6	28.0	42.9
Internal Link Dist (m)	351.9			248.7	351.1	
Turn Bay Length (m)		25.0	45.0		55.0	
Base Capacity (vph)	2904	1300	56	2904	333	302
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	248	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.06	0.02	0.52	0.97	0.17	0.33

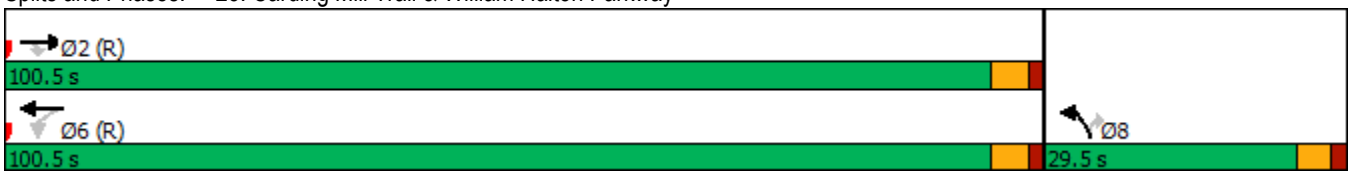
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 37.8		Intersection LOS: D	
Intersection Capacity Utilization 85.7%		ICU Level of Service E	
Analysis Period (min) 15			

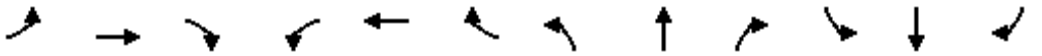
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

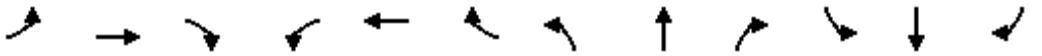
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 23: Carding Mill Trail & William Halton Parkway





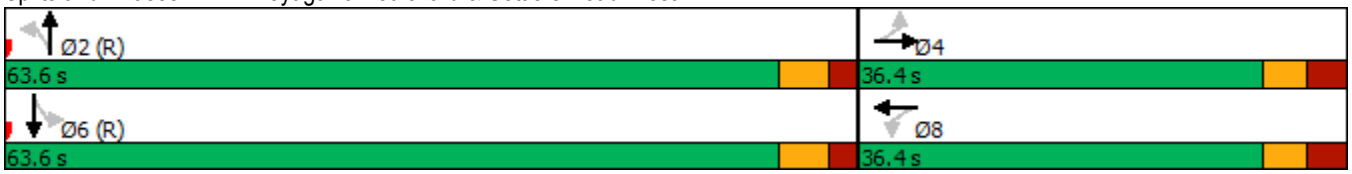
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	0	31	127	0	61	68	1234	47	24	716	5
Future Volume (vph)	8	0	31	127	0	61	68	1234	47	24	716	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	40.0		0.0	70.0		0.0	80.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			7.5			40.0			40.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.850			0.850			0.995			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1583	0	1770	1583	0	1770	3393	0	1770	3536	0
Flt Permitted	0.714			0.732			0.306			0.124		
Satd. Flow (perm)	1330	1583	0	1364	1583	0	570	3393	0	231	3536	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		148			33			6			1	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		242.4			672.4			254.4			327.6	
Travel Time (s)		17.5			48.4			15.3			19.7	
Peak Hour Factor	0.82	0.92	0.82	0.92	0.92	0.92	0.82	0.82	0.92	0.92	0.82	0.82
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	6%	2%	2%	2%	2%
Adj. Flow (vph)	10	0	38	138	0	66	83	1505	51	26	873	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	38	0	138	66	0	83	1556	0	26	879	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	

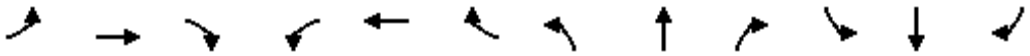


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	36.4	36.4		36.4	36.4		29.0	29.0		29.0	29.0	
Total Split (s)	36.4	36.4		36.4	36.4		63.6	63.6		63.6	63.6	
Total Split (%)	36.4%	36.4%		36.4%	36.4%		63.6%	63.6%		63.6%	63.6%	
Maximum Green (s)	30.0	30.0		30.0	30.0		57.6	57.6		57.6	57.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.1	3.1		3.1	3.1		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		0.2	0.2		0.2	0.2	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	23.0	23.0		23.0	23.0		16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	15.7	15.7		15.7	15.7		71.9	71.9		71.9	71.9	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.72	0.72		0.72	0.72	
v/c Ratio	0.05	0.10		0.64	0.24		0.20	0.64		0.16	0.35	
Control Delay	33.2	0.5		52.7	22.0		7.1	9.5		8.5	6.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	33.2	0.5		52.7	22.0		7.1	9.5		8.5	6.2	
LOS	C	A		D	C		A	A		A	A	
Approach Delay		7.4			42.8			9.3			6.2	
Approach LOS		A			D			A			A	
Queue Length 50th (m)	1.8	0.0		26.8	5.9		4.7	73.4		1.4	30.0	
Queue Length 95th (m)	5.6	0.0		44.1	16.7		12.0	99.8		6.1	43.8	
Internal Link Dist (m)		218.4			648.4			230.4			303.6	
Turn Bay Length (m)	40.0			40.0			70.0			80.0		
Base Capacity (vph)	399	578		409	498		409	2441		166	2542	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.03	0.07		0.34	0.13		0.20	0.64		0.16	0.35	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 59 (59%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 10.7		Intersection LOS: B	
Intersection Capacity Utilization 77.1%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 24: Neyagawa Boulevard & Settlers Road West





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	5	0	0	40	13	13	13	0	5	5	45
Future Volume (vph)	18	5	0	0	40	13	13	13	0	5	5	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.967						0.888	
Flt Protected		0.962						0.976			0.996	
Satd. Flow (prot)	0	1792	0	0	1801	0	0	1818	0	0	1648	0
Flt Permitted		0.962						0.976			0.996	
Satd. Flow (perm)	0	1792	0	0	1801	0	0	1818	0	0	1648	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		672.4			141.3			155.6			375.1	
Travel Time (s)		48.4			10.2			11.2			27.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	5	0	0	43	14	14	14	0	5	5	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	25	0	0	57	0	0	28	0	0	59	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

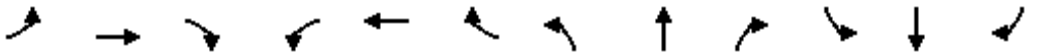
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 19.4%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

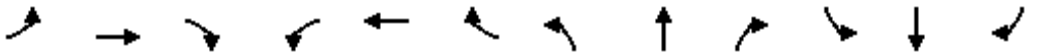
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	5	0	0	40	13	13	13	0	5	5	45
Future Vol, veh/h	18	5	0	0	40	13	13	13	0	5	5	45
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	5	0	0	43	14	14	14	0	5	5	49
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.5	7.3	7.4	6.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	50%	78%	0%	9%
Vol Thru, %	50%	22%	75%	9%
Vol Right, %	0%	0%	25%	82%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	26	23	53	55
LT Vol	13	18	0	5
Through Vol	13	5	40	5
RT Vol	0	0	13	45
Lane Flow Rate	28	25	58	60
Geometry Grp	1	1	1	1
Degree of Util (X)	0.033	0.03	0.063	0.06
Departure Headway (Hd)	4.222	4.287	3.958	3.625
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	844	832	902	982
Service Time	2.268	2.327	1.994	1.67
HCM Lane V/C Ratio	0.033	0.03	0.064	0.061
HCM Control Delay	7.4	7.5	7.3	6.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0.2	0.2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	2324	66	426	2211	62	85	249	343	74	541	11
Future Volume (vph)	4	2324	66	426	2211	62	85	249	343	74	541	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Storage Lanes	2		1	2		1	1		1	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	5036	1583	3433	4988	1482	1752	3505	1583	1703	3539	1583
Flt Permitted	0.950			0.950			0.203			0.535		
Satd. Flow (perm)	3433	5036	1583	3433	4988	1482	374	3505	1583	959	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			100			66			178			100
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		433.0			199.8			327.6			277.5	
Travel Time (s)		26.0			12.0			19.7			16.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	3%	2%	2%	4%	9%	3%	3%	2%	6%	2%	2%
Adj. Flow (vph)	4	2526	72	463	2403	67	92	271	373	80	588	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	2526	72	463	2403	67	92	271	373	80	588	12
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	

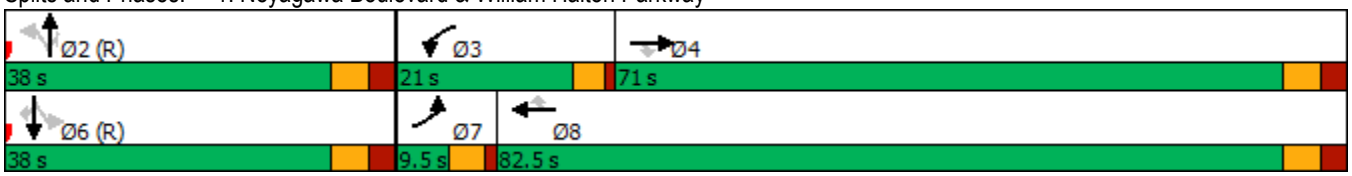


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8	2		2	6		6
Detector Phase	7	4	4	3	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	7.0	10.0	10.0	15.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	9.5	40.4	40.4	11.0	40.4	40.4	37.4	37.4	37.4	37.4	37.4	37.4
Total Split (s)	9.5	71.0	71.0	21.0	82.5	82.5	38.0	38.0	38.0	38.0	38.0	38.0
Total Split (%)	7.3%	54.6%	54.6%	16.2%	63.5%	63.5%	29.2%	29.2%	29.2%	29.2%	29.2%	29.2%
Maximum Green (s)	5.0	64.6	64.6	17.0	76.1	76.1	31.6	31.6	31.6	31.6	31.6	31.6
Yellow Time (s)	3.5	3.7	3.7	3.0	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.4	6.4	4.0	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	0.2	0.2	0.2	0.2	0.2	0.2
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		27.0	27.0		27.0	27.0	24.0	24.0	24.0	24.0	24.0	24.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	5.0	64.6	64.6	17.0	83.7	83.7	31.6	31.6	31.6	31.6	31.6	31.6
Actuated g/C Ratio	0.04	0.50	0.50	0.13	0.64	0.64	0.24	0.24	0.24	0.24	0.24	0.24
v/c Ratio	0.03	1.01	0.09	1.03	0.75	0.07	1.02	0.32	0.72	0.34	0.68	0.03
Control Delay	60.8	53.0	1.6	95.1	10.2	1.3	150.2	41.6	31.8	45.7	49.4	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	60.8	53.0	1.6	95.1	10.2	1.3	150.2	41.6	31.8	45.7	49.4	0.1
LOS	E	D	A	F	B	A	F	D	C	D	D	A
Approach Delay		51.6			23.4			50.2			48.1	
Approach LOS		D			C			D			D	
Queue Length 50th (m)	0.5	~249.9	0.0	~70.9	93.2	0.6	~25.5	31.7	49.3	17.9	76.2	0.0
Queue Length 95th (m)	2.6	#290.1	4.2	m#79.9	172.2	m1.1	#63.1	45.1	87.8	34.0	97.3	0.0
Internal Link Dist (m)		409.0			175.8			303.6			253.5	
Turn Bay Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Base Capacity (vph)	132	2502	836	448	3211	977	90	851	519	233	860	460
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	0.03	1.01	0.09	1.03	0.75	0.07	1.02	0.32	0.72	0.34	0.68	0.03

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 39.2		Intersection LOS: D	
Intersection Capacity Utilization 103.8%		ICU Level of Service G	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

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



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2173	260	6	2170	388	4
Future Volume (vph)	2173	260	6	2170	388	4
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)	3539	1583	1770	3539	1770	1583
Flt Permitted			0.046		0.950	
Satd. Flow (perm)	3539	1583	86	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		87				4
Link Speed (k/h)	60			60	60	
Link Distance (m)	272.7			591.4	410.6	
Travel Time (s)	16.4			35.5	24.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2362	283	7	2359	422	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2362	283	7	2359	422	4
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	33.1	33.1	33.1	33.1	39.5	39.5
Total Split (s)	90.5	90.5	90.5	90.5	39.5	39.5
Total Split (%)	69.6%	69.6%	69.6%	69.6%	30.4%	30.4%
Maximum Green (s)	85.4	85.4	85.4	85.4	34.0	34.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.4	1.4	1.4	1.4	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	27.0	27.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	86.4	86.4	86.4	86.4	33.0	33.0
Actuated g/C Ratio	0.66	0.66	0.66	0.66	0.25	0.25
v/c Ratio	1.00	0.26	0.12	1.00	0.94	0.01
Control Delay	18.7	3.9	14.3	41.5	77.8	22.0
Queue Delay	17.3	0.0	0.0	0.0	0.0	0.0
Total Delay	36.0	3.9	14.3	41.5	77.8	22.0
LOS	D	A	B	D	E	C
Approach Delay	32.6			41.4	77.3	
Approach LOS	C			D	E	
Queue Length 50th (m)	~271.0	8.3	0.7	~334.0	110.8	0.0
Queue Length 95th (m)	m66.8	m8.6	3.4	#394.6	#172.9	3.0
Internal Link Dist (m)	248.7			567.4	386.6	
Turn Bay Length (m)		30.0	30.0		30.0	
Base Capacity (vph)	2352	1081	57	2352	462	416
Starvation Cap Reductn	112	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.05	0.26	0.12	1.00	0.91	0.01

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 39.9	Intersection LOS: D
Intersection Capacity Utilization 90.4%	ICU Level of Service E
Analysis Period (min) 15	

~ Volume exceeds capacity, queue is theoretically infinite.

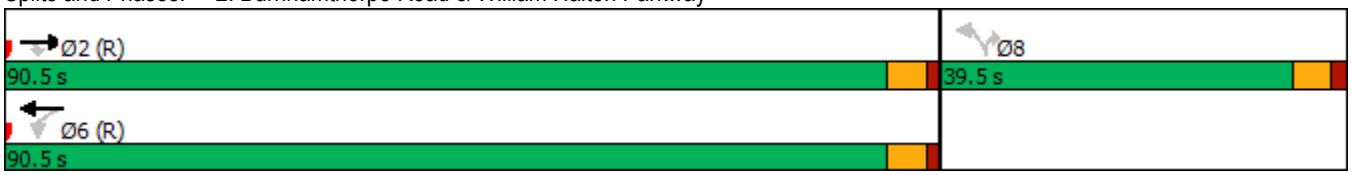
Queue shown is maximum after two cycles.

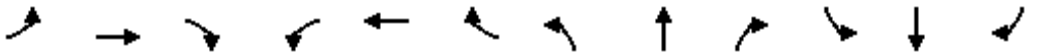
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

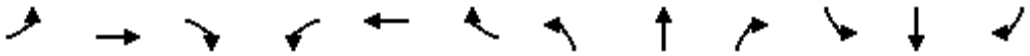
m Volume for 95th percentile queue is metered by upstream signal.

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





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	105	35	202	228	157	54	493	144	42	470	90
Future Volume (vph)	31	105	35	202	228	157	54	493	144	42	470	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	30.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			25.0			50.0			50.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		1.00		1.00								
Frt		0.962			0.939			0.966			0.976	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3394	0	1770	3323	0	1641	3419	0	1736	3454	0
Flt Permitted	0.507			0.460			0.400			0.359		
Satd. Flow (perm)	944	3394	0	856	3323	0	691	3419	0	656	3454	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		38			171			44			25	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		510.4			161.7			507.3			449.2	
Travel Time (s)		30.6			9.7			30.4			27.0	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	10%	2%	2%	4%	2%	2%
Adj. Flow (vph)	34	114	38	220	248	171	59	536	157	46	511	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	152	0	220	419	0	59	693	0	46	609	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

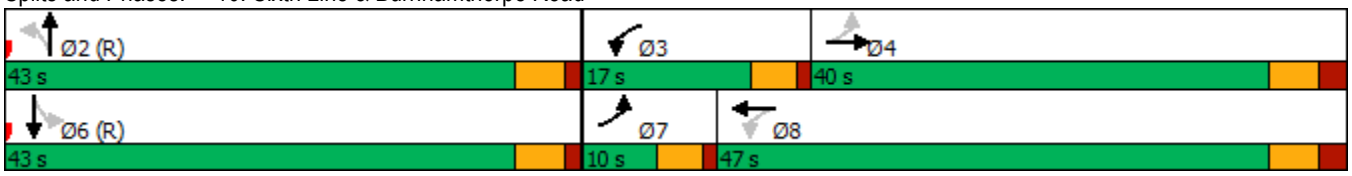


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	40.0		9.5	40.0		33.1	33.1		33.1	33.1	
Total Split (s)	10.0	40.0		17.0	47.0		43.0	43.0		43.0	43.0	
Total Split (%)	10.0%	40.0%		17.0%	47.0%		43.0%	43.0%		43.0%	43.0%	
Maximum Green (s)	5.5	34.0		12.5	41.0		37.9	37.9		37.9	37.9	
Yellow Time (s)	3.5	3.7		3.5	3.7		3.7	3.7		3.7	3.7	
All-Red Time (s)	1.0	2.3		1.0	2.3		1.4	1.4		1.4	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	6.0		4.5	6.0		5.1	5.1		5.1	5.1	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		27.0			27.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	15.8	8.8		26.9	19.4		63.5	63.5		63.5	63.5	
Actuated g/C Ratio	0.16	0.09		0.27	0.19		0.64	0.64		0.64	0.64	
v/c Ratio	0.18	0.46		0.65	0.54		0.13	0.32		0.11	0.28	
Control Delay	28.9	36.4		39.7	24.3		9.0	8.5		8.8	8.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	28.9	36.4		39.7	24.3		9.0	8.5		8.8	8.4	
LOS	C	D		D	C		A	A		A	A	
Approach Delay		35.0			29.6			8.5			8.4	
Approach LOS		C			C			A			A	
Queue Length 50th (m)	5.2	11.7		37.3	24.5		4.4	29.0		3.4	25.3	
Queue Length 95th (m)	12.4	21.4		57.4	39.7		11.1	42.4		9.1	37.4	
Internal Link Dist (m)		486.4			137.7			483.3			425.2	
Turn Bay Length (m)	55.0			30.0			30.0			30.0		
Base Capacity (vph)	194	1179		344	1463		439	2187		416	2202	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.18	0.13		0.64	0.29		0.13	0.32		0.11	0.28	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 85	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 16.7	Intersection LOS: B

Intersection Capacity Utilization 55.8% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 10: Sixth Line & Burnhamthorpe Road



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2648	88	88	2657	36	63
Future Volume (vph)	2648	88	88	2657	36	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		25.0	45.0		55.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			15.0		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted			0.039		0.950	
Satd. Flow (perm)	3539	1583	73	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		21				62
Link Speed (k/h)	60			60	50	
Link Distance (m)	375.9			272.7	375.9	
Travel Time (s)	22.6			16.4	27.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2878	96	96	2888	39	68
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2878	96	96	2888	39	68
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		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	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2	6			8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.6	22.6	9.5	22.6	29.5	29.5
Total Split (s)	91.0	91.0	9.5	100.5	29.5	29.5
Total Split (%)	70.0%	70.0%	7.3%	77.3%	22.7%	22.7%
Maximum Green (s)	85.9	85.9	5.0	95.4	24.5	24.5
Yellow Time (s)	3.7	3.7	3.5	3.7	3.3	3.3
All-Red Time (s)	1.4	1.4	1.0	1.4	1.7	1.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	4.5	5.1	5.0	5.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	10.5	10.5		10.5	17.5	17.5
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	100.1	100.1	114.3	114.7	8.3	8.3
Actuated g/C Ratio	0.77	0.77	0.88	0.88	0.06	0.06
v/c Ratio	1.06	0.08	0.53	0.93	0.35	0.43
Control Delay	60.2	4.1	24.9	9.6	65.8	24.4
Queue Delay	18.8	0.0	0.0	0.0	0.0	0.0
Total Delay	79.0	4.1	24.9	9.6	65.8	24.4
LOS	E	A	C	A	E	C
Approach Delay	76.6			10.1	39.4	
Approach LOS	E			B	D	
Queue Length 50th (m)	~467.4	5.7	11.8	133.0	10.3	1.5
Queue Length 95th (m)	m#495.7	m8.7	m13.4	m143.4	22.1	16.4
Internal Link Dist (m)	351.9			248.7	351.9	
Turn Bay Length (m)		25.0	45.0		55.0	
Base Capacity (vph)	2726	1224	182	3122	333	348
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	187	0	0	0	0	3
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.13	0.08	0.53	0.93	0.12	0.20

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.06			
Intersection Signal Delay: 43.2		Intersection LOS: D	
Intersection Capacity Utilization 86.0%		ICU Level of Service E	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.

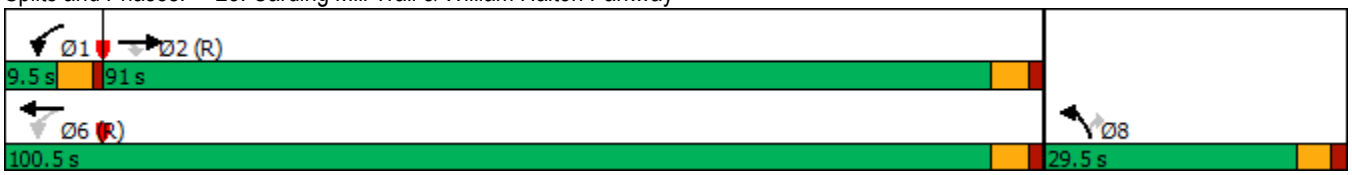
Queue shown is maximum after two cycles.

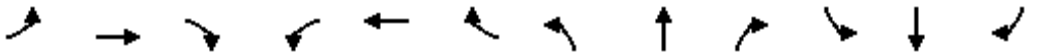
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

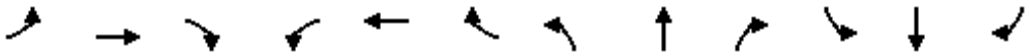
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 23: Carding Mill Trail & William Halton Parkway





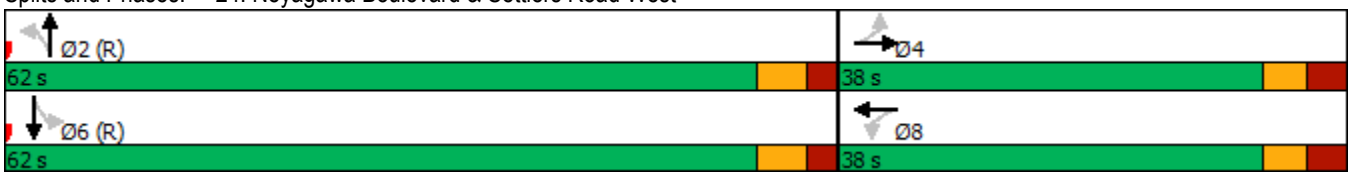
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	14	94	0	45	28	581	145	71	931	2
Future Volume (vph)	2	0	14	94	0	45	28	581	145	71	931	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	40.0		0.0	70.0		0.0	80.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			7.5			40.0			40.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.850			0.850			0.973				
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1583	0	1770	1583	0	1770	3444	0	1770	3539	0
Flt Permitted	0.725			0.746			0.231			0.318		
Satd. Flow (perm)	1350	1583	0	1390	1583	0	430	3444	0	592	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		73			208			43				
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		242.4			665.7			254.4			327.6	
Travel Time (s)		17.5			47.9			15.3			19.7	
Peak Hour Factor	0.82	0.92	0.82	0.92	0.92	0.92	0.82	0.82	0.92	0.92	0.82	0.82
Adj. Flow (vph)	2	0	17	102	0	49	34	709	158	77	1135	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	17	0	102	49	0	34	867	0	77	1137	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

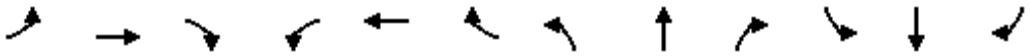


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	36.4	36.4		36.4	36.4		29.0	29.0		29.0	29.0	
Total Split (s)	38.0	38.0		38.0	38.0		62.0	62.0		62.0	62.0	
Total Split (%)	38.0%	38.0%		38.0%	38.0%		62.0%	62.0%		62.0%	62.0%	
Maximum Green (s)	31.6	31.6		31.6	31.6		56.0	56.0		56.0	56.0	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.1	3.1		3.1	3.1		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		0.2	0.2		0.2	0.2	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	23.0	23.0		23.0	23.0		16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	13.3	13.3		13.3	13.3		78.8	78.8		78.8	78.8	
Actuated g/C Ratio	0.13	0.13		0.13	0.13		0.79	0.79		0.79	0.79	
v/c Ratio	0.01	0.06		0.55	0.13		0.10	0.32		0.17	0.41	
Control Delay	35.0	0.4		51.4	0.7		5.2	4.4		5.4	5.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	35.0	0.4		51.4	0.7		5.2	4.4		5.4	5.2	
LOS	C	A		D	A		A	A		A	A	
Approach Delay		4.1			35.0			4.4			5.2	
Approach LOS		A			C			A			A	
Queue Length 50th (m)	0.4	0.0		19.9	0.0		1.6	24.2		3.8	37.4	
Queue Length 95th (m)	2.2	0.0		35.3	0.0		5.0	35.7		10.8	52.9	
Internal Link Dist (m)		218.4			641.7			230.4			303.6	
Turn Bay Length (m)	40.0			40.0			70.0			80.0		
Base Capacity (vph)	426	550		439	642		338	2723		466	2788	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.00	0.03		0.23	0.08		0.10	0.32		0.17	0.41	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 80 (80%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay: 6.9		Intersection LOS: A	
Intersection Capacity Utilization 65.5%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 24: Neyagawa Boulevard & Settlers Road West





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	15	0	0	27	9	9	9	0	15	15	42
Future Volume (vph)	59	15	0	0	27	9	9	9	0	15	15	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.965						0.920	
Flt Protected		0.962						0.976			0.990	
Satd. Flow (prot)	0	1792	0	0	1798	0	0	1818	0	0	1697	0
Flt Permitted		0.962						0.976			0.990	
Satd. Flow (perm)	0	1792	0	0	1798	0	0	1818	0	0	1697	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		665.7			142.8			193.2			375.9	
Travel Time (s)		47.9			10.3			13.9			27.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	64	16	0	0	29	10	10	10	0	16	16	46
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	80	0	0	39	0	0	20	0	0	78	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

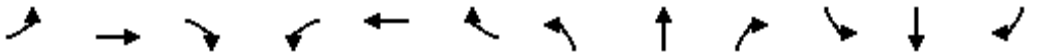
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 21.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

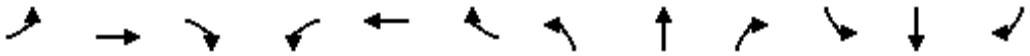
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	59	15	0	0	27	9	9	9	0	15	15	42
Future Vol, veh/h	59	15	0	0	27	9	9	9	0	15	15	42
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	64	16	0	0	29	10	10	10	0	16	16	46
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.8	7.3	7.5	7.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	50%	80%	0%	21%
Vol Thru, %	50%	20%	75%	21%
Vol Right, %	0%	0%	25%	58%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	18	74	36	72
LT Vol	9	59	0	15
Through Vol	9	15	27	15
RT Vol	0	0	9	42
Lane Flow Rate	20	80	39	78
Geometry Grp	1	1	1	1
Degree of Util (X)	0.023	0.096	0.044	0.084
Departure Headway (Hd)	4.302	4.294	4.015	3.846
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	822	831	884	920
Service Time	2.381	2.341	2.077	1.917
HCM Lane V/C Ratio	0.024	0.096	0.044	0.085
HCM Control Delay	7.5	7.8	7.3	7.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.3	0.1	0.3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	2167	170	329	2268	43	264	684	369	57	291	73
Future Volume (vph)	50	2167	170	329	2268	43	264	684	369	57	291	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Storage Lanes	2		1	2		1	1		1	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3400	4893	1509	3433	4848	1583	1719	3539	1599	1597	3438	1568
Flt Permitted	0.950			0.950			0.518			0.189		
Satd. Flow (perm)	3400	4893	1509	3433	4848	1583	937	3539	1599	318	3438	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			122			66			135			100
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		433.0			199.8			327.6			277.5	
Travel Time (s)		26.0			12.0			19.7			16.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	6%	7%	2%	7%	2%	5%	2%	1%	13%	5%	3%
Adj. Flow (vph)	54	2355	185	358	2465	47	287	743	401	62	316	79
Shared Lane Traffic (%)												
Lane Group Flow (vph)	54	2355	185	358	2465	47	287	743	401	62	316	79
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8	2		2	6		6
Detector Phase	7	4	4	3	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	7.0	10.0	10.0	15.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	9.5	40.4	40.4	11.0	40.4	40.4	37.4	37.4	37.4	37.4	37.4	37.4
Total Split (s)	9.5	67.0	67.0	17.0	74.5	74.5	46.0	46.0	46.0	46.0	46.0	46.0
Total Split (%)	7.3%	51.5%	51.5%	13.1%	57.3%	57.3%	35.4%	35.4%	35.4%	35.4%	35.4%	35.4%
Maximum Green (s)	5.0	60.6	60.6	13.0	68.1	68.1	39.6	39.6	39.6	39.6	39.6	39.6
Yellow Time (s)	3.5	3.7	3.7	3.0	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.4	6.4	4.0	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	0.2	0.2	0.2	0.2	0.2	0.2
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		27.0	27.0		27.0	27.0	24.0	24.0	24.0	24.0	24.0	24.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	5.0	60.6	60.6	13.0	70.0	70.0	39.6	39.6	39.6	39.6	39.6	39.6
Actuated g/C Ratio	0.04	0.47	0.47	0.10	0.54	0.54	0.30	0.30	0.30	0.30	0.30	0.30
v/c Ratio	0.42	1.03	0.24	1.04	0.94	0.05	1.01	0.69	0.69	0.65	0.30	0.14
Control Delay	70.9	62.3	8.2	116.3	27.5	1.3	100.4	43.8	32.9	71.5	35.6	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.9	62.3	8.2	116.3	27.5	1.3	100.4	43.8	32.9	71.5	35.6	4.1
LOS	E	E	A	F	C	A	F	D	C	E	D	A
Approach Delay		58.6			38.2			52.1			35.0	
Approach LOS		E			D			D			D	
Queue Length 50th (m)	7.4	~249.2	9.3	~53.5	203.5	0.3	~78.3	92.8	64.2	14.5	34.3	0.0
Queue Length 95th (m)	14.8	#278.5	24.0	#86.1	#272.2	m1.1	#139.1	115.7	103.3	#38.4	47.6	7.7
Internal Link Dist (m)		409.0			175.8			303.6			253.5	
Turn Bay Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Base Capacity (vph)	130	2280	768	343	2610	882	285	1078	580	96	1047	547
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	0.42	1.03	0.24	1.04	0.94	0.05	1.01	0.69	0.69	0.65	0.30	0.14

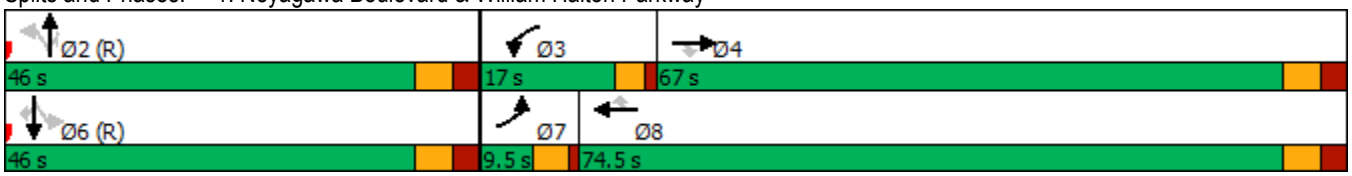
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.04			
Intersection Signal Delay: 47.9		Intersection LOS: D	
Intersection Capacity Utilization 102.0%		ICU Level of Service G	
Analysis Period (min) 15			

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

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

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

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



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2181	212	2	2134	339	6
Future Volume (vph)	2181	212	2	2134	339	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)	3539	1583	1770	3539	1770	1583
Flt Permitted			0.045		0.950	
Satd. Flow (perm)	3539	1583	84	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		71				7
Link Speed (k/h)	60			60	60	
Link Distance (m)	185.7			591.4	424.3	
Travel Time (s)	11.1			35.5	25.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2371	230	2	2320	368	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2371	230	2	2320	368	7
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	33.1	33.1	33.1	33.1	39.5	39.5
Total Split (s)	90.5	90.5	90.5	90.5	39.5	39.5
Total Split (%)	69.6%	69.6%	69.6%	69.6%	30.4%	30.4%
Maximum Green (s)	85.4	85.4	85.4	85.4	34.0	34.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.4	1.4	1.4	1.4	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	27.0	27.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	88.8	88.8	88.8	88.8	30.6	30.6
Actuated g/C Ratio	0.68	0.68	0.68	0.68	0.24	0.24
v/c Ratio	0.98	0.21	0.04	0.96	0.88	0.02
Control Delay	20.4	0.8	9.5	31.2	70.8	19.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.4	0.8	9.5	31.2	70.8	19.5
LOS	C	A	A	C	E	B
Approach Delay	18.7			31.2	69.9	
Approach LOS	B			C	E	
Queue Length 50th (m)	~53.4	0.2	0.2	293.7	94.3	0.0
Queue Length 95th (m)	#393.2	1.7	1.3	#383.4	#139.8	4.1
Internal Link Dist (m)	161.7			567.4	400.3	
Turn Bay Length (m)		30.0	30.0		30.0	
Base Capacity (vph)	2417	1103	57	2417	462	419
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.21	0.04	0.96	0.80	0.02

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 27.8	Intersection LOS: C
Intersection Capacity Utilization 87.9%	ICU Level of Service E
Analysis Period (min) 15	

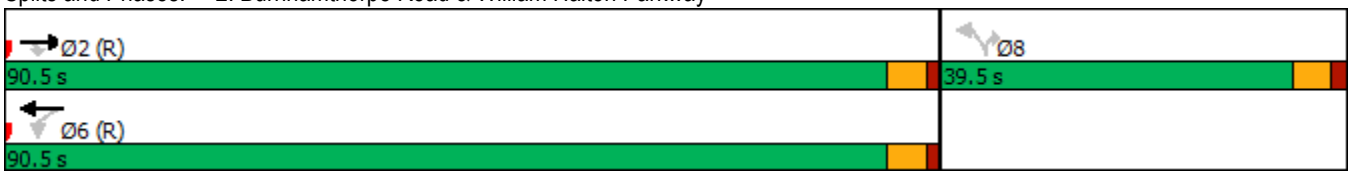
~ Volume exceeds capacity, queue is theoretically infinite.

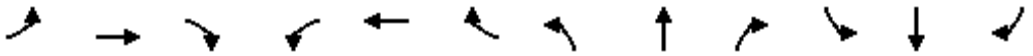
Queue shown is maximum after two cycles.

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

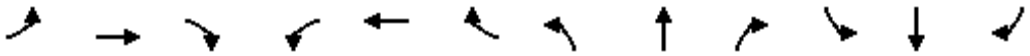
Queue shown is maximum after two cycles.

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





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	147	32	130	133	31	29	481	376	171	355	46
Future Volume (vph)	43	147	32	130	133	31	29	481	376	171	355	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	30.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			25.0			50.0			50.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00				1.00							
Frt		0.973			0.972			0.934			0.983	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3378	0	1770	3404	0	1626	3306	0	1703	3449	0
Flt Permitted	0.639			0.541			0.499			0.214		
Satd. Flow (perm)	1166	3378	0	1008	3404	0	854	3306	0	384	3449	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		28			31			203			18	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		496.4			163.7			507.3			449.2	
Travel Time (s)		29.8			9.8			30.4			27.0	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	2%	13%	2%	3%	2%	11%	2%	2%	6%	3%	2%
Adj. Flow (vph)	47	160	35	141	145	34	32	523	409	186	386	50
Shared Lane Traffic (%)												
Lane Group Flow (vph)	47	195	0	141	179	0	32	932	0	186	436	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

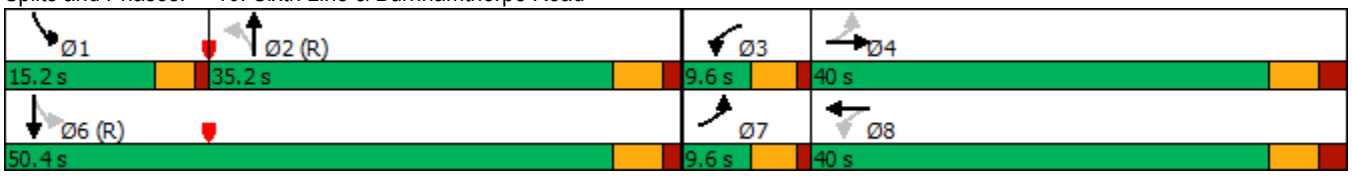


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	40.0		9.5	40.0		33.1	33.1		9.5	33.1	
Total Split (s)	9.6	40.0		9.6	40.0		35.2	35.2		15.2	50.4	
Total Split (%)	9.6%	40.0%		9.6%	40.0%		35.2%	35.2%		15.2%	50.4%	
Maximum Green (s)	5.1	34.0		5.1	34.0		30.1	30.1		11.2	45.3	
Yellow Time (s)	3.5	3.7		3.5	3.7		3.7	3.7		3.0	3.7	
All-Red Time (s)	1.0	2.3		1.0	2.3		1.4	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	6.0		4.5	6.0		5.1	5.1		4.0	5.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)		7.0			7.0		7.0	7.0			7.0	
Flash Dont Walk (s)		27.0			27.0		21.0	21.0			21.0	
Pedestrian Calls (#/hr)		0			0		0	0			0	
Act Effct Green (s)	17.0	10.4		18.8	14.2		53.8	53.8		70.0	68.9	
Actuated g/C Ratio	0.17	0.10		0.19	0.14		0.54	0.54		0.70	0.69	
v/c Ratio	0.21	0.52		0.62	0.35		0.07	0.50		0.45	0.18	
Control Delay	33.1	40.9		47.4	34.7		14.0	12.9		8.9	5.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	33.1	40.9		47.4	34.7		14.0	12.9		8.9	5.7	
LOS	C	D		D	C		B	B		A	A	
Approach Delay		39.4			40.3			13.0			6.7	
Approach LOS		D			D			B			A	
Queue Length 50th (m)	7.8	17.2		24.7	15.1		3.0	45.3		11.2	14.0	
Queue Length 95th (m)	17.1	27.8		41.2	25.3		9.4	75.0		21.0	22.0	
Internal Link Dist (m)		472.4			139.7			483.3			425.2	
Turn Bay Length (m)	55.0			30.0			30.0			30.0		
Base Capacity (vph)	226	1167		228	1177		459	1873		434	2383	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.21	0.17		0.62	0.15		0.07	0.50		0.43	0.18	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay: 18.2		Intersection LOS: B	

Intersection Capacity Utilization 63.5% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 10: Sixth Line & Burnhamthorpe Road



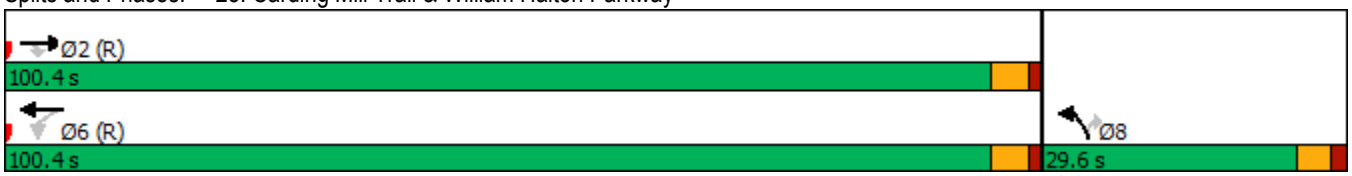
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2589	27	27	2581	53	93
Future Volume (vph)	2589	27	27	2581	53	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		25.0	45.0		55.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			15.0		7.5	
Lane Util. Factor	0.91	1.00	1.00	0.91	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	5085	1583	1770	5085	1770	1583
Flt Permitted			0.037		0.950	
Satd. Flow (perm)	5085	1583	69	5085	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		12				5
Link Speed (k/h)	60			60	50	
Link Distance (m)	375.9			87.7	375.1	
Travel Time (s)	22.6			5.3	27.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2814	29	29	2805	58	101
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2814	29	29	2805	58	101
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8

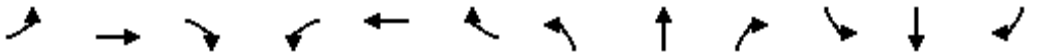
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.6	22.6	22.6	22.6	29.5	29.5
Total Split (s)	100.4	100.4	100.4	100.4	29.6	29.6
Total Split (%)	77.2%	77.2%	77.2%	77.2%	22.8%	22.8%
Maximum Green (s)	95.3	95.3	95.3	95.3	24.6	24.6
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	3.3
All-Red Time (s)	1.4	1.4	1.4	1.4	1.7	1.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	10.5	10.5	10.5	10.5	17.5	17.5
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	106.7	106.7	106.7	106.7	13.2	13.2
Actuated g/C Ratio	0.82	0.82	0.82	0.82	0.10	0.10
v/c Ratio	0.67	0.02	0.52	0.67	0.32	0.61
Control Delay	18.7	3.0	21.6	2.8	57.5	68.0
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	18.7	3.0	21.6	2.9	57.5	68.0
LOS	B	A	C	A	E	E
Approach Delay	18.6			3.1	64.2	
Approach LOS	B			A	E	
Queue Length 50th (m)	274.9	1.2	0.9	38.8	14.8	25.2
Queue Length 95th (m)	m267.0	m1.8	m1.6	m51.7	28.0	42.9
Internal Link Dist (m)	351.9			63.7	351.1	
Turn Bay Length (m)		25.0	45.0		55.0	
Base Capacity (vph)	4172	1301	56	4172	334	303
Starvation Cap Reductn	0	0	0	433	0	0
Spillback Cap Reductn	108	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.02	0.52	0.75	0.17	0.33

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 12.3	Intersection LOS: B
Intersection Capacity Utilization 64.2%	ICU Level of Service C
Analysis Period (min) 15	

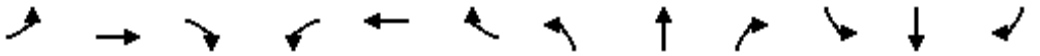
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 23: Carding Mill Trail & William Halton Parkway





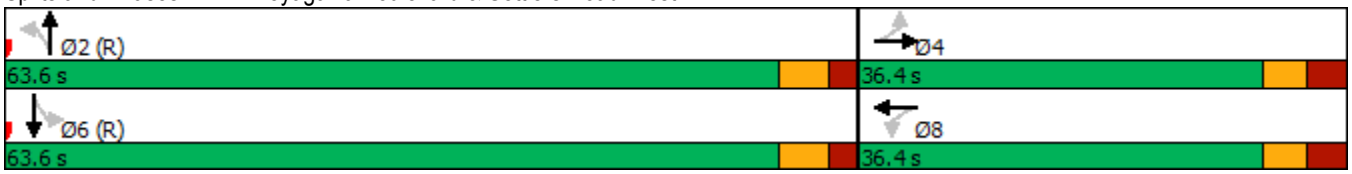
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	0	31	127	0	61	68	1234	47	24	716	5
Future Volume (vph)	8	0	31	127	0	61	68	1234	47	24	716	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	40.0		0.0	70.0		0.0	80.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			7.5			40.0			40.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.850			0.850			0.995			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1583	0	1770	1583	0	1770	3393	0	1770	3536	0
Flt Permitted	0.714			0.732			0.306			0.124		
Satd. Flow (perm)	1330	1583	0	1364	1583	0	570	3393	0	231	3536	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		148			33			6			1	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		242.4			672.4			254.4			327.6	
Travel Time (s)		17.5			48.4			15.3			19.7	
Peak Hour Factor	0.82	0.92	0.82	0.92	0.92	0.92	0.82	0.82	0.92	0.92	0.82	0.82
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	6%	2%	2%	2%	2%
Adj. Flow (vph)	10	0	38	138	0	66	83	1505	51	26	873	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	38	0	138	66	0	83	1556	0	26	879	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	

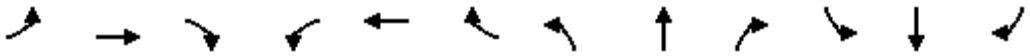


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	36.4	36.4		36.4	36.4		29.0	29.0		29.0	29.0	
Total Split (s)	36.4	36.4		36.4	36.4		63.6	63.6		63.6	63.6	
Total Split (%)	36.4%	36.4%		36.4%	36.4%		63.6%	63.6%		63.6%	63.6%	
Maximum Green (s)	30.0	30.0		30.0	30.0		57.6	57.6		57.6	57.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.1	3.1		3.1	3.1		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		0.2	0.2		0.2	0.2	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	23.0	23.0		23.0	23.0		16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	15.7	15.7		15.7	15.7		71.9	71.9		71.9	71.9	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.72	0.72		0.72	0.72	
v/c Ratio	0.05	0.10		0.64	0.24		0.20	0.64		0.16	0.35	
Control Delay	33.2	0.5		52.7	22.0		7.1	9.5		8.5	6.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	33.2	0.5		52.7	22.0		7.1	9.5		8.5	6.2	
LOS	C	A		D	C		A	A		A	A	
Approach Delay		7.4			42.8			9.3			6.2	
Approach LOS		A			D			A			A	
Queue Length 50th (m)	1.8	0.0		26.8	5.9		4.7	73.4		1.4	30.0	
Queue Length 95th (m)	5.6	0.0		44.1	16.7		12.0	99.8		6.1	43.8	
Internal Link Dist (m)		218.4			648.4			230.4			303.6	
Turn Bay Length (m)	40.0			40.0			70.0			80.0		
Base Capacity (vph)	399	578		409	498		409	2441		166	2542	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.03	0.07		0.34	0.13		0.20	0.64		0.16	0.35	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 59 (59%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 10.7		Intersection LOS: B	
Intersection Capacity Utilization 77.1%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 24: Neyagawa Boulevard & Settlers Road West





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	5	0	0	40	13	13	13	0	5	5	45
Future Volume (vph)	18	5	0	0	40	13	13	13	0	5	5	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.967						0.888	
Flt Protected		0.962						0.976			0.996	
Satd. Flow (prot)	0	1792	0	0	1801	0	0	1818	0	0	1648	0
Flt Permitted		0.962						0.976			0.996	
Satd. Flow (perm)	0	1792	0	0	1801	0	0	1818	0	0	1648	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		672.4			141.3			155.6			375.1	
Travel Time (s)		48.4			10.2			11.2			27.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	5	0	0	43	14	14	14	0	5	5	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	25	0	0	57	0	0	28	0	0	59	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

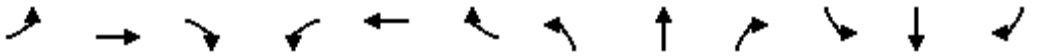
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 19.4%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

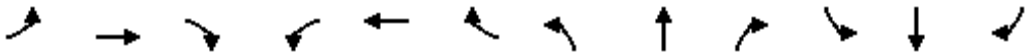
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	5	0	0	40	13	13	13	0	5	5	45
Future Vol, veh/h	18	5	0	0	40	13	13	13	0	5	5	45
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	5	0	0	43	14	14	14	0	5	5	49
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.5	7.3	7.4	6.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	50%	78%	0%	9%
Vol Thru, %	50%	22%	75%	9%
Vol Right, %	0%	0%	25%	82%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	26	23	53	55
LT Vol	13	18	0	5
Through Vol	13	5	40	5
RT Vol	0	0	13	45
Lane Flow Rate	28	25	58	60
Geometry Grp	1	1	1	1
Degree of Util (X)	0.033	0.03	0.063	0.06
Departure Headway (Hd)	4.222	4.287	3.958	3.625
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	844	832	902	982
Service Time	2.268	2.327	1.994	1.67
HCM Lane V/C Ratio	0.033	0.03	0.064	0.061
HCM Control Delay	7.4	7.5	7.3	6.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0.2	0.2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	2324	66	426	2211	62	85	249	343	74	541	11
Future Volume (vph)	4	2324	66	426	2211	62	85	249	343	74	541	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Storage Lanes	2		1	2		1	1		1	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	5036	1583	3433	4988	1482	1752	3505	1583	1703	3539	1583
Flt Permitted	0.950			0.950			0.203			0.535		
Satd. Flow (perm)	3433	5036	1583	3433	4988	1482	374	3505	1583	959	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			100			66			178			100
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		433.0			199.8			327.6			277.5	
Travel Time (s)		26.0			12.0			19.7			16.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	3%	2%	2%	4%	9%	3%	3%	2%	6%	2%	2%
Adj. Flow (vph)	4	2526	72	463	2403	67	92	271	373	80	588	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	2526	72	463	2403	67	92	271	373	80	588	12
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	

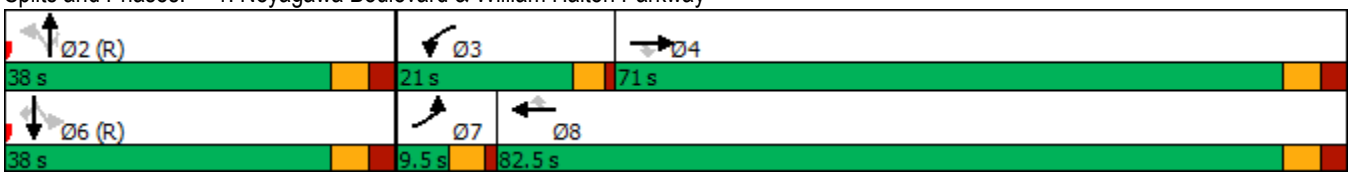


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8	2		2	6		6
Detector Phase	7	4	4	3	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	7.0	10.0	10.0	15.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	9.5	40.4	40.4	11.0	40.4	40.4	37.4	37.4	37.4	37.4	37.4	37.4
Total Split (s)	9.5	71.0	71.0	21.0	82.5	82.5	38.0	38.0	38.0	38.0	38.0	38.0
Total Split (%)	7.3%	54.6%	54.6%	16.2%	63.5%	63.5%	29.2%	29.2%	29.2%	29.2%	29.2%	29.2%
Maximum Green (s)	5.0	64.6	64.6	17.0	76.1	76.1	31.6	31.6	31.6	31.6	31.6	31.6
Yellow Time (s)	3.5	3.7	3.7	3.0	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.4	6.4	4.0	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	0.2	0.2	0.2	0.2	0.2	0.2
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		27.0	27.0		27.0	27.0	24.0	24.0	24.0	24.0	24.0	24.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	5.0	64.6	64.6	17.0	83.7	83.7	31.6	31.6	31.6	31.6	31.6	31.6
Actuated g/C Ratio	0.04	0.50	0.50	0.13	0.64	0.64	0.24	0.24	0.24	0.24	0.24	0.24
v/c Ratio	0.03	1.01	0.09	1.03	0.75	0.07	1.02	0.32	0.72	0.34	0.68	0.03
Control Delay	60.8	53.0	1.6	108.2	11.6	2.7	150.2	41.6	31.8	45.7	49.4	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	60.8	53.0	1.6	108.2	11.6	2.7	150.2	41.6	31.8	45.7	49.4	0.1
LOS	E	D	A	F	B	A	F	D	C	D	D	A
Approach Delay		51.6			26.6			50.2			48.1	
Approach LOS		D			C			D			D	
Queue Length 50th (m)	0.5	~249.9	0.0	~71.0	90.0	1.5	~25.5	31.7	49.3	17.9	76.2	0.0
Queue Length 95th (m)	2.6	#290.1	4.2	#106.8	163.9	m4.0	#63.1	45.1	87.8	34.0	97.3	0.0
Internal Link Dist (m)		409.0			175.8			303.6			253.5	
Turn Bay Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Base Capacity (vph)	132	2502	836	448	3211	977	90	851	519	233	860	460
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	0.03	1.01	0.09	1.03	0.75	0.07	1.02	0.32	0.72	0.34	0.68	0.03

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 40.6		Intersection LOS: D	
Intersection Capacity Utilization 103.8%		ICU Level of Service G	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

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



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2173	260	6	2170	388	4
Future Volume (vph)	2173	260	6	2170	388	4
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)	3539	1583	1770	3539	1770	1583
Flt Permitted			0.046		0.950	
Satd. Flow (perm)	3539	1583	86	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		87				4
Link Speed (k/h)	60			60	60	
Link Distance (m)	181.0			591.4	410.6	
Travel Time (s)	10.9			35.5	24.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2362	283	7	2359	422	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2362	283	7	2359	422	4
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	2			6		
Permitted Phases		2	6		8	8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	33.1	33.1	33.1	33.1	39.5	39.5
Total Split (s)	90.5	90.5	90.5	90.5	39.5	39.5
Total Split (%)	69.6%	69.6%	69.6%	69.6%	30.4%	30.4%
Maximum Green (s)	85.4	85.4	85.4	85.4	34.0	34.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.4	1.4	1.4	1.4	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	27.0	27.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	86.4	86.4	86.4	86.4	33.0	33.0
Actuated g/C Ratio	0.66	0.66	0.66	0.66	0.25	0.25
v/c Ratio	1.00	0.26	0.12	1.00	0.94	0.01
Control Delay	26.6	0.9	14.3	41.5	77.8	22.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.6	0.9	14.3	41.5	77.8	22.0
LOS	C	A	B	D	E	C
Approach Delay	23.8			41.4	77.3	
Approach LOS	C			D	E	
Queue Length 50th (m)	~363.2	0.0	0.7	~334.0	110.8	0.0
Queue Length 95th (m)	#390.3	0.0	3.4	#394.6	#172.9	3.0
Internal Link Dist (m)	157.0			567.4	386.6	
Turn Bay Length (m)		30.0	30.0		30.0	
Base Capacity (vph)	2352	1081	57	2352	462	416
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.00	0.26	0.12	1.00	0.91	0.01

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 35.7	Intersection LOS: D
Intersection Capacity Utilization 90.4%	ICU Level of Service E
Analysis Period (min) 15	

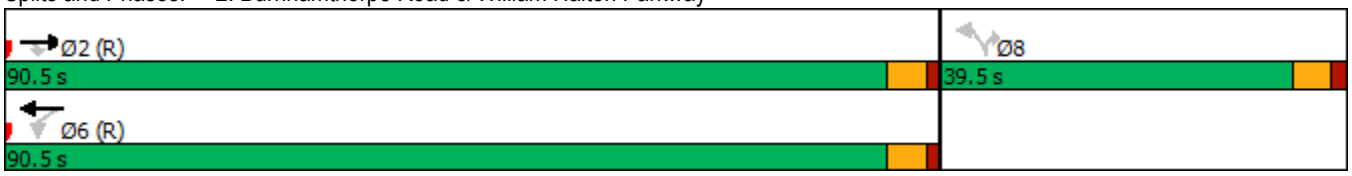
~ Volume exceeds capacity, queue is theoretically infinite.

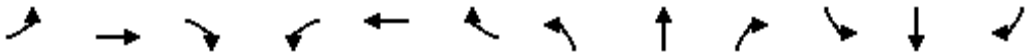
Queue shown is maximum after two cycles.

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

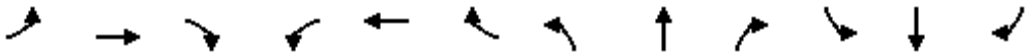
Queue shown is maximum after two cycles.

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





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	105	35	202	228	157	54	493	144	42	470	90
Future Volume (vph)	31	105	35	202	228	157	54	493	144	42	470	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	30.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			25.0			50.0			50.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		1.00		1.00								
Frt		0.962			0.939			0.966			0.976	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3394	0	1770	3323	0	1641	3419	0	1736	3454	0
Flt Permitted	0.507			0.460			0.400			0.359		
Satd. Flow (perm)	944	3394	0	856	3323	0	691	3419	0	656	3454	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		38			171			44			25	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		510.4			161.7			507.3			449.2	
Travel Time (s)		30.6			9.7			30.4			27.0	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	10%	2%	2%	4%	2%	2%
Adj. Flow (vph)	34	114	38	220	248	171	59	536	157	46	511	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	152	0	220	419	0	59	693	0	46	609	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

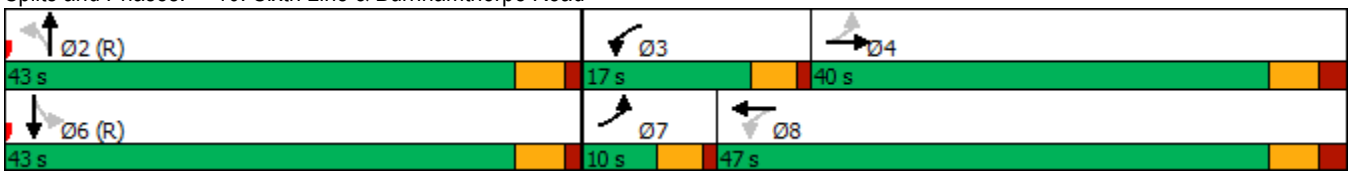


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	40.0		9.5	40.0		33.1	33.1		33.1	33.1	
Total Split (s)	10.0	40.0		17.0	47.0		43.0	43.0		43.0	43.0	
Total Split (%)	10.0%	40.0%		17.0%	47.0%		43.0%	43.0%		43.0%	43.0%	
Maximum Green (s)	5.5	34.0		12.5	41.0		37.9	37.9		37.9	37.9	
Yellow Time (s)	3.5	3.7		3.5	3.7		3.7	3.7		3.7	3.7	
All-Red Time (s)	1.0	2.3		1.0	2.3		1.4	1.4		1.4	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	6.0		4.5	6.0		5.1	5.1		5.1	5.1	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		27.0			27.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	15.8	8.8		26.9	19.4		63.5	63.5		63.5	63.5	
Actuated g/C Ratio	0.16	0.09		0.27	0.19		0.64	0.64		0.64	0.64	
v/c Ratio	0.18	0.46		0.65	0.54		0.13	0.32		0.11	0.28	
Control Delay	28.9	36.4		39.7	24.3		9.0	8.5		8.8	8.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	28.9	36.4		39.7	24.3		9.0	8.5		8.8	8.4	
LOS	C	D		D	C		A	A		A	A	
Approach Delay		35.0			29.6			8.5			8.4	
Approach LOS		C			C			A			A	
Queue Length 50th (m)	5.2	11.7		37.3	24.5		4.4	29.0		3.4	25.3	
Queue Length 95th (m)	12.4	21.4		57.4	39.7		11.1	42.4		9.1	37.4	
Internal Link Dist (m)		486.4			137.7			483.3			425.2	
Turn Bay Length (m)	55.0			30.0			30.0			30.0		
Base Capacity (vph)	194	1179		344	1463		439	2187		416	2202	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.18	0.13		0.64	0.29		0.13	0.32		0.11	0.28	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 85	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 16.7	Intersection LOS: B

Intersection Capacity Utilization 55.8% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 10: Sixth Line & Burnhamthorpe Road



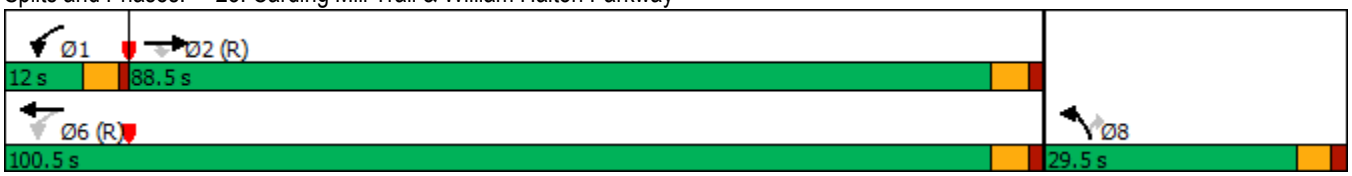
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2648	88	88	2657	36	63
Future Volume (vph)	2648	88	88	2657	36	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		25.0	45.0		55.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			15.0		7.5	
Lane Util. Factor	0.91	1.00	1.00	0.91	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	5085	1583	1770	5085	1770	1583
Flt Permitted			0.038		0.950	
Satd. Flow (perm)	5085	1583	71	5085	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		29				68
Link Speed (k/h)	60			60	50	
Link Distance (m)	375.9			92.9	375.9	
Travel Time (s)	22.6			5.6	27.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2878	96	96	2888	39	68
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2878	96	96	2888	39	68
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		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	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2	6			8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.6	22.6	9.5	22.6	29.5	29.5
Total Split (s)	88.5	88.5	12.0	100.5	29.5	29.5
Total Split (%)	68.1%	68.1%	9.2%	77.3%	22.7%	22.7%
Maximum Green (s)	83.4	83.4	7.5	95.4	24.5	24.5
Yellow Time (s)	3.7	3.7	3.5	3.7	3.3	3.3
All-Red Time (s)	1.4	1.4	1.0	1.4	1.7	1.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	4.5	5.1	5.0	5.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	10.5	10.5		10.5	17.5	17.5
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	100.9	100.9	114.3	114.7	8.3	8.3
Actuated g/C Ratio	0.78	0.78	0.88	0.88	0.06	0.06
v/c Ratio	0.73	0.08	0.56	0.64	0.35	0.41
Control Delay	17.9	3.0	25.6	3.0	65.8	20.6
Queue Delay	0.1	0.0	0.0	0.1	0.0	0.0
Total Delay	18.1	3.0	25.6	3.2	65.8	20.6
LOS	B	A	C	A	E	C
Approach Delay	17.6			3.9	37.1	
Approach LOS	B			A	D	
Queue Length 50th (m)	291.1	4.1	11.9	62.1	10.3	0.0
Queue Length 95th (m)	m292.0	m7.3	m14.0	m68.7	22.1	14.8
Internal Link Dist (m)	351.9			68.9	351.9	
Turn Bay Length (m)		25.0	45.0		55.0	
Base Capacity (vph)	3945	1235	179	4486	333	353
Starvation Cap Reductn	0	0	0	506	0	0
Spillback Cap Reductn	252	0	0	0	0	3
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.08	0.54	0.73	0.12	0.19

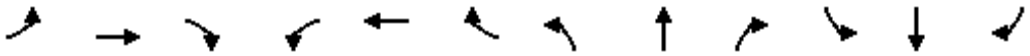
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 11.2		Intersection LOS: B	
Intersection Capacity Utilization 72.4%		ICU Level of Service C	
Analysis Period (min) 15			

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

Splits and Phases: 23: Carding Mill Trail & William Halton Parkway



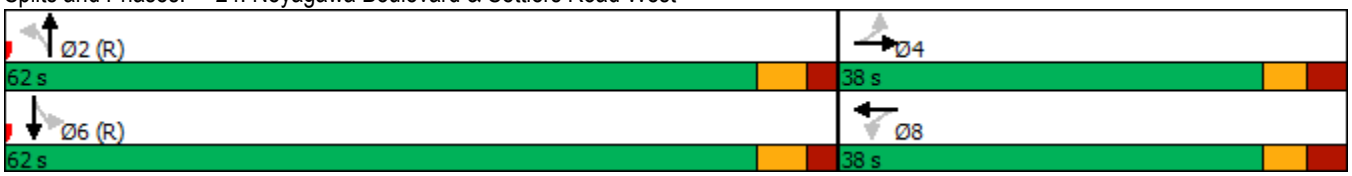
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	0	14	94	0	45	28	581	145	71	931	2
Future Volume (vph)	2	0	14	94	0	45	28	581	145	71	931	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	40.0		0.0	70.0		0.0	80.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			7.5			40.0			40.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.850			0.850			0.973				
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1583	0	1770	1583	0	1770	3444	0	1770	3539	0
Flt Permitted	0.725			0.746			0.231			0.318		
Satd. Flow (perm)	1350	1583	0	1390	1583	0	430	3444	0	592	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		73			208			43				
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		242.4			665.7			254.4			327.6	
Travel Time (s)		17.5			47.9			15.3			19.7	
Peak Hour Factor	0.82	0.92	0.82	0.92	0.92	0.92	0.82	0.82	0.92	0.92	0.82	0.82
Adj. Flow (vph)	2	0	17	102	0	49	34	709	158	77	1135	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	17	0	102	49	0	34	867	0	77	1137	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		

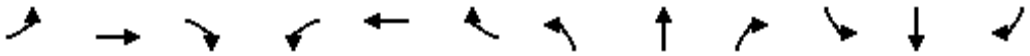


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	36.4	36.4		36.4	36.4		29.0	29.0		29.0	29.0	
Total Split (s)	38.0	38.0		38.0	38.0		62.0	62.0		62.0	62.0	
Total Split (%)	38.0%	38.0%		38.0%	38.0%		62.0%	62.0%		62.0%	62.0%	
Maximum Green (s)	31.6	31.6		31.6	31.6		56.0	56.0		56.0	56.0	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.1	3.1		3.1	3.1		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		0.2	0.2		0.2	0.2	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	23.0	23.0		23.0	23.0		16.0	16.0		16.0	16.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	13.3	13.3		13.3	13.3		78.8	78.8		78.8	78.8	
Actuated g/C Ratio	0.13	0.13		0.13	0.13		0.79	0.79		0.79	0.79	
v/c Ratio	0.01	0.06		0.55	0.13		0.10	0.32		0.17	0.41	
Control Delay	35.0	0.4		51.4	0.7		5.2	4.4		5.4	5.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	35.0	0.4		51.4	0.7		5.2	4.4		5.4	5.2	
LOS	C	A		D	A		A	A		A	A	
Approach Delay		4.1			35.0			4.4			5.2	
Approach LOS		A			C			A			A	
Queue Length 50th (m)	0.4	0.0		19.9	0.0		1.6	24.2		3.8	37.4	
Queue Length 95th (m)	2.2	0.0		35.3	0.0		5.0	35.7		10.8	52.9	
Internal Link Dist (m)		218.4			641.7			230.4			303.6	
Turn Bay Length (m)	40.0			40.0			70.0			80.0		
Base Capacity (vph)	426	550		439	642		338	2723		466	2788	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.00	0.03		0.23	0.08		0.10	0.32		0.17	0.41	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 80 (80%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay: 6.9		Intersection LOS: A	
Intersection Capacity Utilization 65.5%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 24: Neyagawa Boulevard & Settlers Road West





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	15	0	0	27	9	9	9	0	15	15	42
Future Volume (vph)	59	15	0	0	27	9	9	9	0	15	15	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.965						0.920	
Flt Protected		0.962						0.976			0.990	
Satd. Flow (prot)	0	1792	0	0	1798	0	0	1818	0	0	1697	0
Flt Permitted		0.962						0.976			0.990	
Satd. Flow (perm)	0	1792	0	0	1798	0	0	1818	0	0	1697	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		665.7			142.8			193.2			375.9	
Travel Time (s)		47.9			10.3			13.9			27.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	64	16	0	0	29	10	10	10	0	16	16	46
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	80	0	0	39	0	0	20	0	0	78	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 21.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

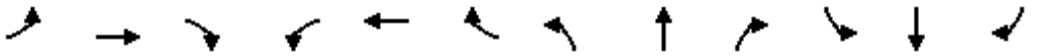
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	59	15	0	0	27	9	9	9	0	15	15	42
Future Vol, veh/h	59	15	0	0	27	9	9	9	0	15	15	42
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	64	16	0	0	29	10	10	10	0	16	16	46
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.8	7.3	7.5	7.3
HCM LOS	A	A	A	A

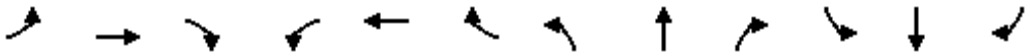
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	50%	80%	0%	21%
Vol Thru, %	50%	20%	75%	21%
Vol Right, %	0%	0%	25%	58%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	18	74	36	72
LT Vol	9	59	0	15
Through Vol	9	15	27	15
RT Vol	0	0	9	42
Lane Flow Rate	20	80	39	78
Geometry Grp	1	1	1	1
Degree of Util (X)	0.023	0.096	0.044	0.084
Departure Headway (Hd)	4.302	4.294	4.015	3.846
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	822	831	884	920
Service Time	2.381	2.341	2.077	1.917
HCM Lane V/C Ratio	0.024	0.096	0.044	0.085
HCM Control Delay	7.5	7.8	7.3	7.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.3	0.1	0.3

Appendix S

2031 Total Future Conditions Sensitivity Analysis



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	1880	170	130	1763	43	264	684	106	57	291	73
Future Volume (vph)	50	1880	170	130	1763	43	264	684	106	57	291	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	3406	1509	1770	3374	1583	1719	3539	1599	1597	3438	1568
Flt Permitted	0.052			0.050			0.436			0.226		
Satd. Flow (perm)	96	3406	1509	93	3374	1583	789	3539	1599	380	3438	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			107			73			73			79
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		433.0			199.8			161.7			277.5	
Travel Time (s)		26.0			12.0			9.7			16.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	6%	7%	2%	7%	2%	5%	2%	1%	13%	5%	3%
Adj. Flow (vph)	54	2043	185	141	1916	47	287	743	115	62	316	79
Shared Lane Traffic (%)												
Lane Group Flow (vph)	54	2043	185	141	1916	47	287	743	115	62	316	79
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8		5	2			6	



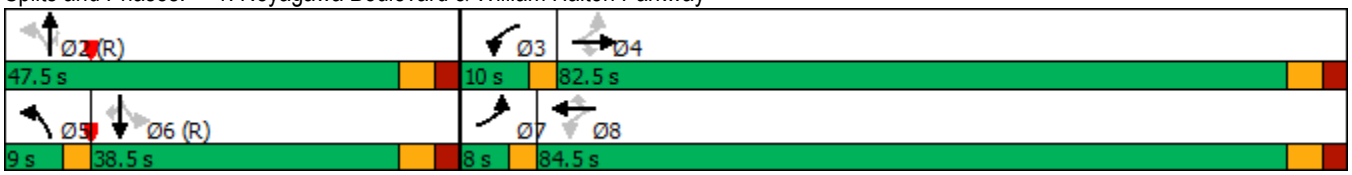
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	7.0	10.0	10.0	5.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	8.0	40.4	40.4	10.0	40.4	40.4	8.0	37.4	37.4	37.4	37.4	37.4
Total Split (s)	8.0	82.5	82.5	10.0	84.5	84.5	9.0	47.5	47.5	38.5	38.5	38.5
Total Split (%)	5.7%	58.9%	58.9%	7.1%	60.4%	60.4%	6.4%	33.9%	33.9%	27.5%	27.5%	27.5%
Maximum Green (s)	5.0	76.1	76.1	7.0	78.1	78.1	6.0	41.1	41.1	32.1	32.1	32.1
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	0.0	2.7	2.7	0.0	2.7	2.7	0.0	2.7	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	6.4	6.4	3.0	6.4	6.4	3.0	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	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	0.2	0.2	0.2	0.2	0.2
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		27.0	27.0		27.0	27.0		24.0	24.0	24.0	24.0	24.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0	0	0	0
Act Effct Green (s)	84.5	76.1	76.1	88.7	79.7	79.7	44.5	41.1	41.1	32.1	32.1	32.1
Actuated g/C Ratio	0.60	0.54	0.54	0.63	0.57	0.57	0.32	0.29	0.29	0.23	0.23	0.23
v/c Ratio	0.46	1.10	0.21	0.99	1.00	0.05	0.99	0.72	0.22	0.71	0.40	0.19
Control Delay	25.2	86.7	7.5	104.4	50.3	1.2	95.3	48.8	16.3	91.4	47.6	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.2	86.7	7.5	104.4	50.3	1.2	95.3	48.8	16.3	91.4	47.6	9.9
LOS	C	F	A	F	D	A	F	D	B	F	D	A
Approach Delay		78.8			52.8			57.2			47.0	
Approach LOS		E			D			E			D	
Queue Length 50th (m)	5.5	~355.5	10.6	25.0	~310.2	0.0	68.5	102.1	8.9	16.8	41.4	0.0
Queue Length 95th (m)	13.7	#398.5	23.4	#71.3	#353.8	2.7	#134.2	125.9	24.8	#43.2	56.7	13.9
Internal Link Dist (m)		409.0			175.8			137.7			253.5	
Turn Bay Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Base Capacity (vph)	117	1851	869	142	1921	932	290	1038	520	87	788	420
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	0.46	1.10	0.21	0.99	1.00	0.05	0.99	0.72	0.22	0.71	0.40	0.19

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.10			
Intersection Signal Delay: 63.1		Intersection LOS: E	
Intersection Capacity Utilization 109.9%		ICU Level of Service H	
Analysis Period (min) 15			

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

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

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



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2016	27	27	1883	53	93
Future Volume (vph)	2016	27	27	1883	53	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		25.0	45.0		55.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted			0.039		0.950	
Satd. Flow (perm)	3539	1583	73	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		11				20
Link Speed (k/h)	60			60	50	
Link Distance (m)	375.9			257.9	154.8	
Travel Time (s)	22.6			15.5	11.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2191	29	29	2047	58	101
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2191	29	29	2047	58	101
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6	2.0	2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases		2	6			8

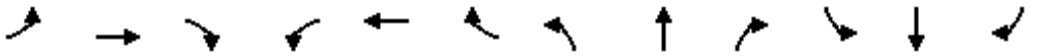
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.1	23.1	23.1	23.1	29.5	29.5
Total Split (s)	107.4	107.4	107.4	107.4	29.5	29.5
Total Split (%)	78.5%	78.5%	78.5%	78.5%	21.5%	21.5%
Maximum Green (s)	102.3	102.3	102.3	102.3	24.5	24.5
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	3.3
All-Red Time (s)	1.4	1.4	1.4	1.4	1.7	1.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	10.5	10.5	10.5	10.5	17.5	17.5
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	102.3	102.3	102.3	102.3	24.5	24.5
Actuated g/C Ratio	0.75	0.75	0.75	0.75	0.18	0.18
v/c Ratio	0.83	0.02	0.54	0.77	0.18	0.34
Control Delay	15.1	3.2	48.3	13.0	49.5	42.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.1	3.2	48.3	13.0	49.5	42.7
LOS	B	A	D	B	D	D
Approach Delay	15.0			13.5	45.2	
Approach LOS	B			B	D	
Queue Length 50th (m)	192.5	1.2	3.1	162.6	14.2	20.2
Queue Length 95th (m)	227.6	3.7	#23.5	191.6	27.8	38.6
Internal Link Dist (m)	351.9			233.9	130.8	
Turn Bay Length (m)		25.0	45.0		55.0	
Base Capacity (vph)	2644	1185	54	2644	316	299
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	0.83	0.02	0.54	0.77	0.18	0.34

Intersection Summary	
Area Type:	Other
Cycle Length: 136.9	
Actuated Cycle Length: 136.9	
Offset: 15.5 (11%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 15.3	Intersection LOS: B
Intersection Capacity Utilization 69.9%	ICU Level of Service C
Analysis Period (min) 15	

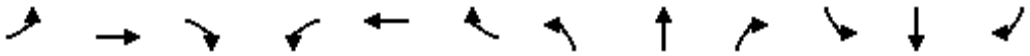
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 23: Carding Mill Trail & William Halton Parkway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	1901	66	168	1870	62	85	249	125	74	541	11
Future Volume (vph)	4	1901	66	168	1870	62	85	249	125	74	541	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	100.0			100.0			75.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3505	1583	1770	3471	1482	1752	3505	1583	1703	3539	1583
Flt Permitted	0.049			0.047			0.220			0.534		
Satd. Flow (perm)	91	3505	1583	88	3471	1482	406	3505	1583	957	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			50			55			126			50
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		433.0			199.8			161.7			277.5	
Travel Time (s)		26.0			12.0			9.7			16.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	3%	2%	2%	4%	9%	3%	3%	2%	6%	2%	2%
Adj. Flow (vph)	4	2066	72	183	2033	67	92	271	136	80	588	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	2066	72	183	2033	67	92	271	136	80	588	12
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		3	8			2			6	



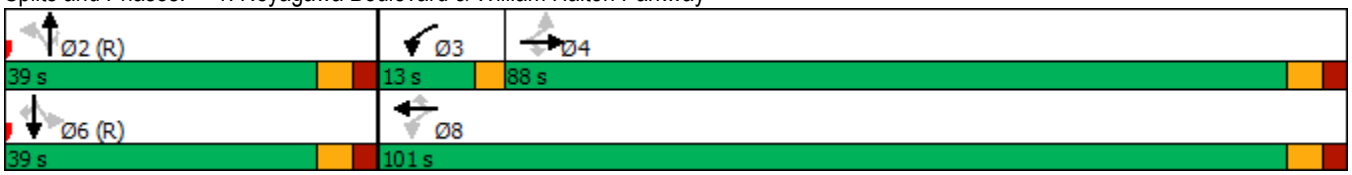
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	3	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	15.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	40.4	40.4	40.4	11.0	40.4	40.4	37.4	37.4	37.4	37.4	37.4	37.4
Total Split (s)	88.0	88.0	88.0	13.0	101.0	101.0	39.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	62.9%	62.9%	62.9%	9.3%	72.1%	72.1%	27.9%	27.9%	27.9%	27.9%	27.9%	27.9%
Maximum Green (s)	81.6	81.6	81.6	10.0	94.6	94.6	32.6	32.6	32.6	32.6	32.6	32.6
Yellow Time (s)	3.7	3.7	3.7	3.0	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.7	2.7	2.7	0.0	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4	6.4	6.4	3.0	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	0.2	0.2	0.2	0.2	0.2	0.2
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	27.0	27.0	27.0		27.0	27.0	24.0	24.0	24.0	24.0	24.0	24.0
Pedestrian Calls (#/hr)	0	0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	81.6	81.6	81.6	98.0	94.6	94.6	32.6	32.6	32.6	32.6	32.6	32.6
Actuated g/C Ratio	0.58	0.58	0.58	0.70	0.68	0.68	0.23	0.23	0.23	0.23	0.23	0.23
v/c Ratio	0.08	1.01	0.08	1.01	0.87	0.07	0.98	0.33	0.29	0.36	0.71	0.03
Control Delay	17.0	52.0	5.2	105.9	23.0	2.6	140.6	46.0	10.3	50.5	55.0	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	17.0	52.0	5.2	105.9	23.0	2.6	140.6	46.0	10.3	50.5	55.0	0.1
LOS	B	D	A	F	C	A	F	D	B	D	E	A
Approach Delay		50.4			29.1			53.7			53.5	
Approach LOS		D			C			D			D	
Queue Length 50th (m)	0.5	~317.5	2.6	~37.5	226.2	1.1	26.8	34.8	2.3	19.7	83.5	0.0
Queue Length 95th (m)	2.8	#375.3	9.7	#89.4	266.3	6.2	#65.1	48.6	20.0	37.0	105.5	0.0
Internal Link Dist (m)		409.0			175.8			137.7			253.5	
Turn Bay Length (m)	140.0		80.0	140.0		80.0	80.0		80.0	110.0		80.0
Base Capacity (vph)	53	2042	943	181	2345	1019	94	816	465	222	824	406
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	0.08	1.01	0.08	1.01	0.87	0.07	0.98	0.33	0.29	0.36	0.71	0.03

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.01			
Intersection Signal Delay: 42.4		Intersection LOS: D	
Intersection Capacity Utilization 108.8%		ICU Level of Service G	
Analysis Period (min) 15			

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

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

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



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2012	88	88	2064	36	63
Future Volume (vph)	2012	88	88	2064	36	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		25.0	45.0		55.0	0.0
Storage Lanes		1	1		1	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted			0.044		0.950	
Satd. Flow (perm)	3539	1583	82	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		28				68
Link Speed (k/h)	60			60	50	
Link Distance (m)	375.9			237.6	209.7	
Travel Time (s)	22.6			14.3	15.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2187	96	96	2243	39	68
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2187	96	96	2243	39	68
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		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	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2	6			8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.1	23.1	10.2	23.1	29.5	29.5
Total Split (s)	90.5	90.5	10.2	100.5	29.5	29.5
Total Split (%)	69.5%	69.5%	7.8%	77.2%	22.7%	22.7%
Maximum Green (s)	85.4	85.4	5.2	95.4	24.5	24.5
Yellow Time (s)	3.7	3.7	3.3	3.7	3.3	3.3
All-Red Time (s)	1.4	1.4	1.7	1.4	1.7	1.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.0	5.1	5.0	5.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	Max	Max
Walk Time (s)	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	10.5	10.5		10.5	17.5	17.5
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	85.4	85.4	95.7	95.6	24.5	24.5
Actuated g/C Ratio	0.66	0.66	0.74	0.73	0.19	0.19
v/c Ratio	0.94	0.09	0.76	0.86	0.12	0.19
Control Delay	30.1	6.0	54.5	17.2	45.1	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.1	6.0	54.5	17.2	45.1	11.5
LOS	C	A	D	B	D	B
Approach Delay	29.1			18.8	23.7	
Approach LOS	C			B	C	
Queue Length 50th (m)	260.2	6.1	9.4	205.0	8.8	0.0
Queue Length 95th (m)	#315.7	12.7	#39.5	245.9	19.5	13.1
Internal Link Dist (m)	351.9			213.6	185.7	
Turn Bay Length (m)		25.0	45.0		55.0	
Base Capacity (vph)	2321	1047	127	2598	333	353
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	0.94	0.09	0.76	0.86	0.12	0.19

Intersection Summary			
Area Type:	Other		
Cycle Length: 130.2			
Actuated Cycle Length: 130.2			
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 23.9		Intersection LOS: C	
Intersection Capacity Utilization 77.2%		ICU Level of Service D	
Analysis Period (min) 15			

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

Queue shown is maximum after two cycles.

Splits and Phases: 23: Carding Mill Trail & William Halton Parkway