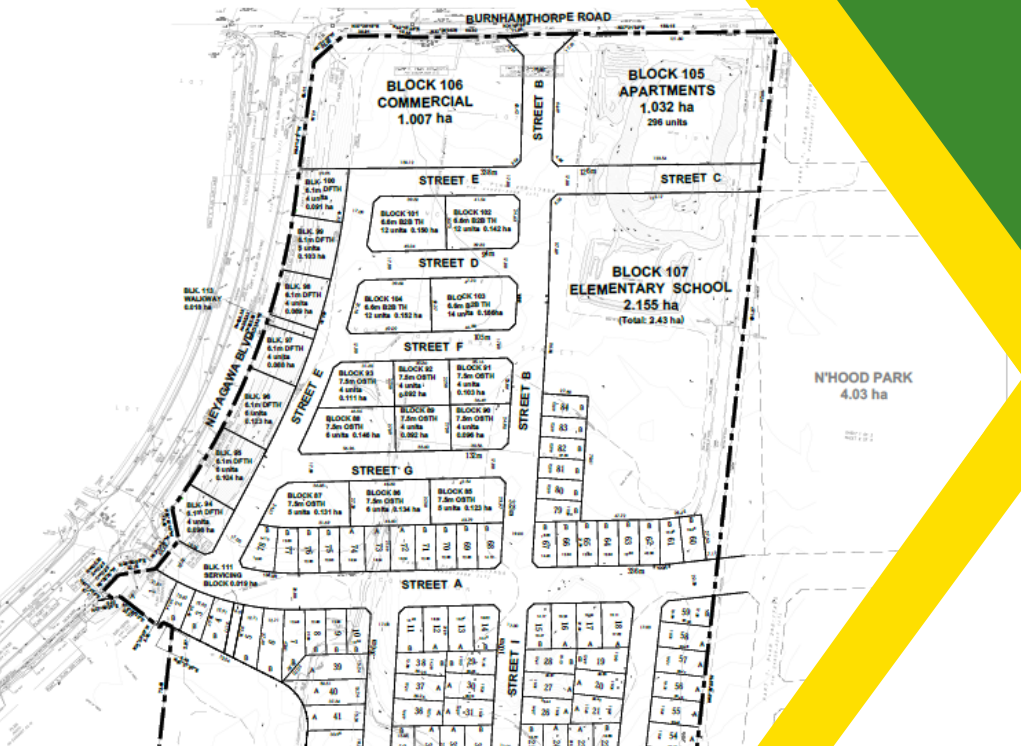


Sherborne Lodge Developments

North Oakville



Transportation Impact Study



Sherborne Lodge Transportation Impact Study

Prepared for:

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1 Introduction

This Transportation Impact Study (TIS) has been prepared to support the proposed development in North Oakville, located at the southeast corner of Burnhamthorpe Road at Neyagawa Boulevard intersection. This area is being developed by Sherborne Lodge Developments. The proposed development includes a mix of commercial, residential, and school uses. The residential component of the proposed development consists of an apartment block with anticipated 296 units, and a low-rise subdivision, which includes 84 single detached homes, and 128 townhouses. The subject property is currently a greenfield area. 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 Settlers Road West (Site Access #1), which runs east-west and connects to Neyagawa Boulevard, and Street 'B' (Site Access #2), which will run north-south and connect to Burnhamthorpe Road (future William Halton Parkway). Site Access #2 will be restricted to right in / right out only. E-mail correspondence to confirm the scope of this TIS with Halton Region is included in Appendix A.

2 Existing Conditions

2.1 Area Road Network

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 (WHP), responsibility for this roadway will transfer from the Region to the Town of Oakville. Within approximately 150 metres each way of Neyagawa Boulevard, Burnhamthorpe Road widens to four lanes and has an urban cross section with curbs and gutters.

Neyagawa Boulevard

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

Settlers Road West (Street 'A')

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 *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 3 illustrates the intersection of Neyagawa Boulevard at Burnhamthorpe Road.

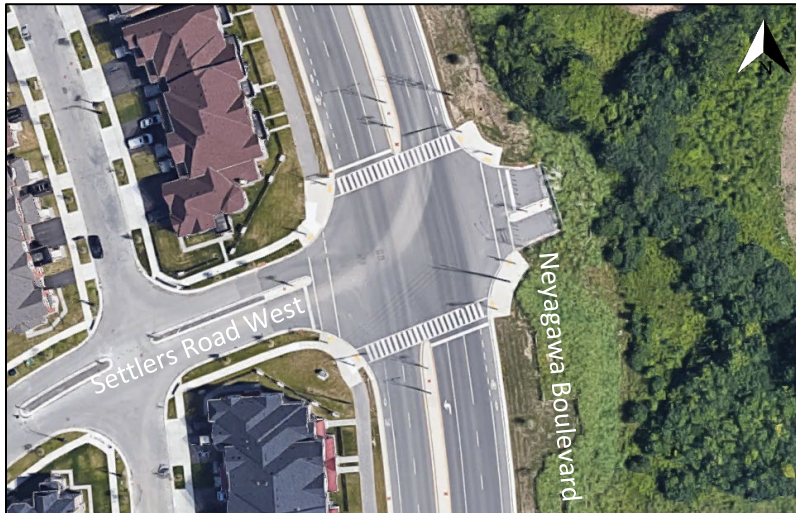
Figure 3: Intersection of Neyagawa Boulevard at Burnhamthorpe Road



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 4 illustrates the intersection of Settlers Road West at Neyagawa Boulevard.

Figure 4: 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 to the west of the proposed development, located at the south-western quadrant of Neyagawa Boulevard and Burnhamthorpe Road intersection. 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

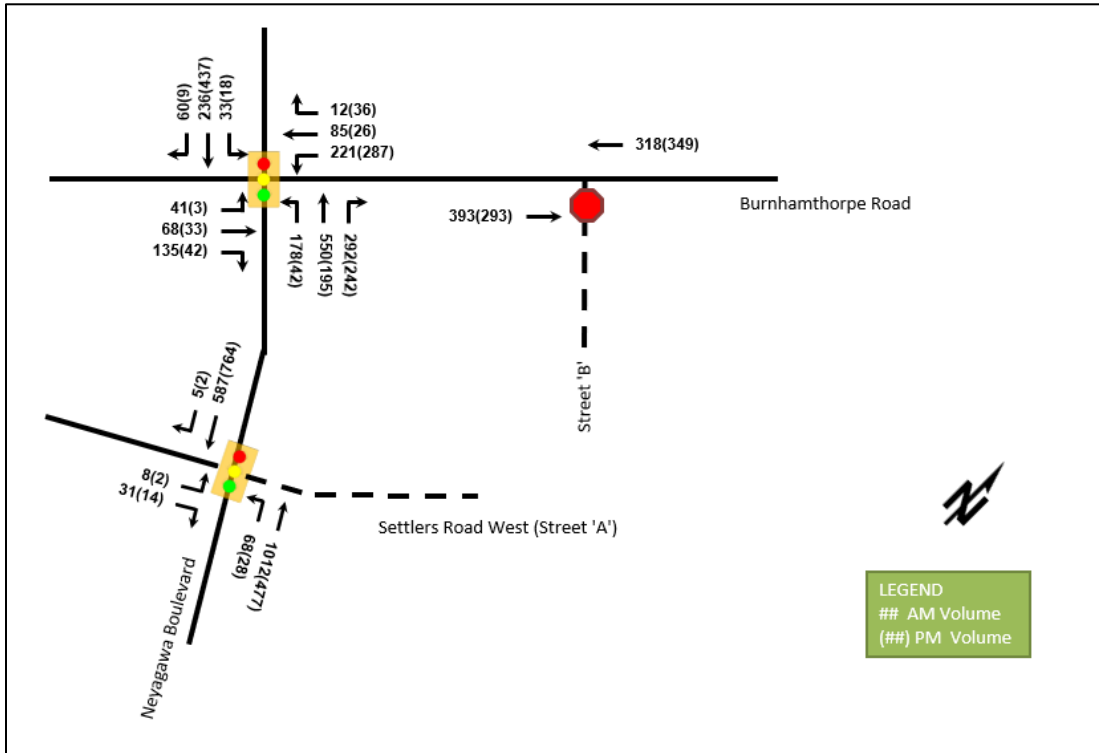
To understand the existing AM and PM peak hour traffic volumes, turning movement counts (TMC) for the Study Area intersections have been acquired from the Halton Region. As no traffic count data was available for the intersection of Settlers Road and Neyagawa Boulevard, the TMCs for this intersection 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
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 TIS of nearby sites (Neighborhood 9/10/11) prepared by CGH Transportation in 2020. 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 5. Turning movement count data is included in Appendix C.

Figure 5: 2021 Adjusted Traffic Volumes



3 Future Background Conditions

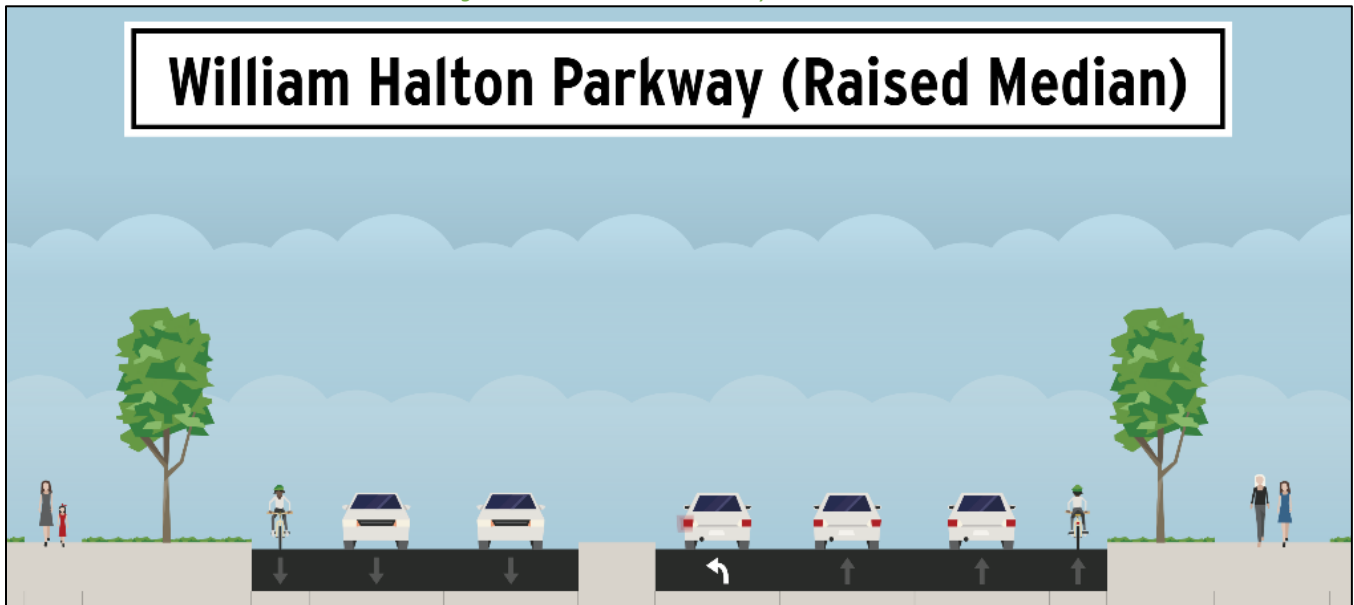
3.1 Planned Conditions

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 6, 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 6: William Halton Parkway Cross-Section



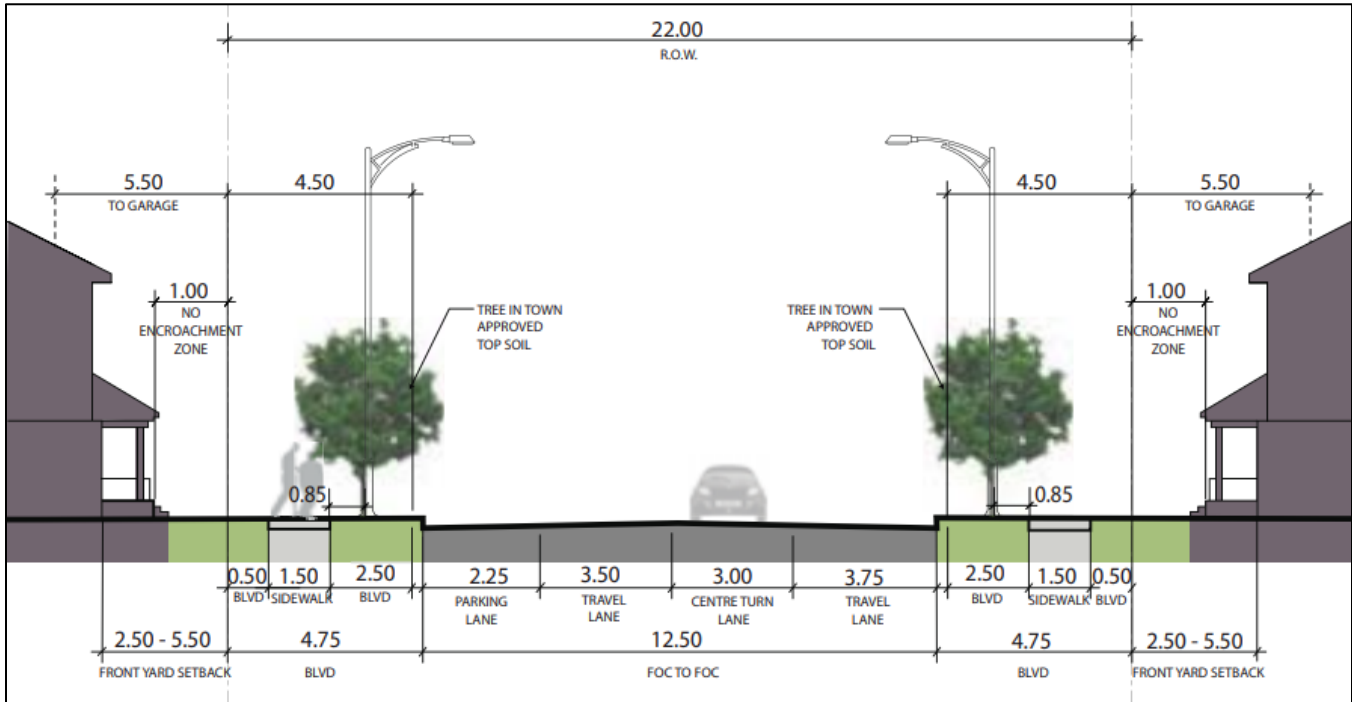
The Region of Halton has indicated that a peak hour volume of 2100 vehicles per hour in each direction should be assumed for William Halton Parkway for a neighboring site (Neighborhood 9/10/11 Landowner’s Group) TIS, prepared by CGH Transportation in 2020. The email confirming the volumes along William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

3.1.2 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 2026 future horizon. The proposed cross-section can be seen in Figure 7, 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 7: Settlers Road Cross-Section



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

3.1.3 North Oakville East Secondary Plan – Transportation Plan

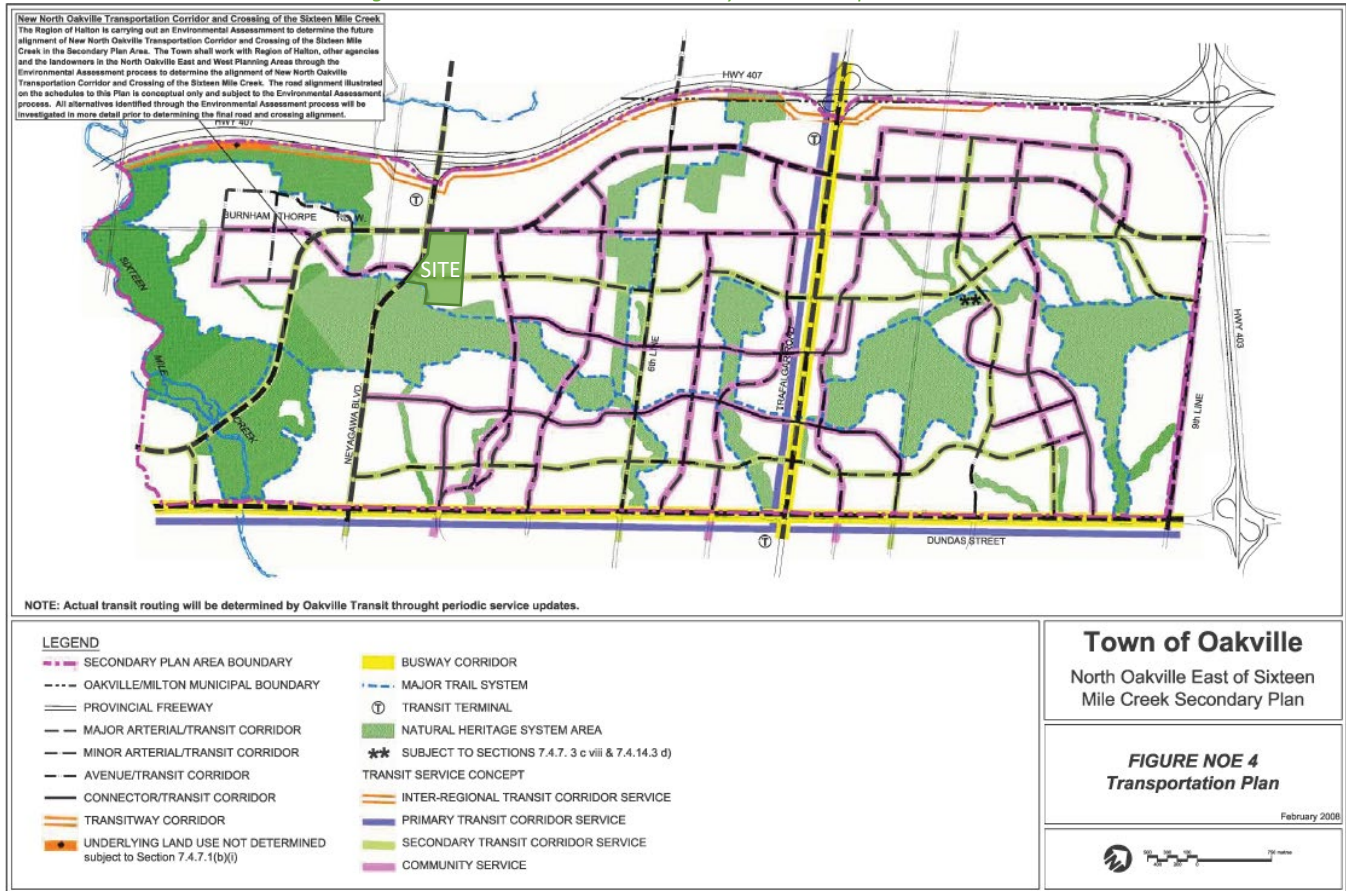
The North Oakville East Secondary Plan includes transit routes along key corridors within the proposed developments. Figure 8 illustrates the North Oakville East Secondary Plan Transportation Plan. Within the Study Area the following roads are noted as Secondary Transit Corridor Service:

- Neyagawa Boulevard
- Settler’s Road

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

- William Halton Parkway
- Burnhamthorpe Road

Figure 8: North Oakville East Secondary Plan - Transportation Plan



3.1.4 Other Study Area Developments

South of 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:

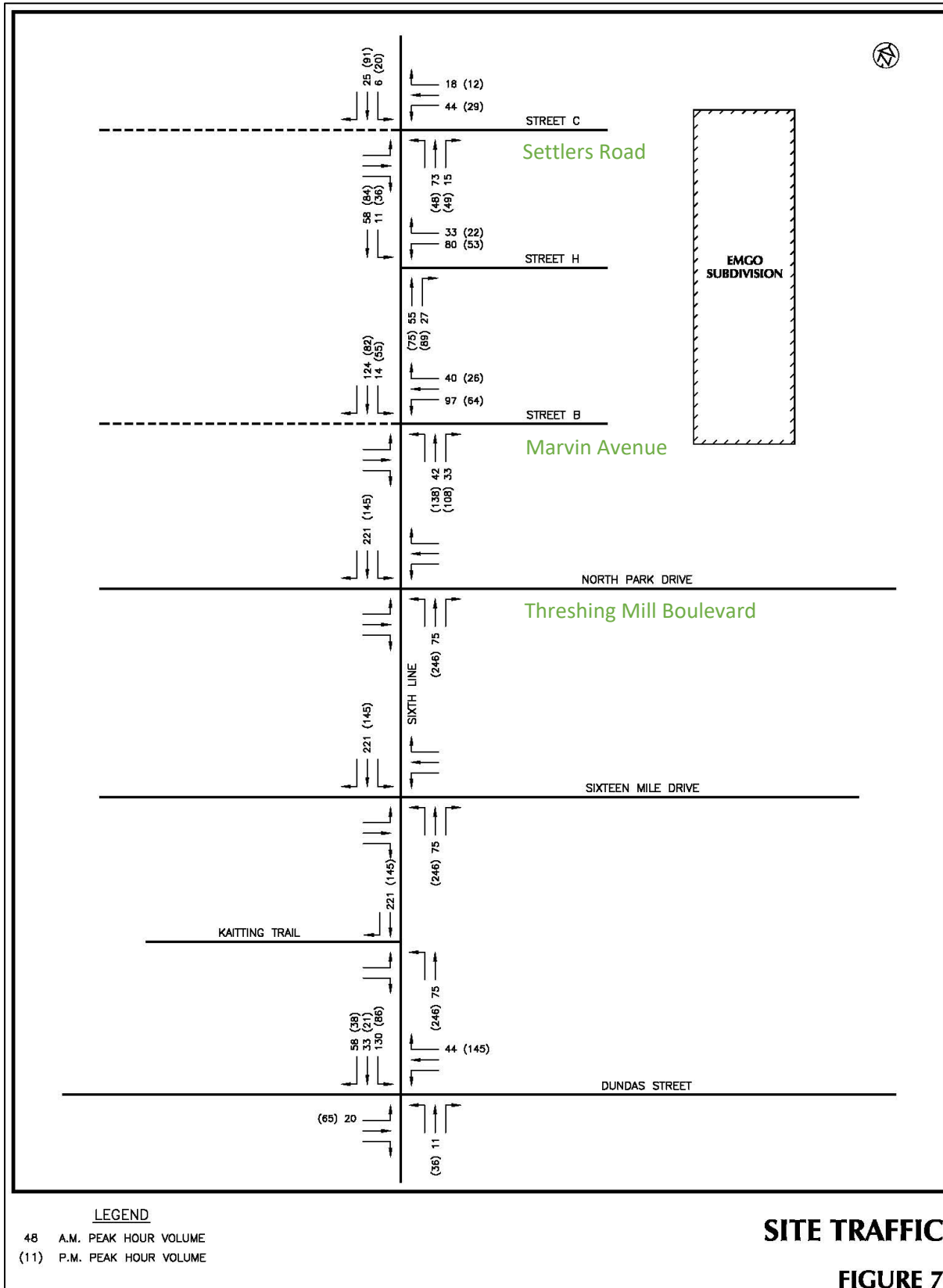
- EMGO North Oakville
- Petgor
- Sixth Line Corporation (NE Corner of Sixth Line at Dundas Street)
- Star Oak (NE Corner of Burnhamthorpe Road at Sixth Line)
- Landowner’s Group Neighborhood 9/10/11
- Remington Eno

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

3.1.4.1 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 9, commentary in green has been added to denote the updated name of the streets for ease of reference.

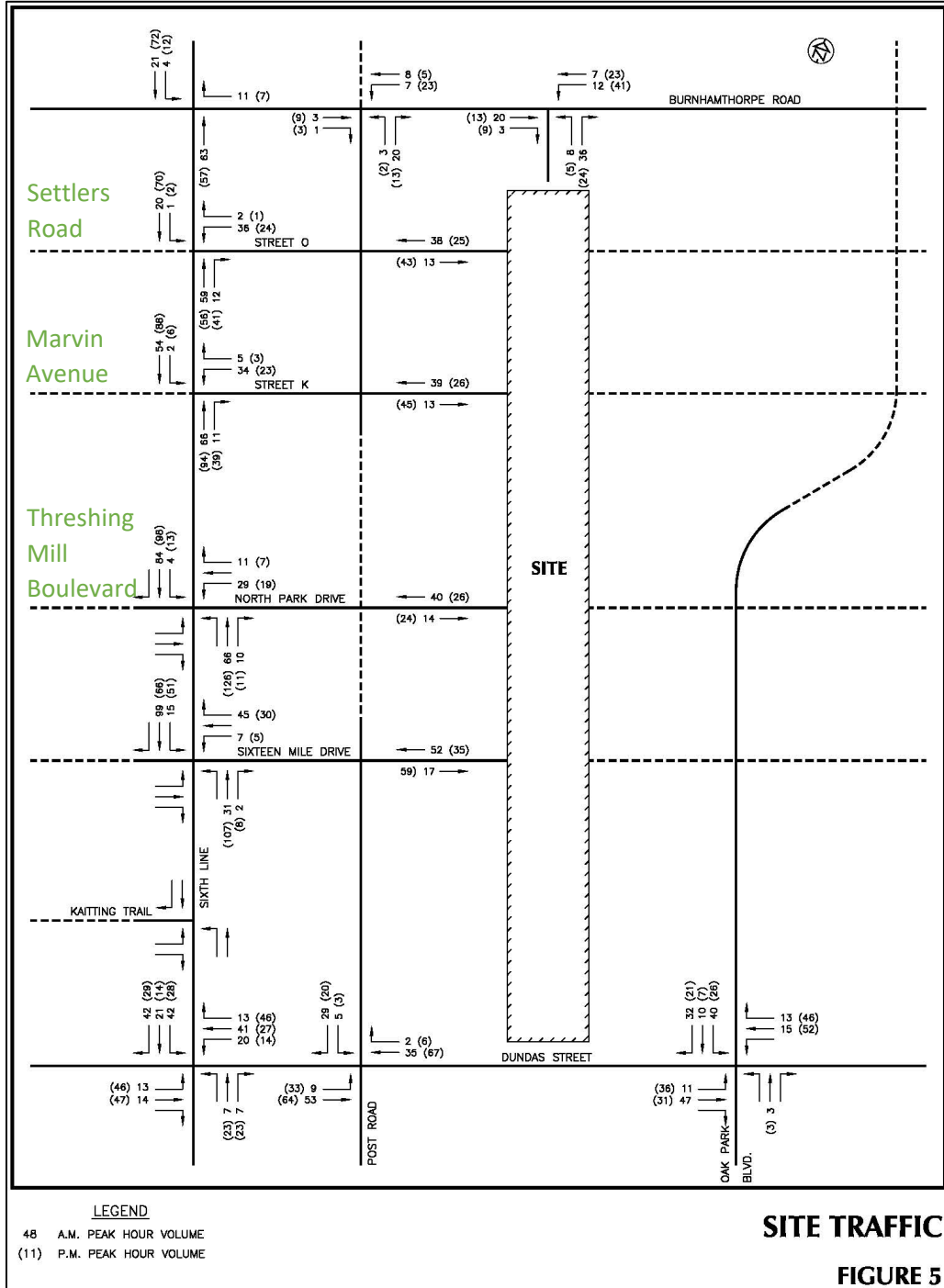
Figure 9: EMGO Site Generated Traffic



3.1.4.2 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 10, commentary in green has been added to denote the updated name of the streets for ease of reference.

Figure 10: Petgor Site Generated Traffic

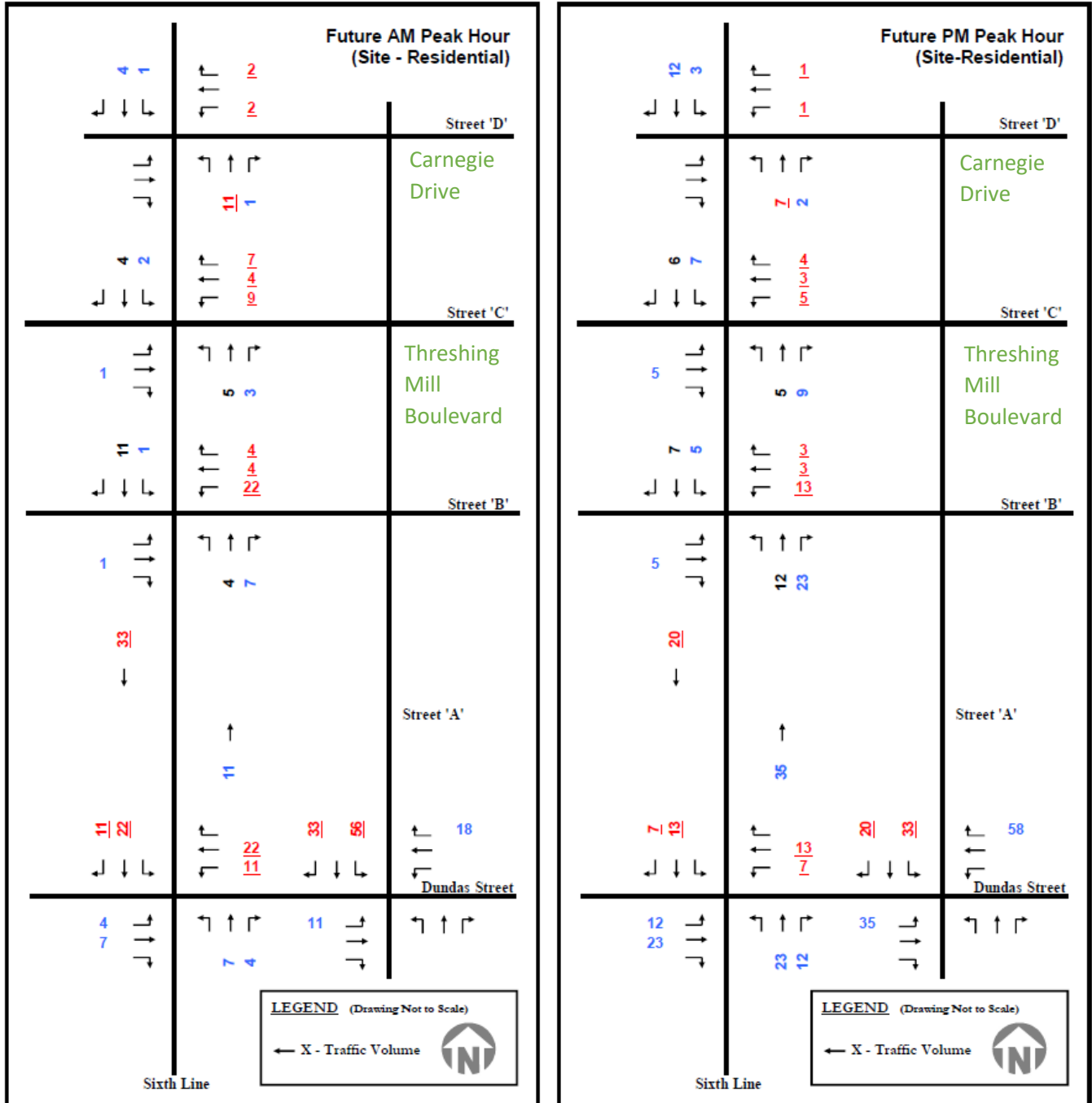


Reference: Traffic Impact Study Petgor Draft Plan North Oakville; Reed, Voorhees & Associates; December 2012

3.1.4.3 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 11, commentary in green has been added to denote the updated name of the streets for ease of reference.

Figure 11: Sixth Line Corporation Site Generated Traffic

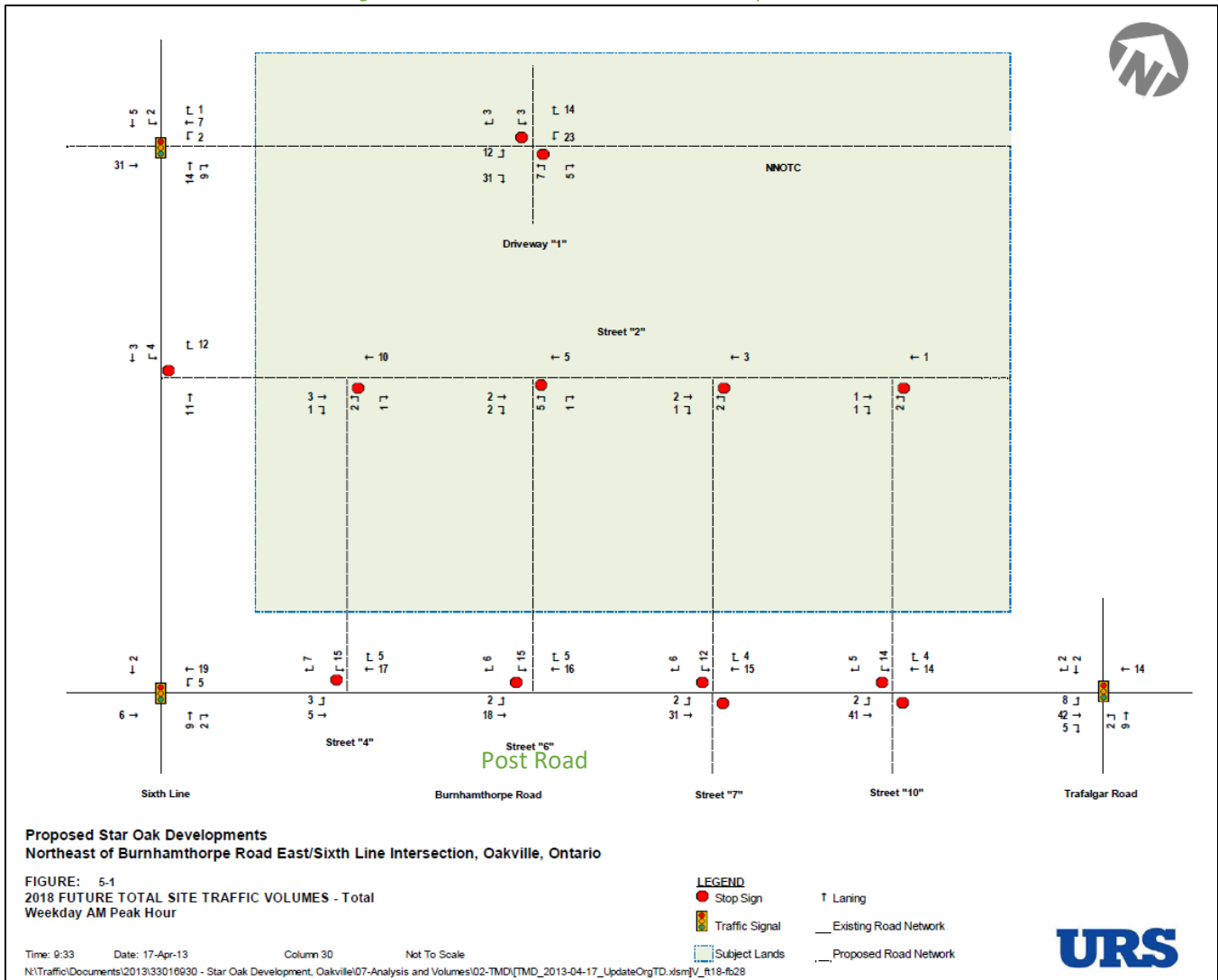


Reference: Traffic Impact Study Sixth Line Development Town of Oakville; URS Canada; November 2012

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

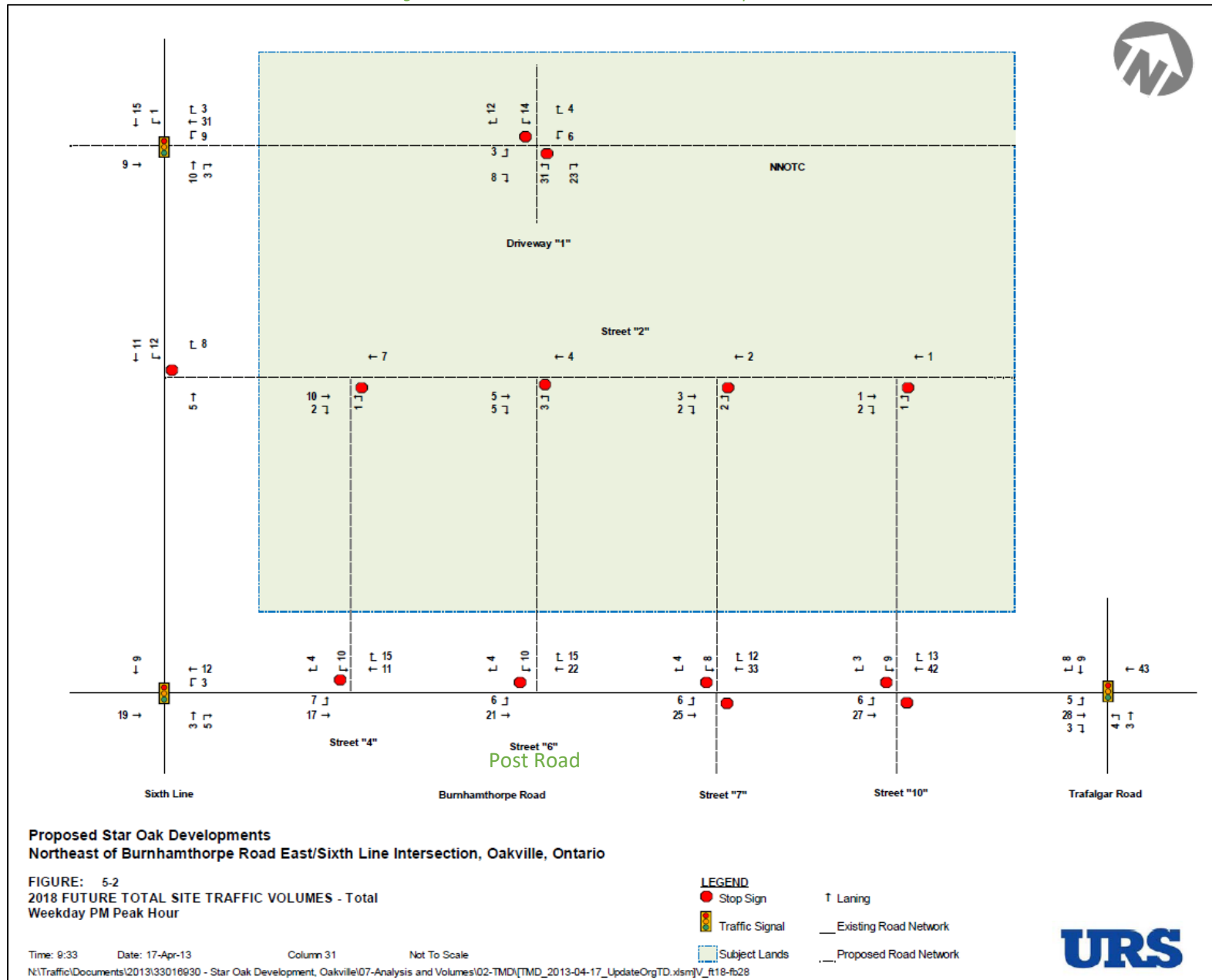
The Star Oak development is located at the northeast quadrant of Burnhamthorpe Road at Sixth Line. This development includes 217 residential units with a mix of detached single-family units, and townhouse type units and 154,000 square metres of employment uses. The residential portion of the development is anticipated to be completed prior to the 2026 horizon of this study. The employment uses are not anticipated to be completed until 2028, prior to the 2031 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 12 and Figure 13 for the residential portion of the development. Figure 14 and Figure 15 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 12: Star Oak 2018 AM Peak Hour Site Trip Generation



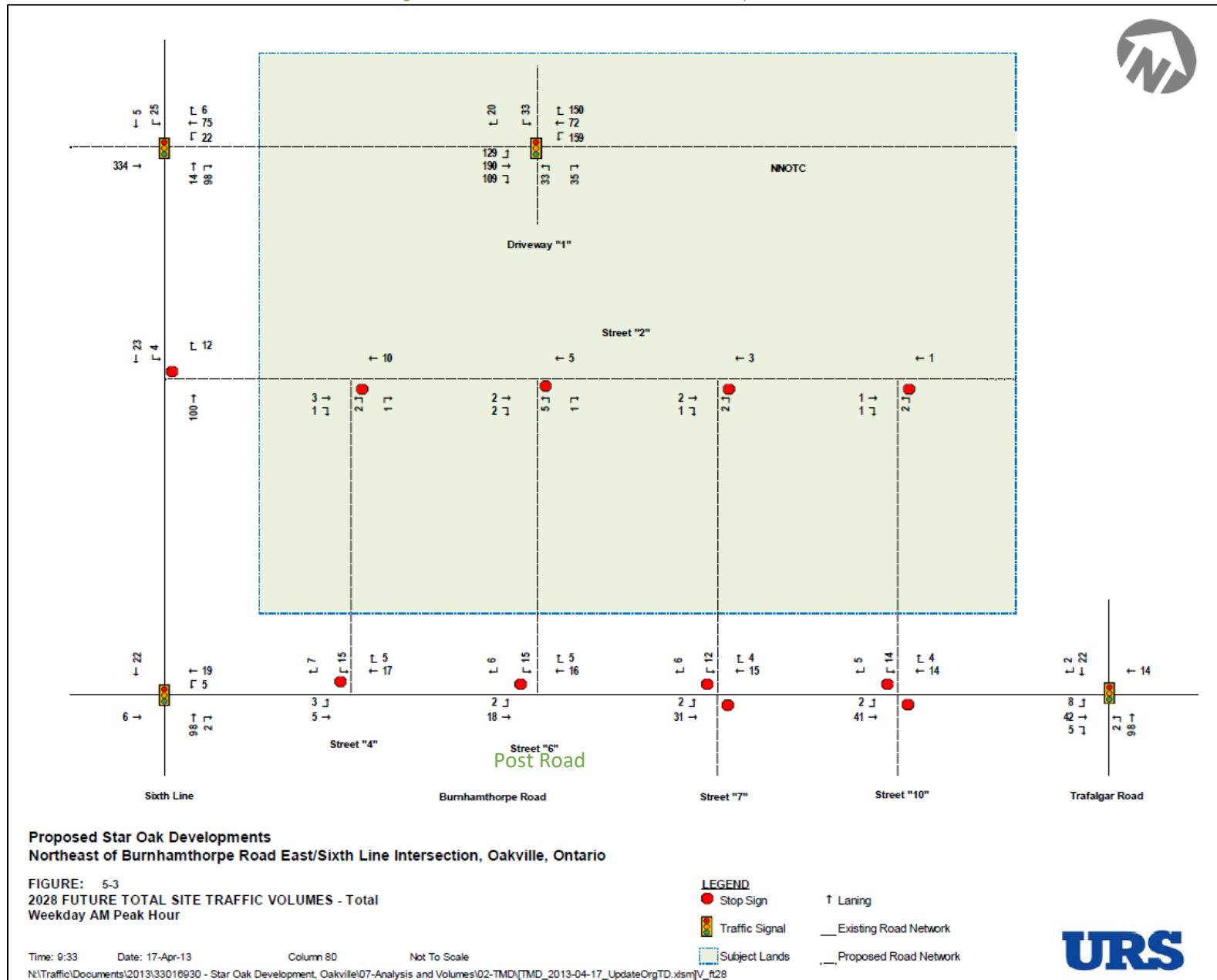
Reference: Traffic Impact Study Star Oak Developments Town of Oakville; URS Canada; April 2013

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



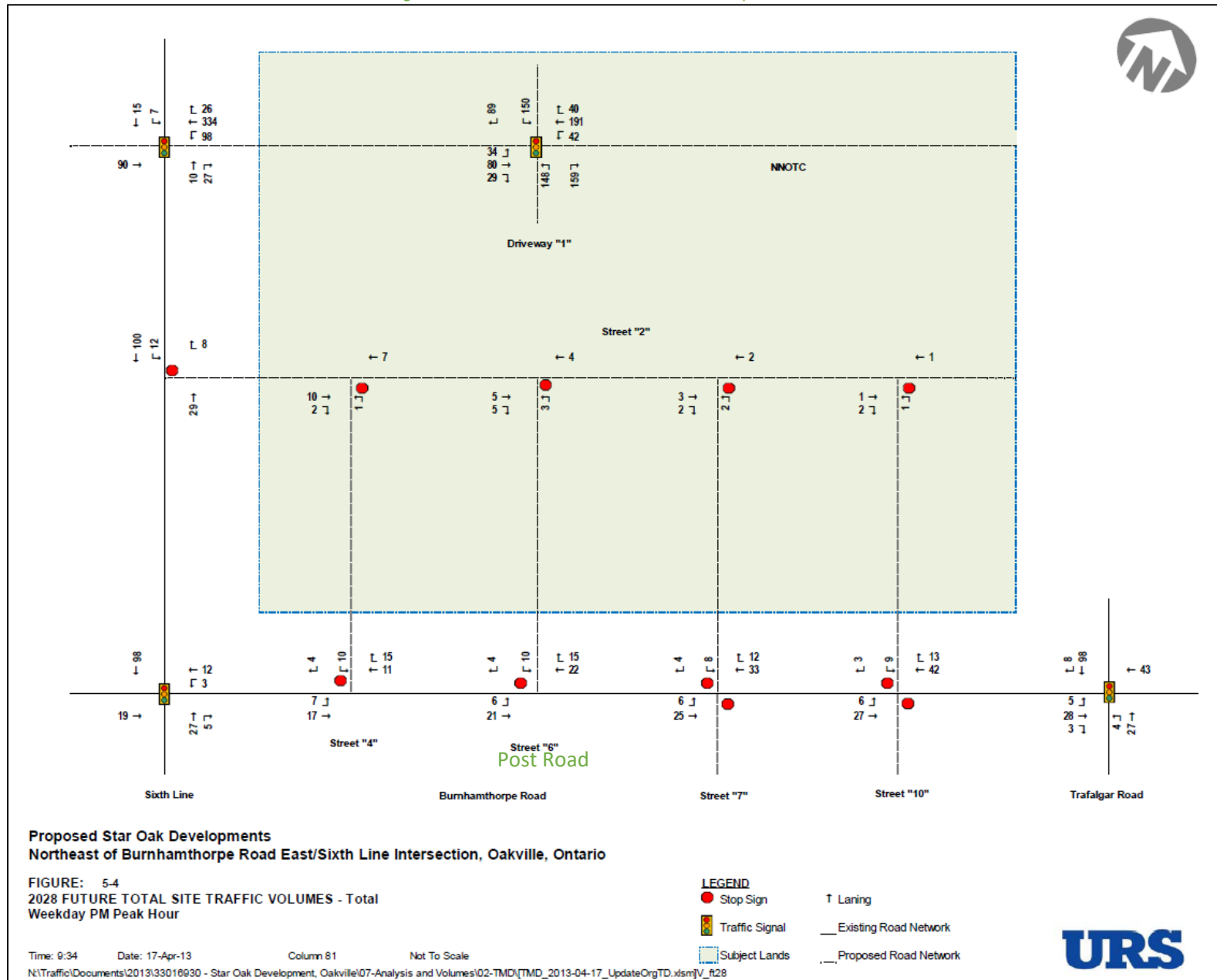
Reference: Traffic Impact Study Star Oak Developments Town of Oakville; URS Canada; April 2013

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



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

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



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

3.1.4.5 Landowner's Group Neighborhood 9/10/11

Neighborhoods 9/10/11 of North Oakville are being developed by a landowners group. 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 generations are illustrated through the Study Area intersections in Figure 16 and Figure 17 respectively. The original traffic generation figures from the Landowner's Group Neighborhood 9/10/11 TIS can be seen in Appendix E.

Figure 16: Neighborhood 9/10/11 2024 Site Trip Generation

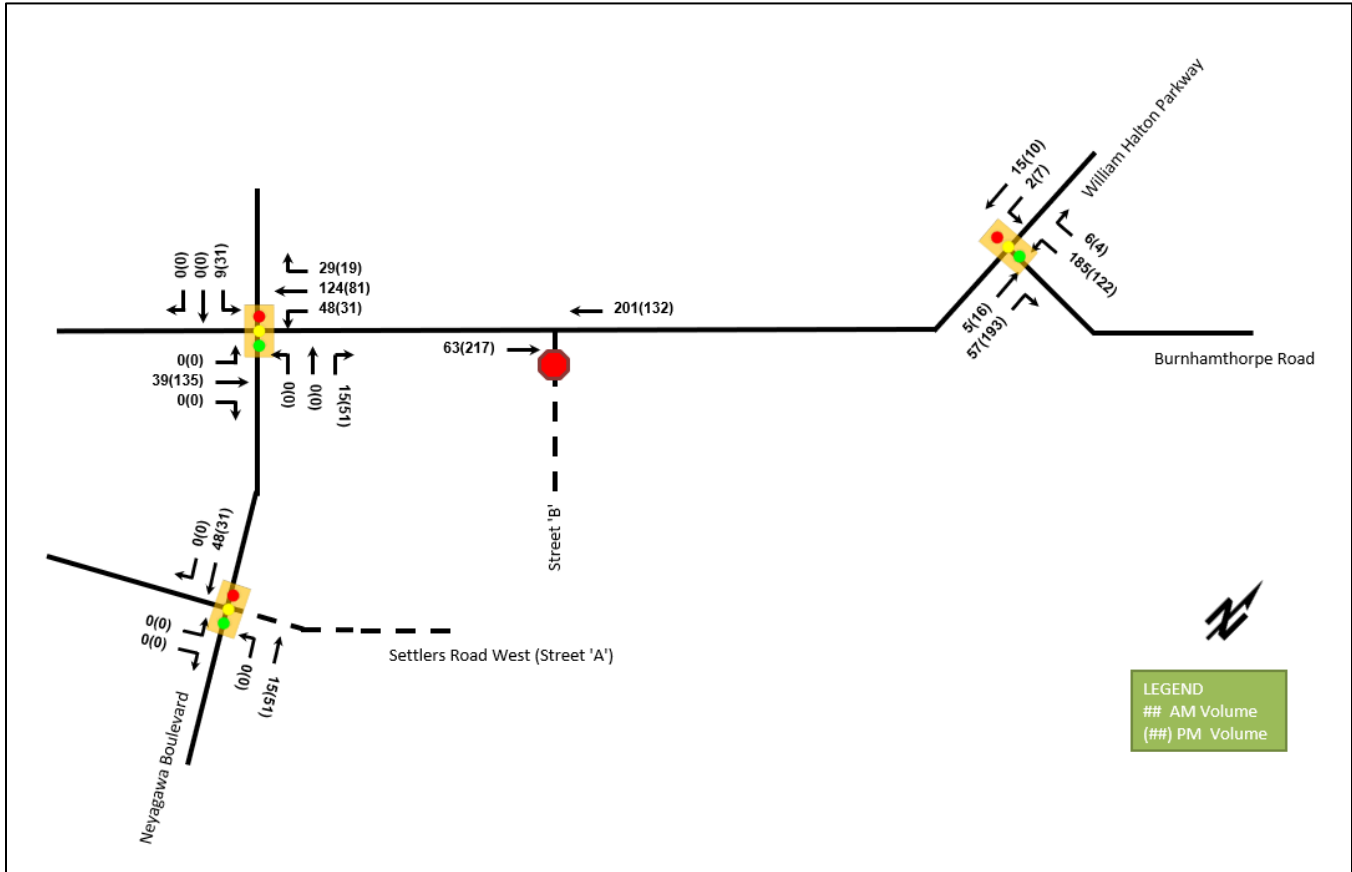
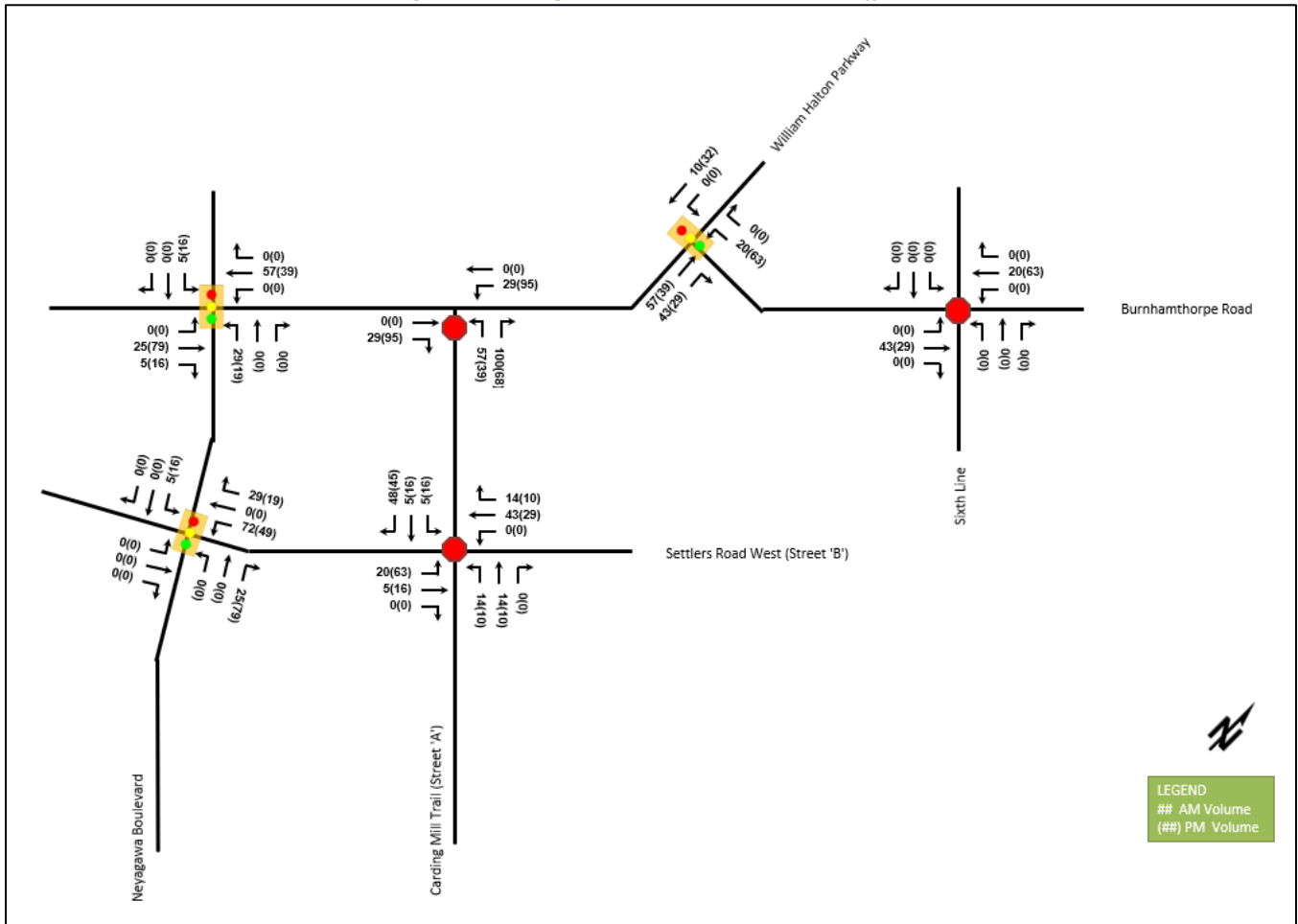
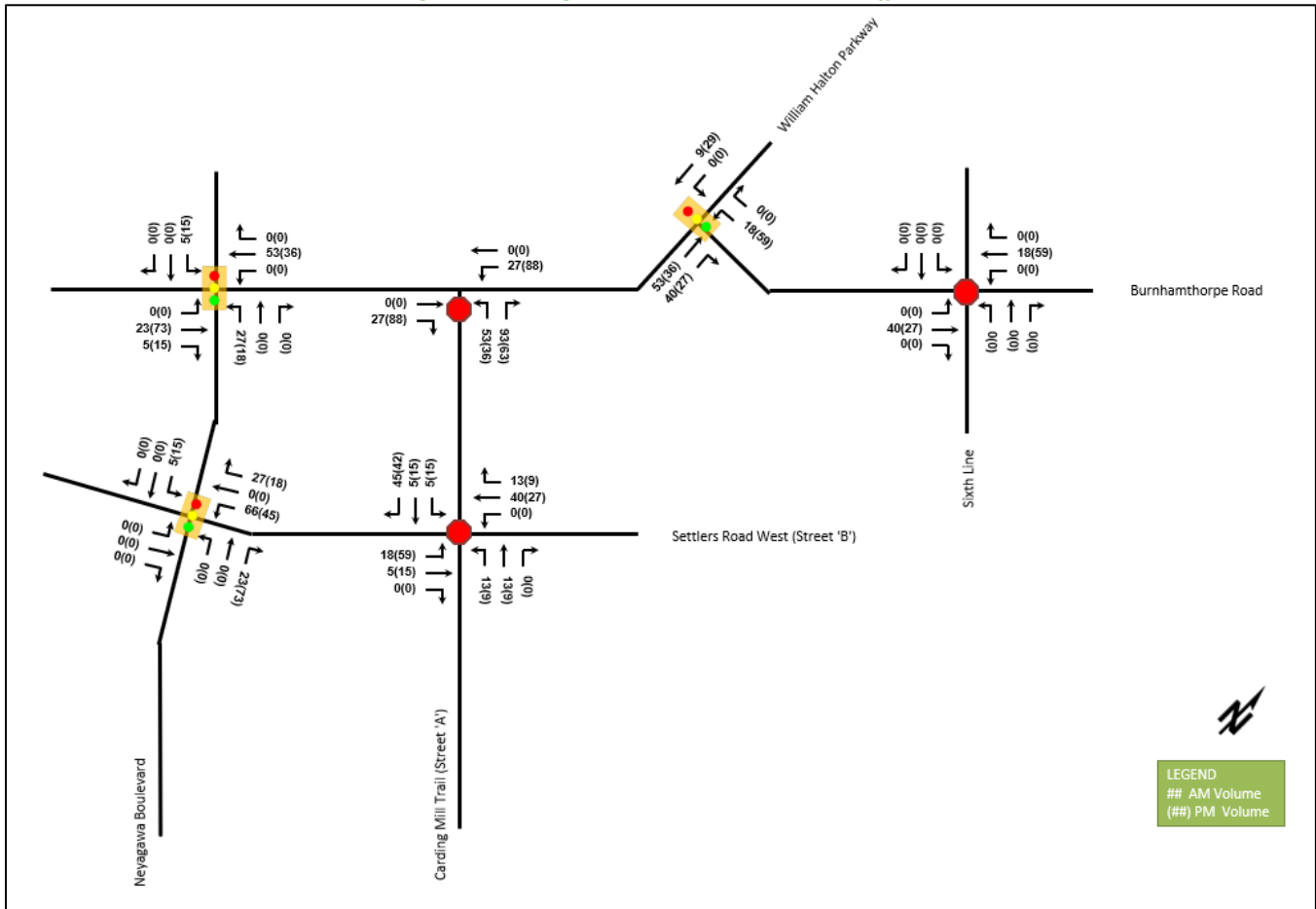


Figure 18: Remington Eno 2025 Site Generated Traffic



Reference: Remington Eno Transportation Impact Study; CGH; March 2021

Figure 19: Remington Eno 2030 Site Generated Traffic



Reference: Remington Eno Transportation Impact Study; CGH; March 2021

3.1.5 Background Growth

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

3.1.6 Future Background Traffic Volumes

Using the background growth rate, the balanced turning movement volumes were grown along Neyagawa Boulevard 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 20 illustrates the 2026 Future Background traffic volumes. Figure 21 illustrates the 2031 Future Background traffic volumes.

Figure 20: 2026 Future Background Traffic Volumes

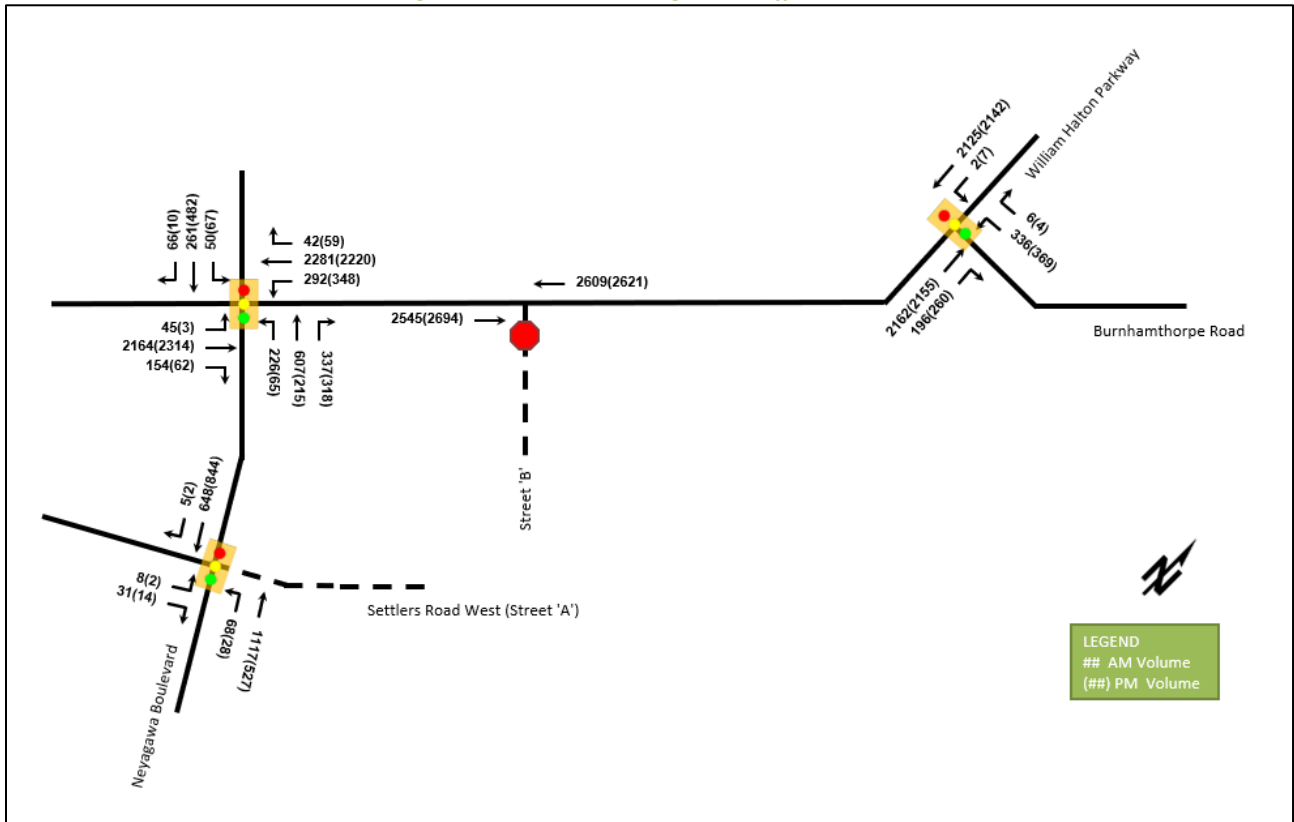
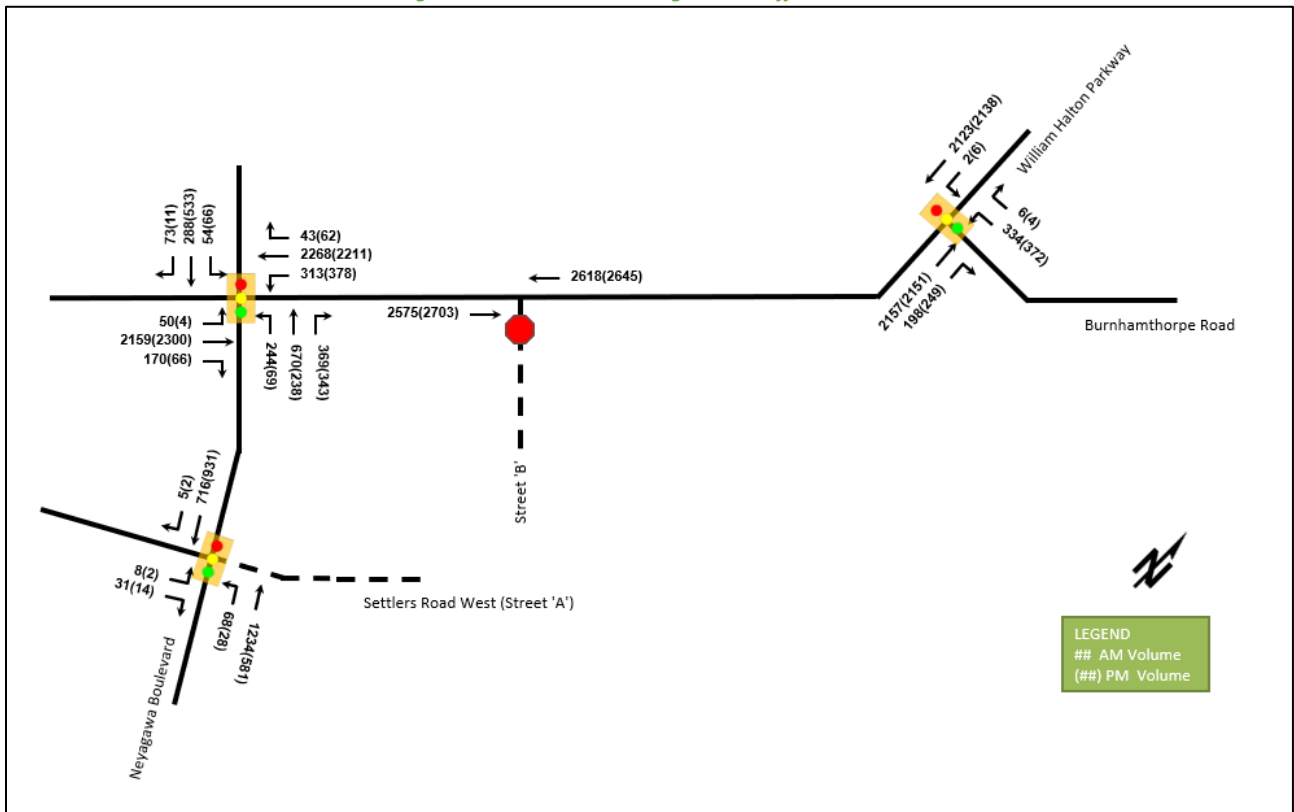


Figure 21: 2031 Future Background Traffic Volumes



4 Forecasting

4.1 Development-Generated Travel Demand

4.1.1 Trip Generation and Mode Shares

The ITE Trip Generation Manual 10th Edition has been reviewed to determine the appropriate trip generation rate equations for the proposed land uses. The rate equations were used to determine appropriate vehicle trip generation rates 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, double-frontage townhouses, and back-to-back 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%

The elementary school block is not included as part of the proposed development trip generation, as this land use mostly generates pass-by trips (i.e. parents dropping off their children on their way to work) or active mode trips from the neighboring residential communities. Further, the school staff who may come from outside the school catchment areas produce a marginal number of trips and usually arrive/leave before the peak hour. Considering the above, it is anticipated that the elementary school within the proposed subdivision will have no impact on arterial roads surrounding the Sherborne Lodge Developments site during the AM or PM peak hours.

Further, the details pertinent to the commercial block of the proposed development will be finalised in later stages as part of the Site Plan Application specific to this component. To estimate the total building area which will occupy this block, density of four comparable commercial lots in Oakville has been calculated and can be seen in Appendix F. The four proxy sites have been selected as they have similar features to the subject development including a variety of commercial land uses and surrounding built-out environment. Further, similar to Sherborne Lodge, three proxy sites are located at an intersection of two major arterial roads, one of which is Neyagawa Boulevard. Thus, these sites are expected to operate in a similar manner to the proposed commercial block and are appropriate proxy sites for comparison. As can be seen in Appendix F, buildings within the studied commercial plazas occupied 25% of the total lot area on average. This ratio was applied to the proposed commercial block area, which resulted in an estimated 2,520 square metres of floor area. This value was carried forward in the analysis herein, however, if this area fluctuates in later stages, the operational analysis for the commercial block should be further refined as part of the Site Plan Application.

Using the equations listed in Table 2, the base vehicle trip rates for each development were calculated. These are converted to person trips using a 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
Sherborne Lodge	Single Family Detached	210	84	AM	0.77	0.99
				PM	1.02	1.31
	Multifamily Housing (Low-Rise)	220	125	AM	0.47	0.60
				PM	0.58	0.74
	Multifamily Housing (Mid-Rise)	221	296	AM	0.33	0.42
				PM	0.42	0.54
	Shopping Centre	820	27,125	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	84	21	62	83	69	41	110
Multifamily Housing (Low-Rise)	125	17	58	75	59	34	93
Multifamily Housing (Mid-Rise)	296	32	92	124	98	62	160
Shopping Centre	820	20	13	33	63	69	132
Total Person Trips		90	225	315	289	206	495

Mode share information provided by Halton Region staff for 2026 and 2031 is summarized Table 5.

Table 5: 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 6 summarizes the 2026 trip generation by mode and Table 7 summarizes the 2031 trip generation by mode.

Table 6: 2026 Trip Generation by Mode

Travel Mode	Mode Share	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Auto Driver	65%	59	146	205	188	134	322
Auto Passenger	15%	14	34	47	43	30	74
Transit	15%	14	34	47	43	30	74
Non-Auto Modes	5%	5	12	16	14	10	26
Total	100%	90	225	315	289	206	495

Table 7: 2031 Trip Generation by Mode

Travel Mode	Mode Share	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Auto Driver	60%	54	135	189	173	123	296
Auto Passenger	15%	14	34	47	43	30	74
Transit	20%	17	45	64	59	41	100
Non-Auto Modes	5%	5	12	16	14	10	26
Total	100%	90	225	315	289	206	495

To account for trips that are made by the Sherborne Lodge residents to the commercial block on their way to or from the subdivision, pass-by rates have been applied to the total trip generation of the commercial component. It is anticipated that the access to the commercial block will be provided via the internal network of Sherborne Lodge development, and therefore, the pass-by trips will have no effect on the arterial roads surrounding the subject site. The ITE Trip Generation Manual (3d Edition) pass-by rates for the retail land use are summarized in Table 8.

Table 8: Pass-by Rates

Land Use	AM Peak Hour	PM Peak Hour
Retail (LUC 820)	-	34%

As AM peak pass-by rate for retail land use was not available as part of the ITE Trip Generation Manual, no reduction was applied to the commercial component trip generation during the AM peak period. Once the total PM pass-by trips were estimated using the rates outlined above, the in and out trips were determined by dividing the total peak hour pass-by volumes by two. This is based on the assumption that trips coming into the commercial block will leave the site within the same hour. The ITE table outlining the pass-by reduction for retail land use can be seen in Appendix G. The pass-by reduction and the total net trip generation by mode for 2026 and 2031 horizons can be seen in Table 9 and Table 10, respectively.

Table 9: 2026 Net Trip Generation by Mode

Travel Mode	Mode Share	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Auto Driver	65%	59	146	205	188	134	322
<i>Retail Pass-by</i>	-	-	-	-	-14	-15	-29
<i>Net New Auto Driver</i>	-	59	146	205	174	119	293
Auto Passenger	15%	14	34	47	43	30	74
Transit	15%	14	34	47	43	30	74
Non-Auto Modes	5%	5	12	16	14	10	26
Total	100%	90	225	315	289	206	495

Table 10: 2031 Net Trip Generation by Mode

Travel Mode	Mode Share	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Auto Driver	60%	54	135	189	173	123	296
<i>Retail Pass-by</i>	-	-	-	-	-13	-14	-27
<i>Net New Auto Driver</i>	-	54	135	189	160	109	269
Auto Passenger	15%	14	34	47	43	30	74
Transit	20%	17	45	64	59	41	100
Non-Auto Modes	5%	5	12	16	14	10	26
Total	100%	90	225	315	289	206	495

As shown above, 315 AM and 495 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 205 AM and 293 PM peak hour two-way vehicle trips, while in 2031, the net new auto trips will be reduced to a total of 189 AM and 269 PM two-way vehicle trips.

4.1.2 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 TIS of a nearby sites (Neighborhood 9/10/11) prepared by CGH Transportation in 2020. Table 11 below summarizes the distribution.

Table 11: OD Survey – Oakville

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

4.1.3 Trip Assignment

Using the distribution outlined above, turning movement splits, and access to major transportation infrastructure, the trips generated by the site have been assigned to the Study Area road network. The total 2026 and 2031 site generated traffic volumes for the proposed development are summarized in Figure 22 and Figure 23, respectively.

Figure 22: New Site Generated Auto Volumes - 2026

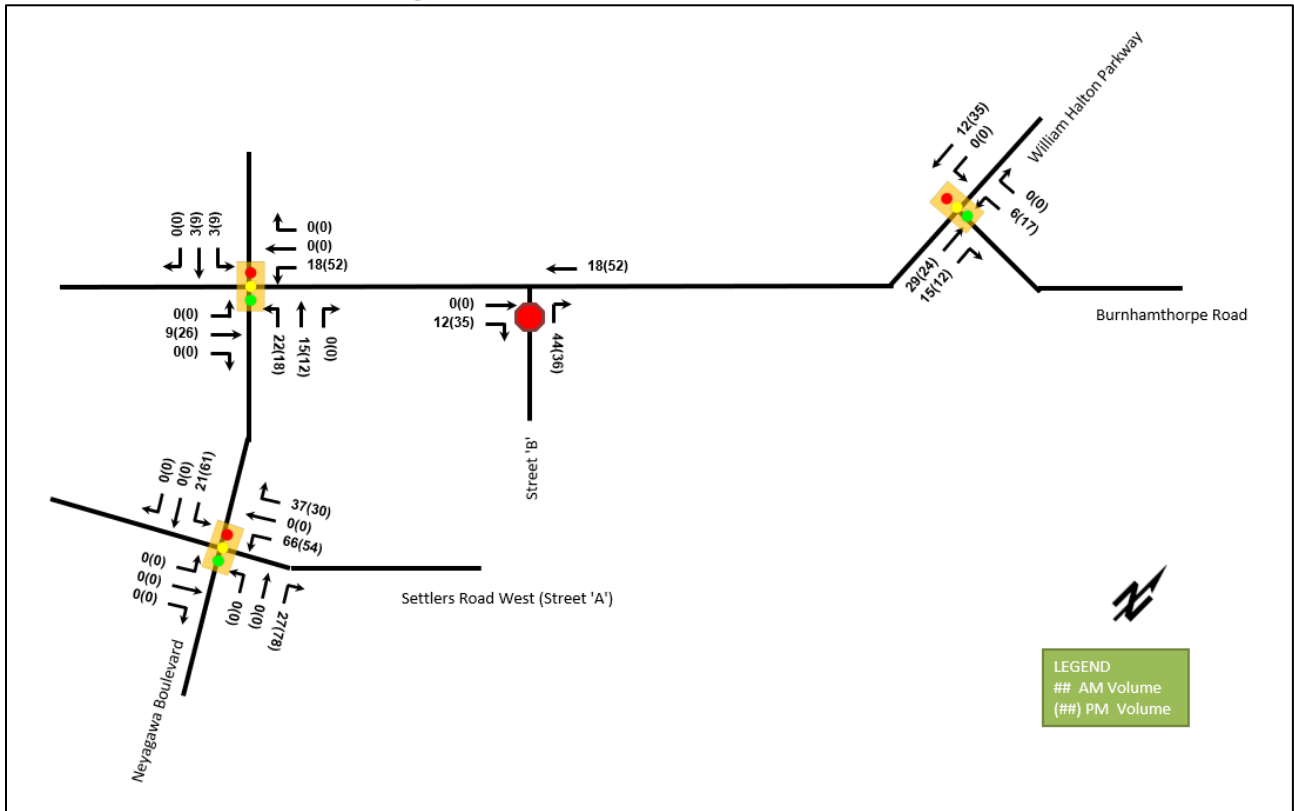
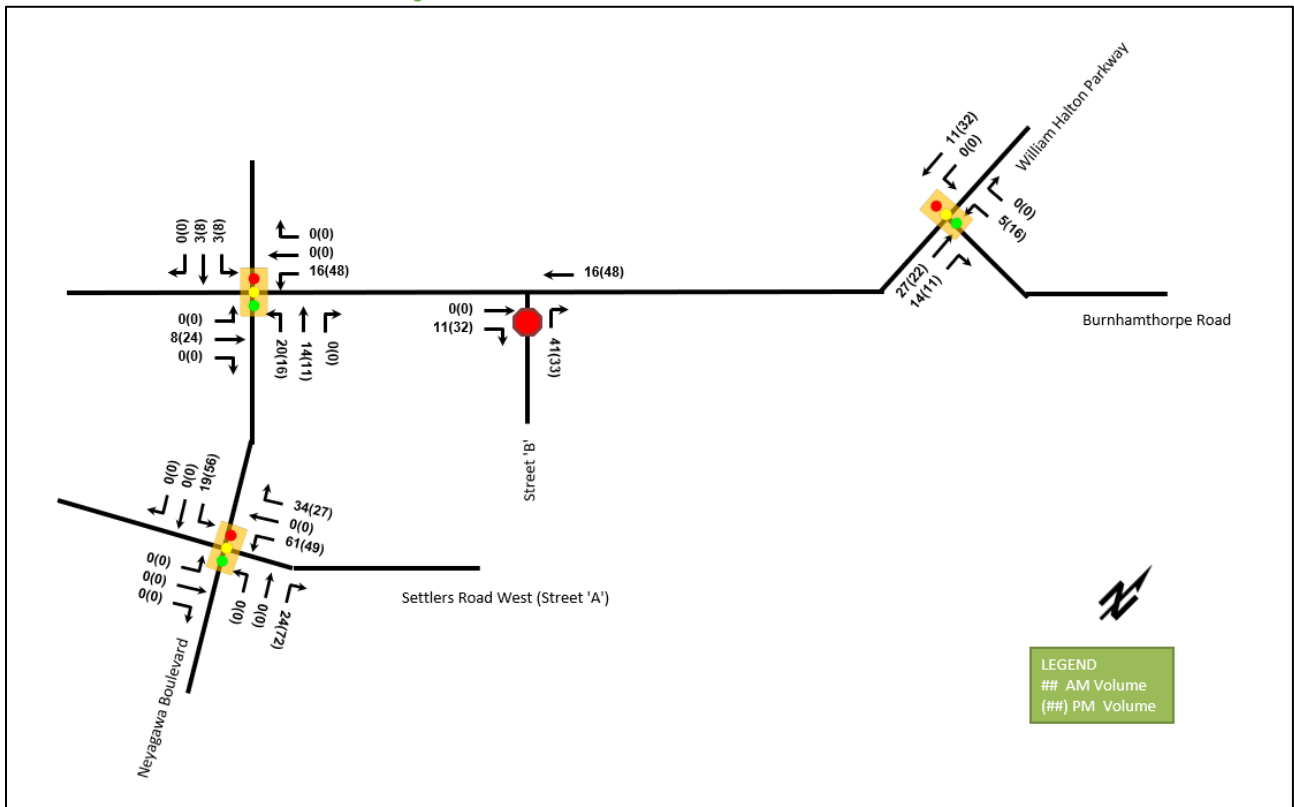


Figure 23: New Site Generated Auto Volumes - 2031



4.1.4 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 24 and Figure 25, respectively.

Figure 24: 2026 Future Total Traffic Volumes

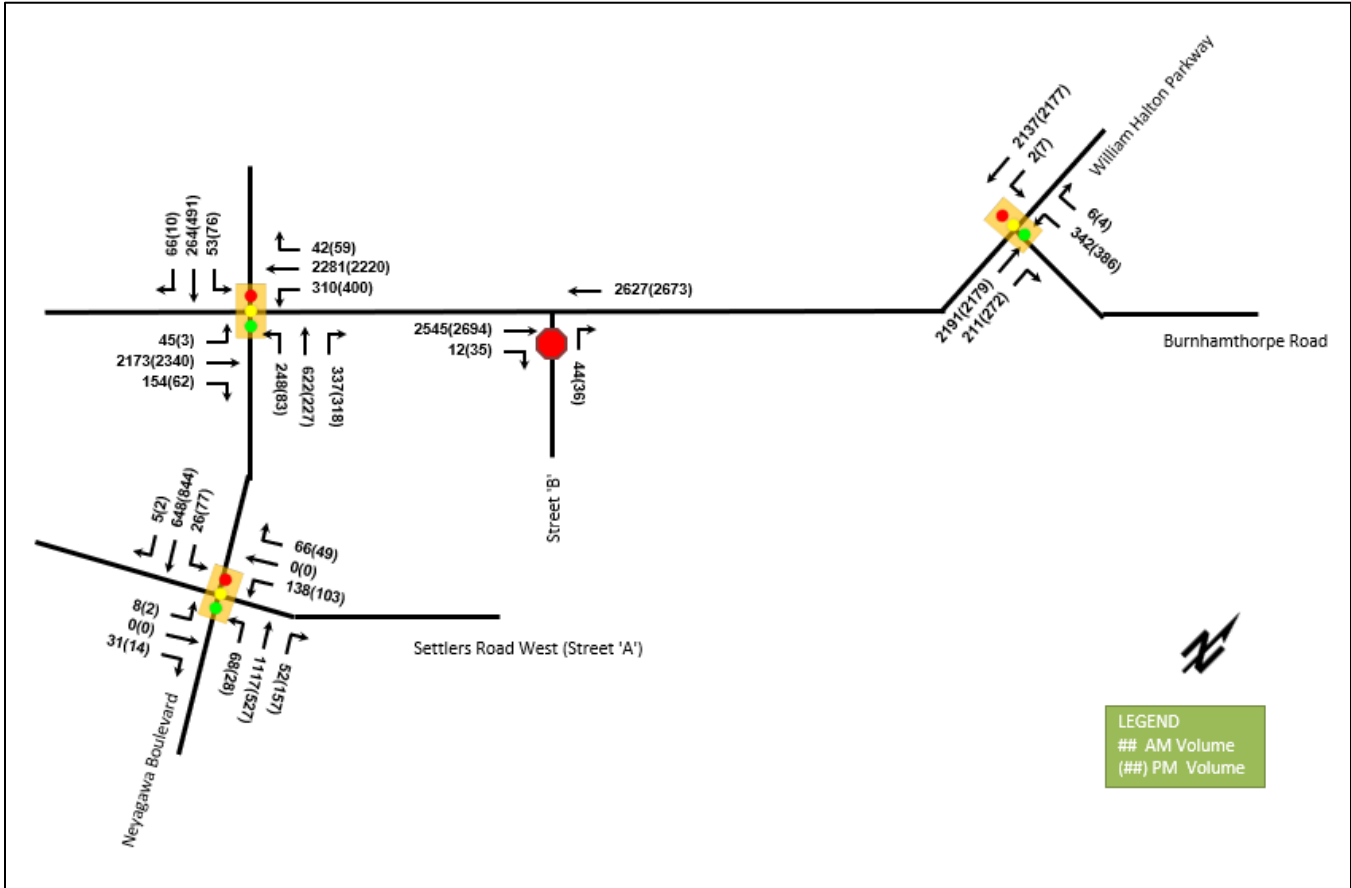
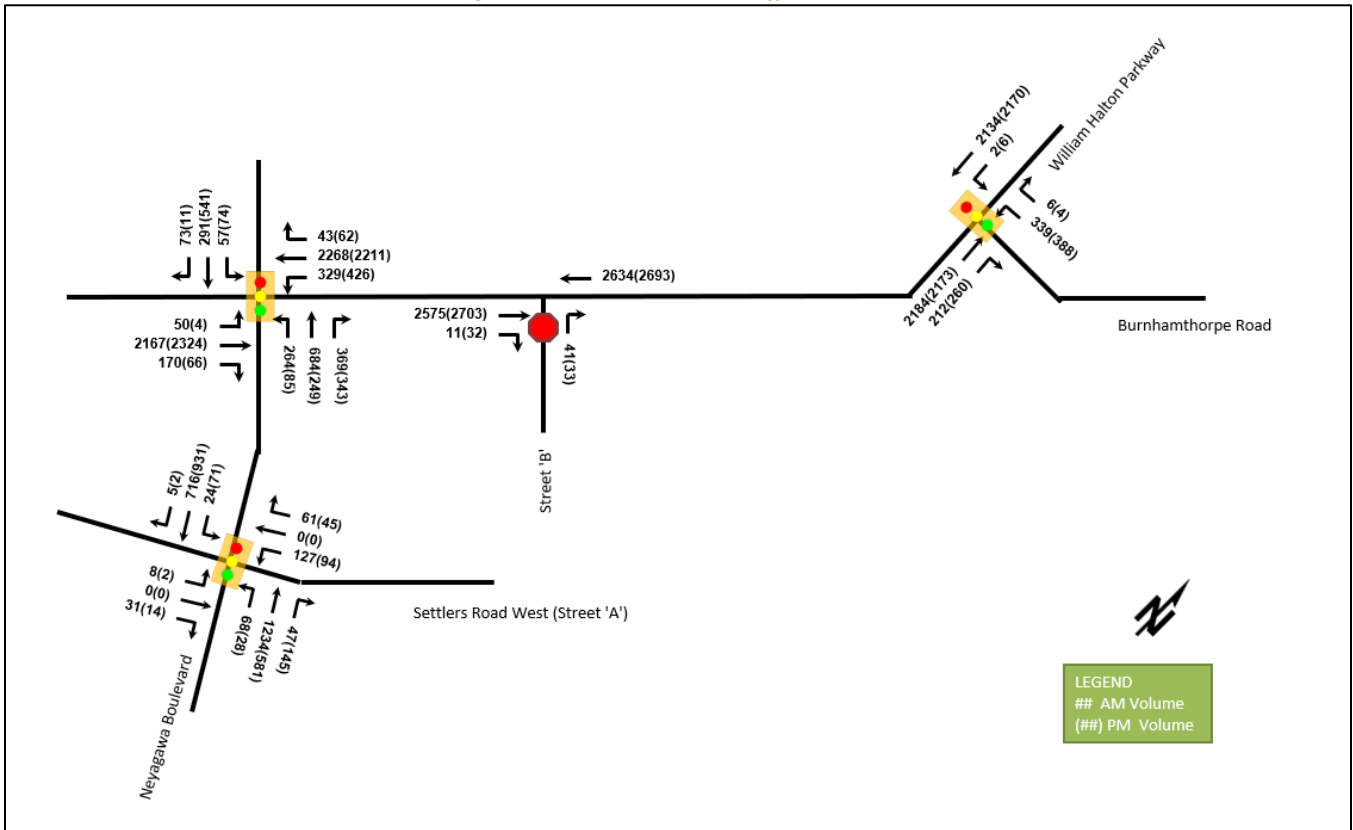


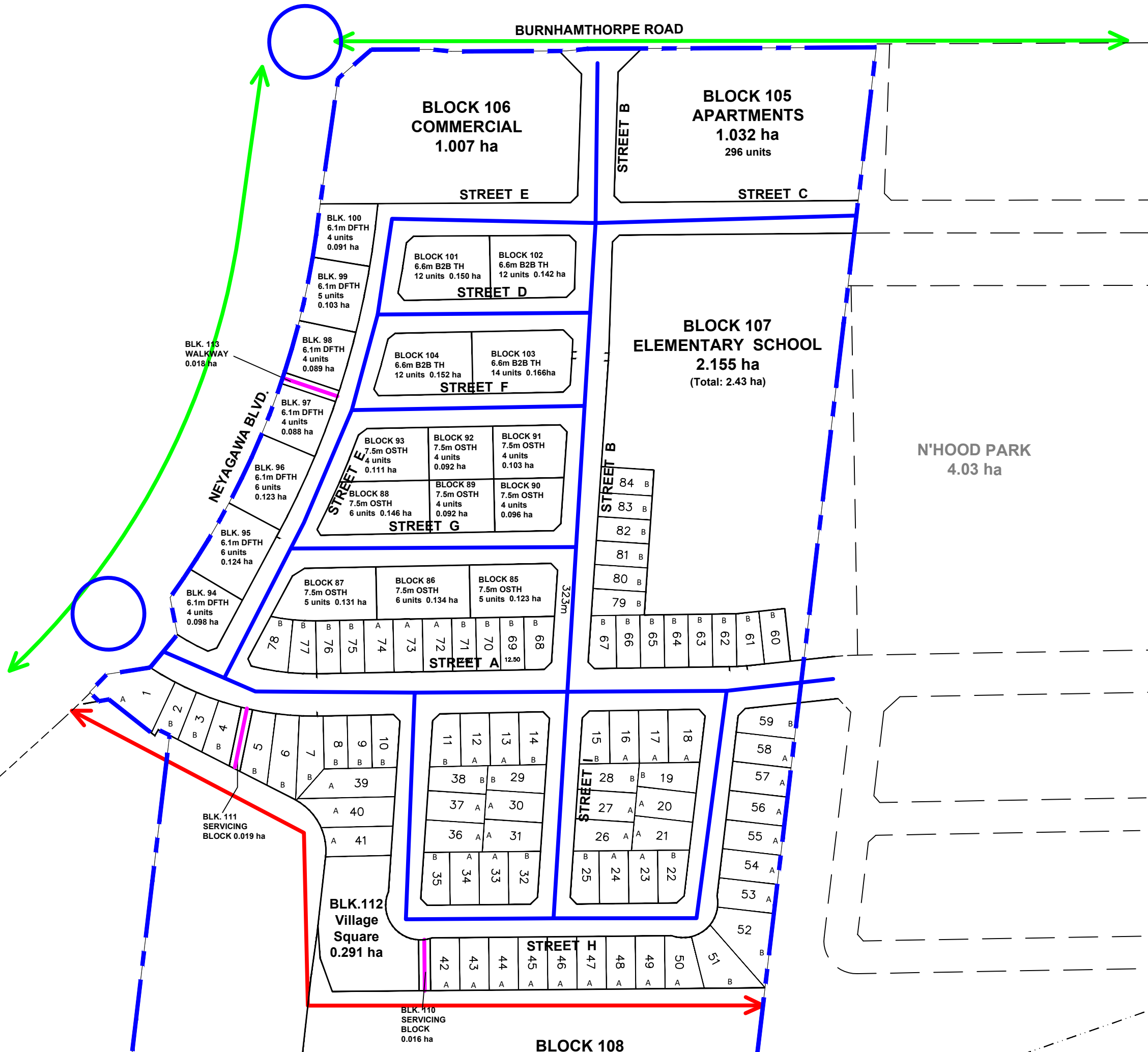
Figure 25: 2031 Future Total Traffic Volumes



5 Development Design

5.1.1 Transportation Demand Management

Within the low-rise component of the proposed development, consisting of detached single-family homes and townhouses, 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 pedestrian (Figure 26), cycling (Figure 27), and transit (Figure 28) facilities. Proposed transit stops at the adjacent property to the east have been accounted for, as the TIA for this site is currently underway and is being prepared by CGH Transportation.



Notes:

LEGEND:

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

01	Issued for Review	AL	2021/08/13
REV:	DESCRIPTION:	BY:	DATE:
STATUS:			



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

CLIENT: Sherborne Lodge Developments

ARCHITECT:

SITE: Sherborne Lodge North Oakville

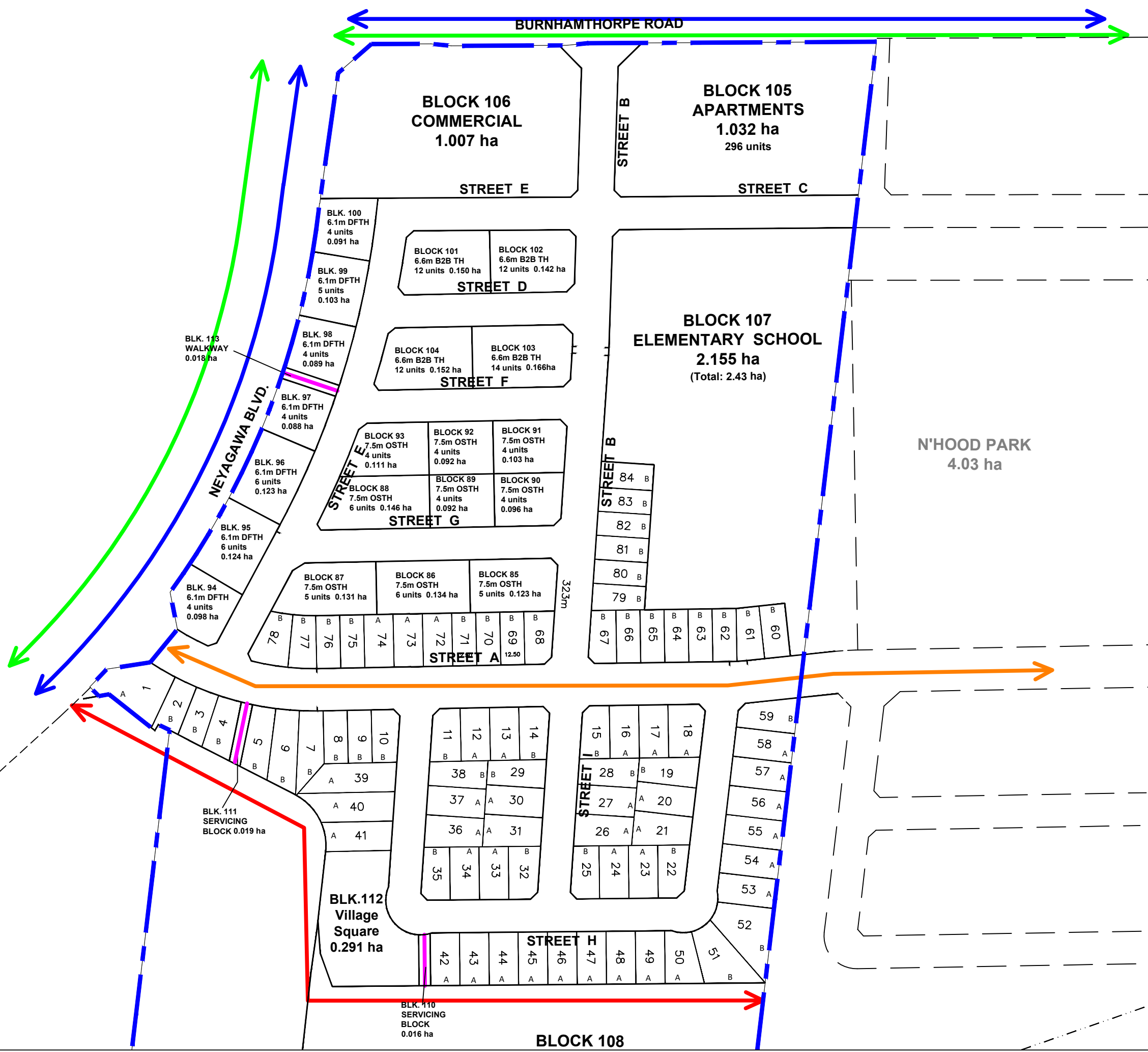
TITLE: Cycling Facilities Concept Plan

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2021/08/13	AL	MC
PROJECT NO:	DRAWING NO:	REVISION:	
2020-37	003	01	

Notes:

LEGEND:

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



01	Issued for Review	AL	2021/08/13
REV:	DESCRIPTION:	BY:	DATE:
STATUS:			



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

CLIENT: Sherborne Lodge Developments

ARCHITECT:


SITE: Sherborne Lodge North Oakville

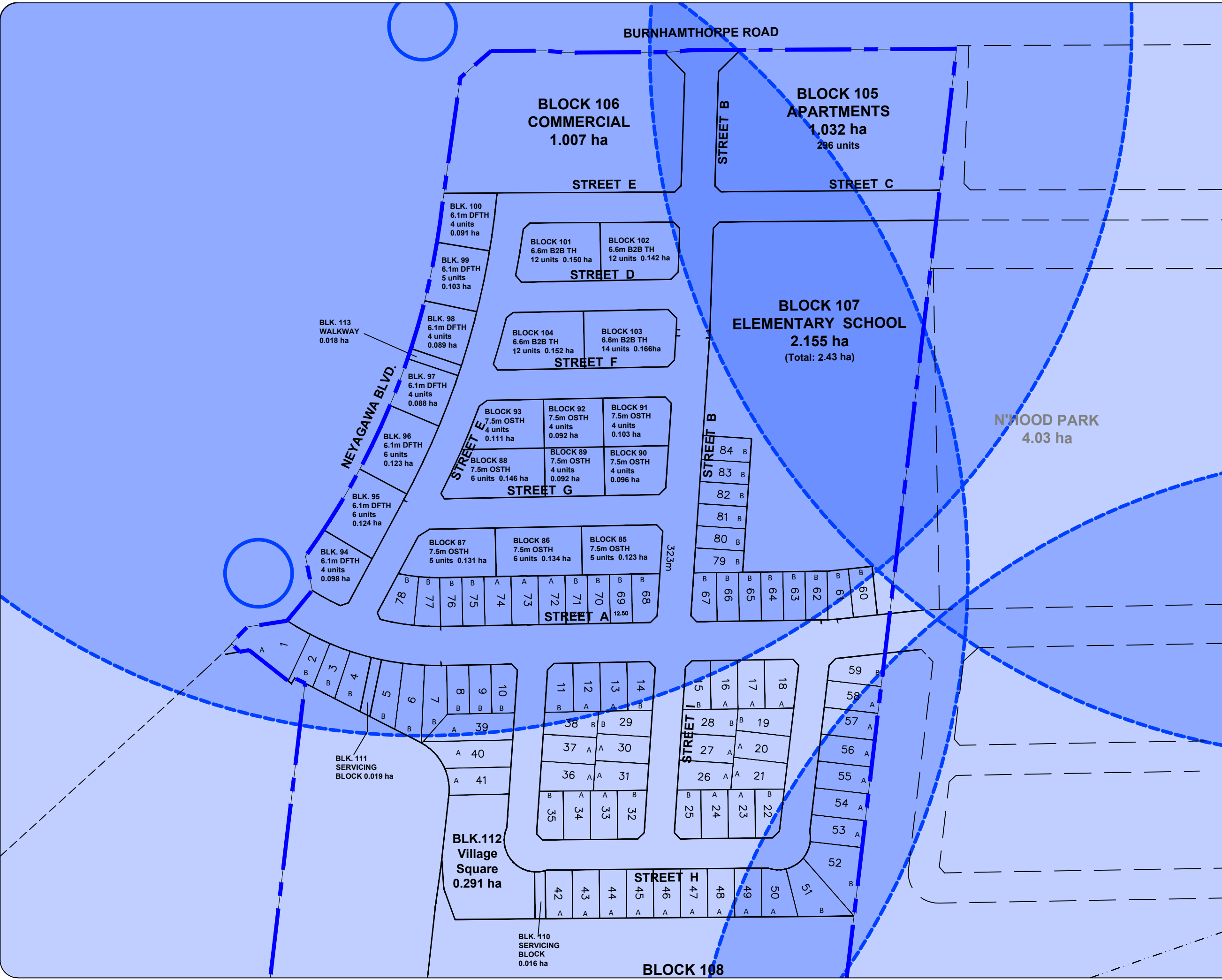
TITLE: Cycling Facilities Concept Plan

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2021/08/13	AL	MC
PROJECT NO:	DRAWING NO:	REVISION:	
2020-37	004	01	

Notes:

LEGEND:

-  400m Transit Walking Distance



01	Issued for Review	AL	2021/08/13
REV:	DESCRIPTION:	BY:	DATE:
STATUS:			



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

CLIENT: Sherborne Lodge Developments

ARCHITECT:

SITE: Sherborne Lodge North Oakville

TITLE: Transit Facilities Concept Plan

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2021/08/13	AL	MC
PROJECT NO:	DRAWING NO:	REVISION:	
2020-37	001	01	

Trips to and from the elementary school can be predominantly subdivided into three categories – active mode trips, school bus trips, and auto passenger trips. The proximity of trip origins to an elementary school serves as an inherent TDM measure, resulting in a higher number of walking and cycling trips. School buses are high occupancy vehicles, and therefore this mode results in a lower transportation infrastructure demand per person, when compared to an average trip in Oakville. Auto passenger trips consist of pass-by trips where parents drop off / pick up their children on their way to or from work, and primary trips where parents make a trip with a sole purpose of school pick up or drop off. Considering the above, no additional TDM measures have been proposed for the elementary school component of the Sherborne Lodge development.

Further, listed below are the TDM-supportive facilities and measures recommended for the mid-rise and commercial components of the proposed development. These measures should be considered at the time of Site Plan Application for each land use when details pertinent to the mid-rise residential building and commercial block are further refined:

- Locate building entrances in order to minimize walking distances to sidewalks and transit facilities
- Locate building doors and windows to ensure visibility of pedestrians from the building
- Provide safe, direct and attractive walking routes from building entrances to nearby transit stops
- Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible
- Contract with provider / provide up to three carshare parking spaces occupying either required or provided residential parking spaces
- Contract with provider / provide a designated bikeshare station area near a major building entrance
- Display local area maps with walking/cycling access routes and key destinations at major entrances
- Provide a multimodal travel option package to new/relocating employees and residents
- Unbundle parking cost from unit purchase price

5.1.2 Traffic Management Plan

The residential subdivision planned street network will include a 22-metre transit corridor (Settlers Road West), a 19-metre connector road (Street 'B'), and 17-metre local roads. On-Street parking will be provided on local roads throughout the subdivision and the proposed parking plan can be found in Appendix H. The active transportation network is discussed in Section 5.1.1. The internal road intersections are recommended to be stop-controlled on the minor approaches.

As of January 2021, Town of Oakville Council has approved a reduced speed limit of 40 km/h on all local and minor collector roads. Thus, a speed limit of 40 km/h will apply at all roads within the subdivision, except Settlers Road (Street 'A'), where a 50 km/h speed limit will apply. Signs indicating the change in speed limit between Settlers Road and other streets have been proposed throughout the subdivision and can be seen in Appendix I.

To enhance pedestrian and cyclist experience within the subdivision, a concept Traffic Calming Plan has been prepared and can be seen in Appendix I. The plan will reinforce the 40 km/h speed limit along the elementary school frontage by utilizing school zone signs, permanent radar speed display signs, and lane narrowings. The radar speed display signs will be installed at later stages of the proposed development, once the site plan application for the elementary school block is confirmed to proceed. Further, the on-street parking will also serve as a traffic management measure throughout the subdivision, creating a safer space for active mode users.

5.1.3 Parking

The low-rise component of the proposed development is a residential subdivision and therefore auto and bicycle parking areas will be within each resident’s home. Additionally, 166 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 can be found in Appendix H.

Off-street parking requirements and provisions for the mid-rise and commercial components of the proposed development are summarized in Table 12.

Table 12: Parking Provisions – Mid-Rise and Commercial Components

Land Use	Units / GFA (s.m.)	Parking Rate	Minimum Parking Required	Maximum Parking Permitted	Parking Provided
Mid-Rise Apartments	296	<i>“Up to 1.25 parking spaces per dwelling unit, plus 0.2 parking spaces per dwelling unit for visitors. Additional parking spaces shall not be permitted”</i>	-	430	430 *
Retail	2,520	<i>“1 parking space per 30 square metres of leasable floor area minimum, 1 parking space per 20 square metres of leasable floor area maximum”</i>	84	126	126 *
Mid-Rise Apartments (Bicycle)	296	<i>Minimum of 0.75 per dwelling unit, plus 0.25 per dwelling unit for visitors</i>	296	-	296 *
Retail (Bicycle)	2,520	<i>Minimum of 7% of commercial automobile parking spaces, including a minimum of 5 visitor parking spaces</i>	9	-	9*

* estimated parking is subject to change as the Site Plan Applications for the mid-rise and commercial components are put forward

Based on the North Oakville Zoning By-law, a maximum of 430 automobile parking spaces and a minimum of 296 bike parking spaces are required for the mid-rise residential component of the proposed development. The estimated area of the commercial block will require a maximum of 126 vehicular parking spaces and a minimum of 9 bike parking spaces. As can be seen in Table 12, the proposed parking provisions meet the Zoning requirements. The parking provisions for both the mid-rise residential and the commercial components of Sherborne Lodge Development will be further refined in later stages of the development as part of the Site Plan Application for each land use. Further, it has been assumed that at the time of Site Plan Application for the elementary school adequate parking will be provided. In case where the elementary school parking provisions will deviate from the Bylaw requirements, it has been assumed that a justification will be provided through the SPA process.

5.1.4 Development Access

Access to the development will be accommodated via signalized intersection of Neyagawa Boulevard at Settlers Road West (Site Access #1), and a right-in/right out access onto Burnhamthorpe Road (future William Halton Parkway) via Street ‘B’ (Site Access #2). Site Access #2 will be located 130 metres east of William Halton Parkway and Neyagawa Boulevard intersection (measured from edge of pavement along Neyagawa Boulevard to edge of pavement along Street ‘B’).

At Site Access #1, the suggested minimum corner clearance between Neyagawa Boulevard and Street 'E' is 25 metres according to Figure 8.8.2 in TAC Geometric Guide for Canadian Roads. This requirement is contingent on intersection of Settlers Road West (Street 'A') and Street 'E' being restricted to right-in / right-out movements only. To ensure that this requirement is met and the intersection of Settlers Road and Street 'E' operates as intended, a splitter island is recommended to enforce the proposed turn restrictions. A centreline median has been considered at this location, but due to overland flow restrictions, it was not an appropriate solution to reinforce the turning restriction in and out of Street 'E'.

The location of Site Access #2 has been checked against the Halton Region Access Management Guidelines. According to Table 1, the minimum spacing for a right in/out access along William Halton Parkway (C2 corridor) is 115 metres, measured from stop bar to stop bar. Site Access #2 meets this requirement. Further, the Halton Region Access Management Guidelines require auxiliary turn lanes at accesses located along arterial roads. To this end, an eastbound right-turn has been proposed at Site Access #2 to facilitate movements from William Halton Parkway and onto Street 'B'. Based on eastbound right turn volumes and storage requirements at Site Access #2, minimum taper and storage lengths will need to be applied when designing the auxiliary right turn lane.

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 signalization warrants can be found in Appendix J.

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 13 summarizes the operational analysis of the 2021 existing conditions. Appendix L contains the 2021 Existing Conditions Synchro Sheets.

Table 13: 2021 Existing Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour					PM Peak Hour				
		LOS	V/C	Del (s)	Q (50 th)	Q (95 th)	LOS	V/C	Del. (s)	Q (50 th)	Q (95 th)
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	<1	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	<1	0	1	A	0.01	0	0	0	
Overall	B	-	16	-	-	C	-	30	-	-	
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	<1	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	0	-

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.

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 14 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 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 14: 2026 Future Background Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour					PM Peak Hour					
		LOS	V/C	Del (s)	Q (50 th)	Q (95 th)	LOS	V/C	Del. (s)	Q (50 th)	Q (95 th)	
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	2.26	590	~411	#455	F	2.80	833	~464	#508	
	EBR	A	0.31	10	6	22	A	0.13	1	0	1	
	WBL	F	1.16	129	~59	#115	F	1.58	303	~94	#152	
	WBT	F	1.61	303	~384	#428	F	1.80	388	~392	#435	
	WBR	A	0.06	1	0	2	A	0.10	4	0	6	
	NBL	C	0.54	21	22	38	B	0.17	12	7	15	
	NBT	C	0.57	28	60	80	B	0.17	19	17	25	
	NBR	A	0.48	5	19	29	A	0.41	5	0	34	
	SBL	B	0.20	18	6	14	B	0.13	13	7	15	
	SBT	C	0.27	27	23	34	C	0.37	23	41	55	
	SBR	A	0.13	1	0	2	A	0.02	0	0	0	
	Overall	F	-	313	-	-	F	-	473	-	-	
	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	48	223	#266	D	0.98	44	235	#280	
	EBR	A	0.21	7	7	20	A	0.08	1	0	3	
	WBL	F	0.92	91	44	#73	F	0.95	92	53	#85	
	WBT	C	0.91	32	219	245	B	0.75	18	146	204	
	WBR	A	0.05	2	0	4	A	0.07	3	0	6	
	NBL	E	0.89	78	64	#115	E	0.61	68	17	#40	
NBT	D	0.66	45	83	105	D	0.27	41	27	39		
NBR	C	0.67	33	57	94	C	0.70	33	49	86		
SBL	E	0.52	60	12	#30	D	0.29	44	16	31		
SBT	D	0.29	38	32	45	D	0.61	47	67	86		
SBR	A	0.14	3	0	6	A	0.02	0	0	0		
Overall	D	-	42	-	-	D	-	36	-	-		
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	2	26	23	A	0.32	1	1	16	
	Overall	A	-	4	-	-	A	-	2	-	-	
William Halton Parkway at Burnhamthorpe Road (Signalized)	EBT	D	0.99	37	~284	#379	D	1.01	43	~329	#377	
	EBR	A	0.20	6	12	25	A	0.26	7	19	33	
	WBL	A	0.03	10	<1	1	B	0.13	15	1	4	
	WBT	C	0.97	33	269	#368	D	1.00	41	~325	#373	
	NBL	E	0.86	63	86	118	E	0.89	65	94	#140	
	NBR	B	0.02	20	<1	4	B	0.01	20	0	3	
	Overall	D	-	36	-	-	D	-	42	-	-	
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 ratios at all failing movements were 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 seem overly conservative and while mitigation measures have been examined, these should be carefully evaluated prior to implementing any changes to the existing design of the William Halton Parkway.

At the signalized intersection of William Halton Parkway and Burnhamthorpe Road, the eastbound and westbound through movements are operating at capacity during the 2026 Future Background horizon in both AM and PM peak periods. The delay at these movements is within acceptable thresholds and the overall intersection LOS is D. The intersection of Neyagawa Boulevard at Settlers Road west operates well with an overall LOS A.

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 15 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 15: 2031 Future Background Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour					PM Peak Hour				
		LOS	V/C	Del (s)	Q (50 th)	Q (95 th)	LOS	V/C	Del. (s)	Q (50 th)	Q (95 th)
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	1.00	51	226	#269	D	0.98	46	236	#281
	EBR	A	0.23	7	8	23	A	0.08	2	0	4
	WBL	F	0.99	105	48	#80	F	0.97	94	58	#91
	WBT	C	0.92	34	220	247	B	0.75	18	145	203
	WBR	A	0.05	2	0	4	A	0.07	3	<1	6
	NBL	F	0.98	97	71	#129	F	0.80	98	19	#49
	NBT	D	0.71	46	93	116	D	0.30	41	30	43
	NBR	D	0.72	36	67	107	C	0.73	35	53	92
	SBL	E	0.66	77	14	#38	D	0.30	44	16	31
	SBT	D	0.31	37	35	48	D	0.67	49	75	96
	SBR	A	0.15	4	0	8	A	0.03	0	0	0
	Overall	D	-	46	-	-	D	-	38	-	-
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	-

Intersection	Mvmnt	AM Peak Hour					PM Peak Hour				
		LOS	V/C	Del (s)	Q (50 th)	Q (95 th)	LOS	V/C	Del. (s)	Q (50 th)	Q (95 th)
William Halton Parkway at Burnhamthorpe Road (Signalized)	EBT	D	0.99	36	280	#378	D	1.01	43	~329	#376
	EBR	A	0.20	6	13	25	A	0.25	7	18	32
	WBL	A	0.03	10	<1	1	B	0.11	14	1	3
	WBT	C	0.97	33	267	#368	D	1.00	41	~325	#372
	NBL	E	0.85	63	86	118	E	0.89	65	94	#143
	NBR	B	0.02	20	<1	4	B	0.01	20	0	3
	Overall	D	-	35	-	-	D	-	42	-	-
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 a V/C ratio is less than one, it can be assumed that the 95th percentile queue will rarely be exceeded.

The Study Area intersections operate similarly to the 2026 Future Background horizon. No mitigation measures have been proposed or applied at this horizon. As previously mentioned, the volume projections along William Halton Parkway 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.

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 proposed through the 2026 Future Background operational analysis have been carried forward as part of the analysis of 2026 Total Future conditions. In the previous horizon it was shown, based on the Region's volume projections for WHP, that a third through lane each way on WHP would be required at Neyagawa Boulevard and WHP intersection. For the Future Total analyses, it has been assumed that this widening would be in place and would go past the proposed right in/right out access (Site Access #2) on William Halton Parkway. This has been accounted for in the operational analysis. Table 16 summarizes the results of the Synchro Analysis. Synchro worksheets have been included in Appendix Q.

Table 16: 2026 Total Future Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour					PM Peak Hour				
		LOS	V/C	Del (s)	Q (50 th)	Q (95 th)	LOS	V/C	Del. (s)	Q (50 th)	Q (95 th)
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	-	-

Intersection	Mvmnt	AM Peak Hour					PM Peak Hour				
		LOS	V/C	Del (s)	Q (50 th)	Q (95 th)	LOS	V/C	Del. (s)	Q (50 th)	Q (95 th)
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	38
	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	-
Street 'B' at William Halton Parkway – Site Access #2 (Unsignalized)	EBT	-	-	-	-	-	-	-	-	-	-
	EBR	-	-	-	-	-	-	-	-	-	-
	WBT	-	-	-	-	-	-	-	-	-	-
	NBR	F	0.42	58	-	14	F	0.39	62	-	12
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 decrease in operational performance. The V/C ratio of the eastbound through movement at Neyagawa Boulevard at William Halton Parkway increases from 0.98 to 1.0 in the AM peak period, and 1.02 in the PM peak period. This marginal increase is expected, considering that this movement was already nearing capacity in the background horizon, which indicates that the operational constraints on eastbound approach of WHP and Neyagawa Boulevard are a result of background volumes. The northbound left movement at Neyagawa Boulevard at William Halton Parkway decreases from LOS E to LOS F as a result of increased delays. However, the V/C ratio (0.98 in the AM peak and 0.80 in the PM peak) suggests that there is sufficient capacity to accommodate the left turning traffic at this approach. At the intersection of William Halton Parkway and Burnhamthorpe Road, the V/C ratio increases from 0.99 to 1.01.

All movements at Site Access #1 (Neyagawa Boulevard at Settlers Road West) operate well with V/C ratios of 0.67 or lower. The overall intersection LOS is B during the AM peak period, and A during the PM peak period. At the unsignalized intersection of Street 'B' and William Halton Parkway (Site Access #2), the drivers leaving the site will experience 60 seconds of delay on average. It should be noted, however, that the V/C ratio at the northbound right turn movement is below 0.50, which indicates that there is sufficient capacity to move the traffic from the subdivision and onto the arterial road. The key factor influencing the delay at this approach is the high eastbound through volume at this intersection. The operations at this movement will likely make use of gaps caused by platooning that will occur as a result of the nearby signalized intersection of Neyagawa Boulevard and William Halton Parkway due to the proximity of Neyagawa Boulevard and Street 'B'. During red phase for eastbound

approach of Neyagawa Boulevard at WHP intersection, the northbound right turning vehicles at Site Access #2 will have more gap opportunities to proceed onto WHP. During the green phase for eastbound approach of Neyagawa Boulevard at WHP intersection, drivers will naturally reroute to adjacent signalized intersections of Settlers Road West and Neyagawa Boulevard, or Carding Mill Trail at William Halton Parkway.

6.4.1 2031 Total Future 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 17 summarizes the results of the Synchro Analysis. Synchro worksheets have been included in Appendix R.

Table 17: 2031 Total Future Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour					PM Peak Hour				
		LOS	V/C	Del (s)	Q (50 th)	Q (95 th)	LOS	V/C	Del. (s)	Q (50 th)	Q (95 th)
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	116	~54	#86	F	1.03	106	~69	#104
	WBT	D	0.94	38	228	#274	B	0.75	18	145	203
	WBR	A	0.05	2	0	4	A	0.07	3	<1	6
	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	-	51	-	-	D	-	43	-	-	
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	D	1.00	40	~307	#386	D	1.03	49	~339	#382
	EBR	A	0.21	6	14	27	A	0.27	7	19	33
	WBL	A	0.03	10	<1	1	B	0.11	14	1	3
	WBT	C	0.98	35	274	#371	D	1.03	49	~339	#381
	NBL	E	0.86	63	87	119	E	0.91	67	99	#152
	NBR	B	0.02	20	<1	4	B	0.01	20	0	3
	Overall	D	-	38	-	-	D	-	48	-	-
Street 'B' at William Halton Parkway – Site Access #2 (Unsignalized)	EBT	-	-	-	-	-	-	-	-	-	-
	EBR	-	-	-	-	-	-	-	-	-	-
	WBT	-	-	-	-	-	-	-	-	-	-
	NBR	F	0.40	58	-	13	F	0.36	60	-	11
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 northbound left turn movement shifting from a V/C ratio of 0.98 to 1.01 in the AM peak period. As can be seen in Figure 23, the proposed development contributes 20 AM peak, and 16 PM peak hour northbound left-turn trips to the intersection of Neyagawa Boulevard and William Halton Parkway. This means that the site-generated traffic contributes a maximum of 0.3 % 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, with the major movements nearing capacity, there is no room to reallocate green time to the turning movements where new trips are being made. At the intersection of William Halton Parkway and Burnhamthorpe Road, the V/C ratio of the eastbound through movement increases from 0.99 to 1.0 in the AM peak hour. It should be noted, however, that the overall intersection performance remains at a LOS D.

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. 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 as part of this report 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.

At Site Access #1 (William Halton Parkway at Burnhamthorpe Road) all approaches operate well with an overall LOS B and A during the AM and PM peak periods, respectively. The operations of Street 'B' at William Halton Parkway (Site Access #2) marginally improve as a result of the mode share shift, with average northbound right turn delay remaining at 60 seconds, and V/C ratios of 0.40 and lower. As previously mentioned, the key factor influencing the delay at this approach is the high eastbound through volume. In field, drivers will naturally reroute to adjacent signalized intersections if a substantial queue is observed at the northbound right turn movement of Site Access #2.

6.4.2 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 of a TIS, where a net 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 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 a 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 can be seen in Figure 29. These volumes were modeled in Synchro using the existing intersection configuration and 140 second cycle lengths. Table 17 summarizes the results of the Synchro Analysis. Synchro worksheets have been included in Appendix S.

Figure 29: Adjusted 2031 Future Total Traffic Volumes

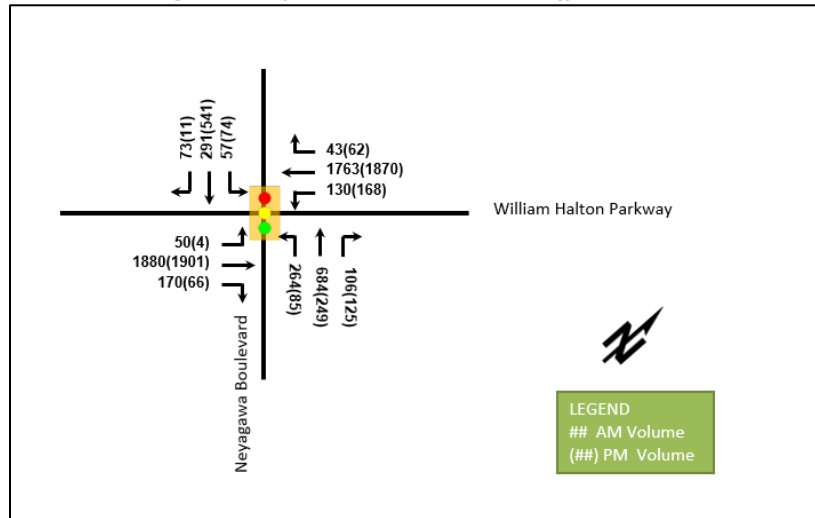


Table 18: 2031 Total Future Conditions Sensitivity Analysis

Intersection	Mvmnt	AM Peak Hour					PM Peak Hour				
		LOS	V/C	Del (s)	Q (50 th)	Q (95 th)	LOS	V/C	Del. (s)	Q (50 th)	Q (95 th)
William Halton Parkway (former Burnhamthorpe Road) at Neyagawa Boulevard (Signalized)	EBL	C	0.47	26	5	14	A	0.03	7	<1	2
	EBT	F	1.09	80	~351	#394	D	1.02	55	~337	#380
	EBR	A	0.21	7	10	23	A	0.08	3	0	7
	WBL	F	0.99	102	25	#71	F	1.02	110	~40	#91
	WBT	D	0.98	46	~287	#350	C	0.89	27	232	#357
	WBR	A	0.05	1	0	3	A	0.07	4	2	8
	NBL	F	1.02	104	~71	#139	F	1.03	157	~29	#67
	NBT	D	0.73	50	103	127	D	0.32	46	35	49
	NBR	B	0.23	17	9	25	B	0.30	18	10	29
	SBL	F	0.78	105	17	#45	D	0.36	50	20	37
	SBT	D	0.42	49	42	57	D	0.70	54	84	106
	SBR	B	0.19	11	<1	14	A	0.03	0	0	0
Overall		E	-	60	-	-	D	-	45	-	-
Notes:	~ - volume exceeds capacity, queue is theoretically infinite # - 95% percentile volume exceeds capacity										

Figure 29 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, 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 1.04. 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 Conclusions

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

- a) The proposed development is located at the south-east corner of Burnhamthorpe Road at Neyagawa Boulevard intersection, and includes 84 single detached homes, 125 townhouses, an apartment building block with a total of 296 units, a one-hectare commercial block, and an elementary school.
- b) Access to the site will be accommodated via Settlers Road West, which runs east-west and connects to Neyagawa Boulevard, and via Street 'B', which will run north-south and connect to Burnhamthorpe Road (future William Halton Parkway). Street 'B' access will be located 115 metres east of Neyagawa Boulevard and Burnhamthorpe Road intersection (measured stop bar to stop bar) and will be a right-in/right out 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 a nearby site (Neighborhood 9/10/11) prepared by CGH Transportation in 2020.
- 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 205 AM and 293 PM two-way peak hour auto trips in 2026 horizon, and 189 AM and 269 PM two-way peak hour auto trips in the 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 Study Area intersections operate predominantly well, with the exception of westbound left turn lane at Burnhamthorpe Road at Neyagawa Boulevard during the PM peak period as a result of high turning volumes at this movement.
- f) The 2026 Future Background traffic volumes including background growth, and the construction of William Halton Parkway were analysed. To address projected deficiencies the following changes were made to Neyagawa Boulevard at William Halton Parkway intersection:
 - a. Add a third through lane eastbound and westbound
 - b. Westbound and eastbound dual left turn lanes
 - c. 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. At William Halton Parkway and Burnhamthorpe Road, the eastbound through and westbound through movements operate at capacity in this horizon.

- 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 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 results in operational performance similar to 2026 Future Background scenario. Site Access #1 was shown to operate with good LOS and low delays. The intersection of Street 'B' and William Halton Parkway (Site Access #2) was shown to operate with an average delay of 60 seconds as a result of limited gap opportunities to get in and out of the site. However, given the proximity and residual capacity at nearby signalized intersections, as well as sufficient capacity at Site Access #2, the operations at Site Access #2 were deemed acceptable. The operations of WHP at Neyagawa Boulevard and WHP at Burnhamthorpe Road slightly deteriorate in the 2026 Future Total horizon. 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. At Site Access #1 (William Halton Parkway at Burnhamthorpe Road) all approaches operates well with an overall LOS B and A during the AM and PM peak periods, respectively. The operations of Street 'B' at William Halton Parkway (Site Access #2) marginally improve as a result of the mode shift, with average northbound right turn delay remaining at 60 seconds, and V/C ratios of 0.40 and lower. This is considered acceptable as in field drivers will naturally reroute to adjacent signalized intersections if a substantial queue is observed at the northbound right turn movement of Site Access #2.
- j) Based on operational analysis of Study Area throughout all study horizons, it should be noted that although a three-lane configuration has been proposed along William Halton Parkway at Neyagawa Boulevard intersection in 2026 Future Background horizon, it is likely that this mitigation measure will not be 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 2031 which may alleviate some of the capacity constraints.
 - c. Site-generated traffic does not have a significant impact on Study Area intersections
- 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 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) TDM measures are implemented to encourage commuters to shift away from single occupant vehicle trips. The most effective measures for a low-rise residential subdivision are access and usability of transit, cycling and pedestrian facilities. To this end, transit, cycling, and pedestrian facilities, concept plans have been prepared. Further, additional TDM measures have been proposed for the commercial and mid-rise blocks, and should be considered at the time of Site Plan Application for each land use when details pertinent to the mid-rise residential building and commercial block are further refined
- m) To enhance pedestrian and cyclist experience within the subdivision, a concept Traffic Calming Plan has been prepared. The plan will limit the speeds along the elementary school frontage by utilizing school zone signs, permanent radar speed display signs, and lane narrowings. Further, the on-street parking will also serve as a traffic management measure throughout the subdivision, creating a safer space for active mode users.

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, E.I.T.
437-221-1343
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:	2021-02-18
Cc:	Viktoriya Zaytseva – CGH Transportation		
From:	Mark Crockford	Project Number:	2020-37

Re: Sherborne Lodge Developments North Oakville – Terms of Reference

We have been asked to undertake a Transportation Impact Study (TIS) for Sherborne Lodge Developments property in North Oakville, located at the southeast corner of Burnhamthorpe Road at Neyagawa Boulevard intersection. This section of Burnhamthorpe Road will ultimately become part of the future William Halton Parkway. The proposed development includes a mix of commercial, residential, and school uses. The residential component of the proposed development consists of an apartment block with anticipated 296 units, and a subdivision, which includes 84 single detached homes, and 128 townhouses. The subject property is currently a greenfield area.

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 the *North Oakville Terms of Reference for Transportation Impact Studies and Transportation Functional Design Studies (2009)* and the *Halton Region TIS Guidelines*.

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)
 - Street A (Settlers Road West)
- The following intersections will be included in the Transportation Impact Study:
 - Neyagawa Boulevard at Burnhamthorpe Road (William Halton Parkway) - *Existing*
 - Street A (Settlers Road West) at Neyagawa Boulevard – *Existing*
 - Street B at William Halton Parkway - *Future*
 - William Halton Parkway at Old Burnhamthorpe Road – *Future*
- Halton Region 2019 Turning Movement Counts will be used as a base for Neyagawa Boulevard at Burnhamthorpe Road intersection. As no turning movement counts have been undertaken by the Region at Settlers Road West and Neyagawa Boulevard, 2020 Turning Movement Counts collected by Ontario Traffic Inc. and approved by the Town and the Region as part of the TIS for an adjacent development to the east will be used in this study. The southbound and northbound traffic counted at this intersection will be balanced with the 2019 traffic volumes at Neyagawa Boulevard at Burnhamthorpe Road intersection to account for abnormal traffic patterns during COVID 19 lockdown measures.

- Signal Timing Plans for the Study Area intersections will be requested from Halton Region.

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 2021, followed by a build-out future horizon of 2026, and 2031 (five-year future horizon)
- AM and PM peak hour horizons

Background Growth:

- A 2% compound annual background growth rate will be used to project the 2021 existing volumes, 2026 future horizon volumes, and 2031 future horizon volumes. These growth rates have been taken from the Transportation Impact Study for the adjacent developments of Remington Eno and 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 (commercial and residential components)
- The projected 2026 and 2031 mode shares previously provided by Halton Region and will be used in this TIS
- Trip distribution and assignment of auto trips: TTS, surrounding area characteristics
- Trip reductions as required
- Elementary school block will not be included as part of the proposed development trip generation, as this type of use mostly generates pass-by trips (i.e. parents dropping off their children on their way to work) or active mode trips from the neighboring residential communities. Further, the school staff who may come from outside the school catchment areas produce a marginal number of trips and usually arrive before the peak hour. Considering the above, it is anticipated that the elementary school within the proposed subdivision will have no impact on arterial roads surrounding the Sherborne Lodge Developments site during the AM or PM peak hours.

Analysis:

- Traffic analysis to be performed using Synchro 11, 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
 - 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
- 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: March 10, 2021 1:26 PM
To: Mark Crockford; Viktoriya Zaytseva
Subject: RE: TIS (ToR) for Part of Lot 19 and 20, Con 1, NDS - Sherborne Lodge Developments
Attachments: 2020-37 Terms of Reference 2021-02-18 Memo.pdf

Hi Mark,

Please see response comments below.

Regards - Quadri

This message, including any attachments, is intended only for the person(s) named above and may contain confidential and/or privileged information. Any use, distribution, copying or disclosure by anyone other than the intended recipient is strictly prohibited. If you are not the intended recipient, please notify us immediately by telephone or e-mail and permanently delete the original transmission from us, including any attachments, without making a copy.

Hi Quadri,

I have the following comments:

Study Intersections:

Study Intersections are acceptable.

The terms of reference state “*Neyagawa Boulevard at Burnhamthorpe Road (William Halton Parkway) – Existing*” The analysis must also take into account any changes to the intersection based on the William Halton Parkway Capital Works projects. The project Managers for the Capital projects must be contacted to confirm the final design of the intersection.

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). Any proposed development access to a Regional road **will only be reviewed as part of the Transportation Impact Study.**

Data Requests:

For the traffic volume counts and traffic signal timing, information can be requested from our Road Operations group at trafficdatarequests@halton.ca. *Considering the current times we are experiencing with COVID-19, older counts may be used with an acceptable growth rate of 2% for through and turning movements at any Regional intersection. 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.

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. **Transit mode splits will need to be adjusted from the 2011 TMP assumptions to reasonable percentages based on current year (2021), 2026 and 2031 planned and proposed mode splits (based on existing facilities and service in the area to date). Reasonable assumptions and rationale must be clearly outlined in the Study.**

Background Growth Rates and Background Developments:

Background Growth Rates and Background Developments are to be provided by the Town of Oakville.

Halton's Capital Implementation Plan (2021-2030):

Halton's Capital Implementation Plan (2021-2030) shows:

-William Halton Parkway from Third Line to Neyagawa new 4-lane road is scheduled for completion in Q4 2024. It can be assumed as operational in 2024. The Project Manager is David.collum@halton.ca

-William Halton Parkway from Neyagawa Boulevard to Trafalgar Road new 4-lane road is scheduled for completion in Q4 2024. It can be assumed as operational in 2024. The Project Manager is John.williamson@halton.ca

Project schedules are subject to change.

Matt

Matt Krusto

Project Manager II, Transportation Planning Coordination

Infrastructure Planning & Policy

Public Works

Halton Region

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



From: Adebayo, Quadri <Quadri.Adebayo@halton.ca>
Sent: Thursday, February 25, 2021 1:27 PM
To: Krusto, Matt <Matt.Krusto@halton.ca>
Subject: FYI: TIS (ToR) for Part of Lot 19 and 20, Con 1, NDS - Sherborne Lodge Developments

Hi Matt,

For your attention - This is for a proposed residential development at 382 Burnhamthorpe Road West, Oakville that was discussed at the October 28, 2020 Pre-Consultation meeting.

Quadri Adebayo, M.PL, PMP

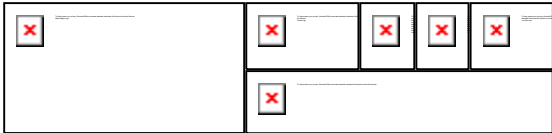
Intermediate Planner

Planning Services

Legislative & Planning Services

Halton Region

905-825-6000, ext. 3105 | 1-866-442-5866



From: Mark Crockford <mark.crockford@cghtransportation.com>
Sent: Tuesday, February 23, 2021 10:21 AM
To: Syed Rizvi <syed.rizvi@oakville.ca>; Adebayo, Quadri <Quadri.Adebayo@halton.ca>
Cc: Viktoriya Zaytseva <viktoriya.zaytseva@cghtransportation.com>
Subject: Part of Lot 19 and 20, Con 1, NDS - Sherborne Lodge Developments TIS

CAUTION: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe. If you are unsure or need assistance please contact the IT Service Desk.

Hi Syed and Qadri,

Attached is our terms of reference for our TIS in support of the proposed development application for Part of Lot 19 and 20, Con 1, NDS - Sherborne Lodge Developments. Please let us know if you have any comments or questions.

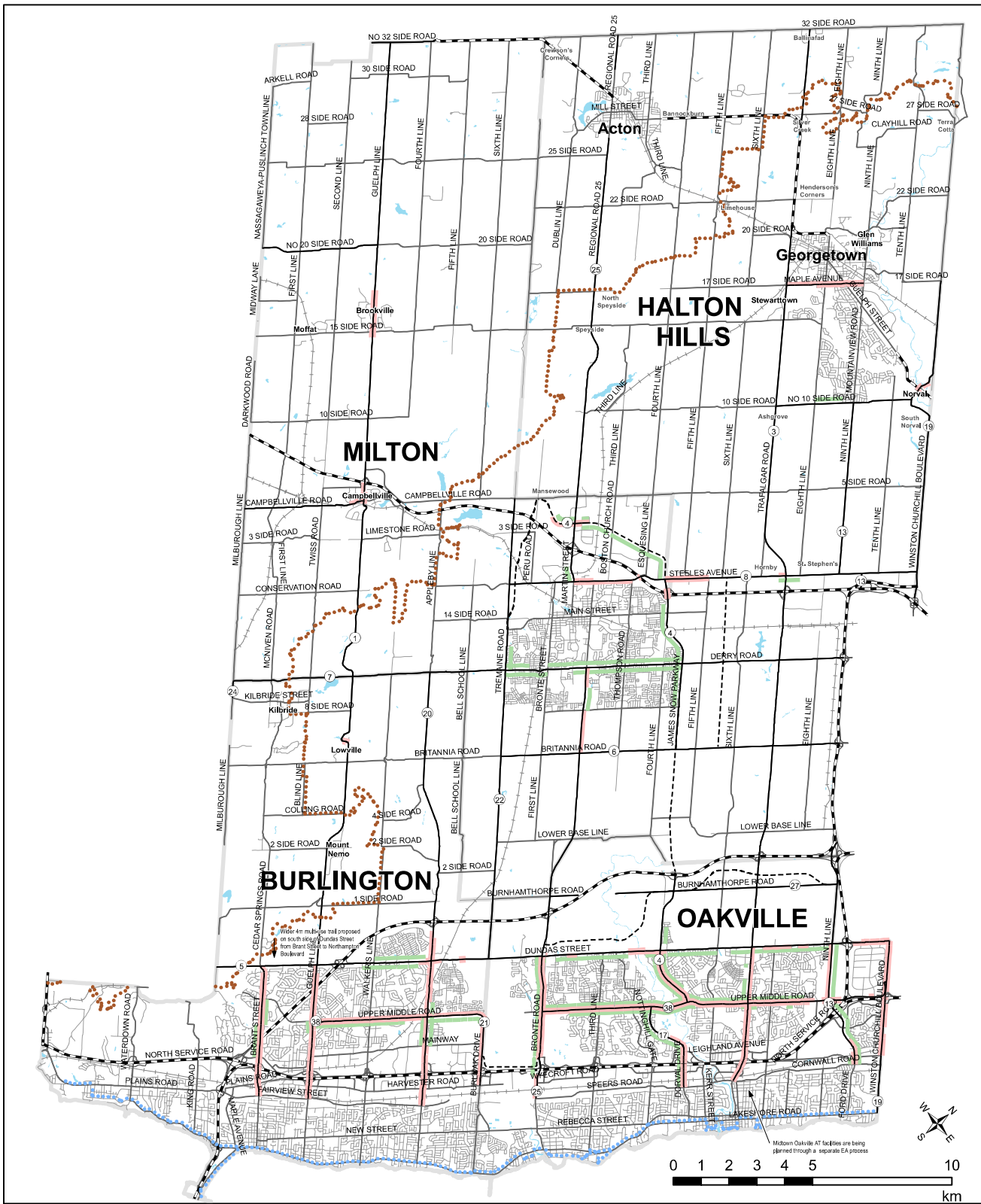
Thanks,
Mark



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

Appendix B

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



Legend

Existing Regional Walk Network

- Sidewalk
- Boulevard Multi-Use Trail
- Bruce Trail
- Waterfront Trail

Regional Road Network

- Existing Regional Road
- - - Proposed Regional Road

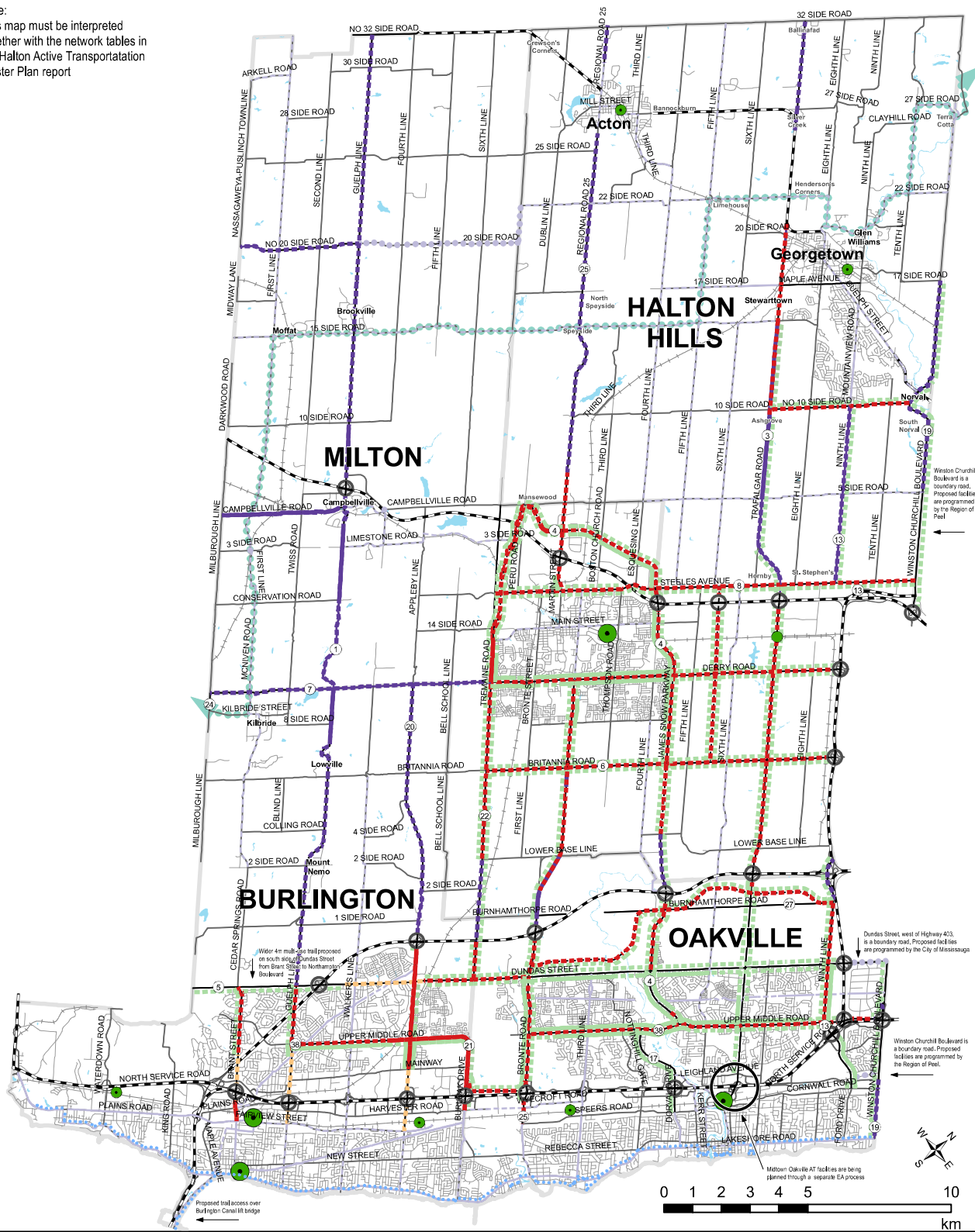
Active Transportation Master Plan

MAP 2

Existing Regional Walking Network

Note: Existing walking facilities are shown only for Regional Roads, which are shown in black on the map.

Note:
This map must be interpreted together with the network tables in the Halton Active Transportation Master Plan report



Legend

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

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

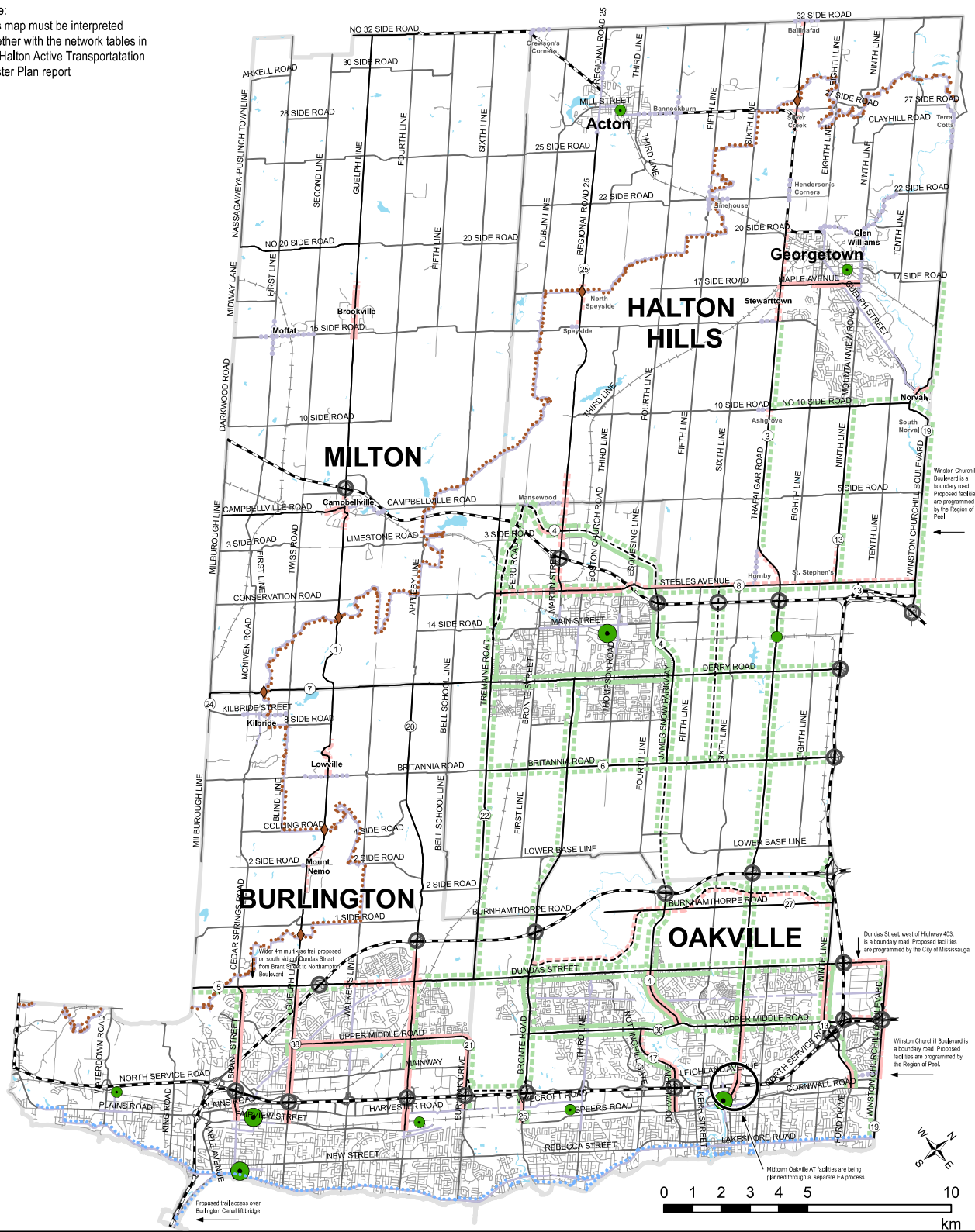
- Existing and Proposed Major Transit Stations****
- Mobility Hub
 - Major Transit Stations
 - Proposed GO Stations

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

Active Transportation Master Plan MAP 3 Proposed Regional Cycling Network

*Note active transportation facilities at interchanges to be determined in consultation with the MTO.
**Note that some Routes that are Regionally Significant are located near transit stations. Connections to transit are an important part of the Regional Cycling and Walking Network. Transit stations are shown on the map to provide contextual information.

Note:
This map must be interpreted together with the network tables in the Halton Active Transportation Master Plan report



Legend

- Proposed Regional Walk Network**
- Sidewalk
 - Boulevard Multi-Use Trail
 - Interchange Improvement*
 - ◇ Bruce Trail Crossing
- Routes not on Regional Roads**
- Existing Routes that are Regionally Significant
 - Planned Routes that are Regionally Significant
 - Proposed Routes that are Regionally Significant

- Existing Regional Walk Network**
- Sidewalk
 - Boulevard Multi-Use Trail
 - Bruce Trail
 - Waterfront Trail
- Existing and Proposed Major Transit Stations****
- Mobility Hub
 - Existing GO Stations
 - Proposed GO Stations

Active Transportation Master Plan
MAP 4
Proposed Regional Walking Network

*Note active transportation facilities at interchanges to be determined in consultation with the MTO.
**Note that some Routes that are Regionally Significant are located near transit stations. Connections to transit are an important part of the Regional Cycling and Walking Network. Transit stations are shown on the map to provide contextual information.

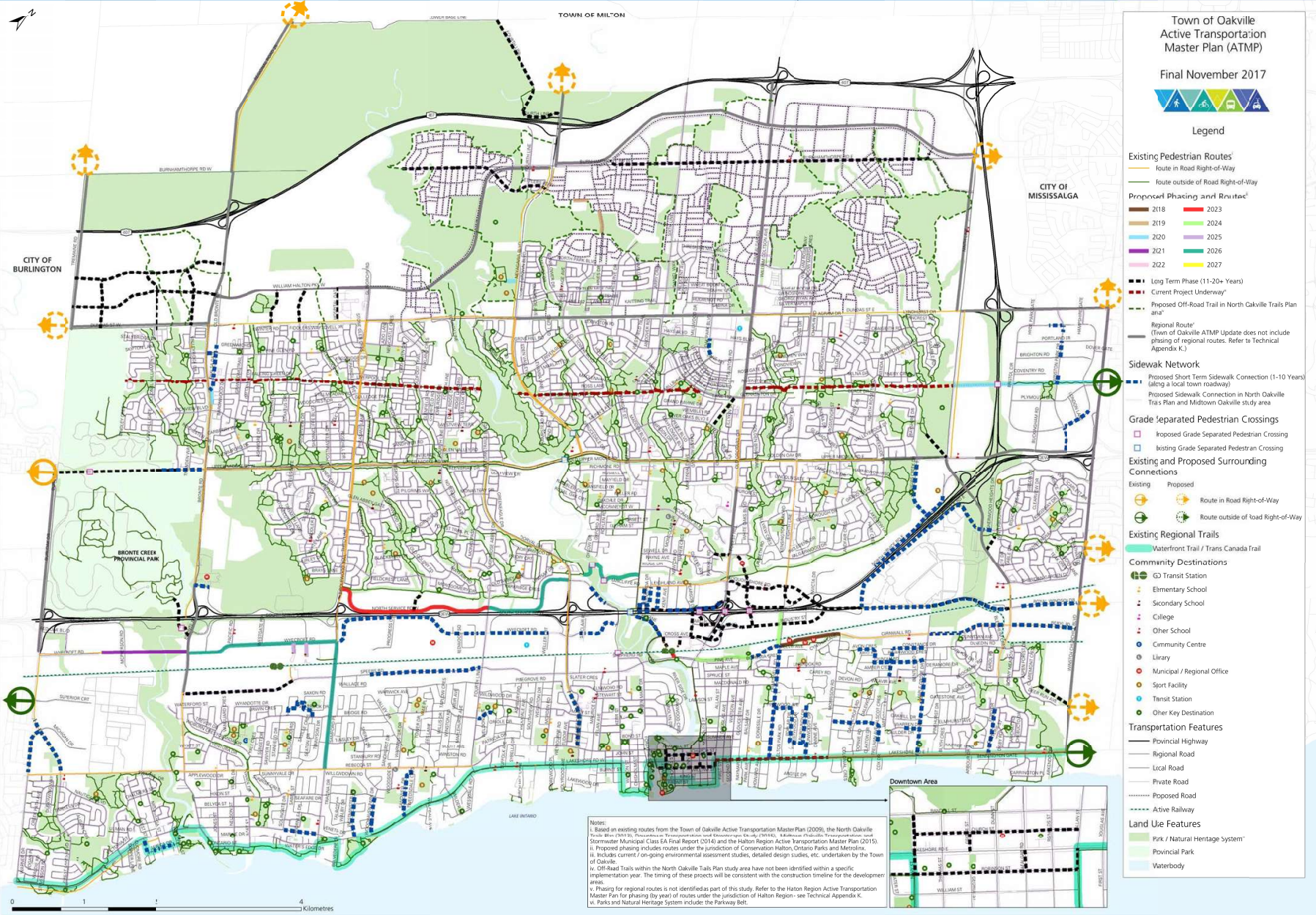


Prepared by IBI Group April, 2015

Map 8 - Proposed Pedestrian Network Phasing



Map 8



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



- Legend**
- Existing Pedestrian Routes¹**
 - Route in Road Right-of-Way
 - Route outside of Road Right-of-Way
 - Proposed Phasing and Routes²**
 - 2018
 - 2019
 - 2020
 - 2021
 - 2022
 - 2023
 - 2024
 - 2025
 - 2026
 - 2027
 - Long Term Phase (11-20+ Years)
 - Current Project Underway³
 - Proposed Off-Road Trail in North Oakville Trails Plan area⁴
 - Regional Route⁵ (Town of Oakville ATMP Update does not include phasing of regional routes. Refer to Technical Appendix K.)
 - Sidewalk Network**
 - Proposed Short Term Sidewalk Connection (1-10 Years) (along a local town roadway)
 - Proposed Sidewalk Connection in North Oakville Trails Plan and Midtown Oakville study area
 - Grade Separated Pedestrian Crossings**
 - Proposed Grade Separated Pedestrian Crossing
 - Existing Grade Separated Pedestrian Crossing
 - Existing and Proposed Surrounding Connections**
 - Existing
 - Proposed
 - Route in Road Right-of-Way
 - Route outside of Road Right-of-Way
 - Existing Regional Trails**
 - Waterfront Trail / Trans Canada Trail
 - Community Destinations**
 - Transit Station
 - Elementary School
 - Secondary School
 - College
 - Other School
 - Community Centre
 - Library
 - Municipal / Regional Office
 - Sport Facility
 - Transit Station
 - Other Key Destination
 - Transportation Features**
 - Provincial Highway
 - Regional Road
 - Local Road
 - Private Road
 - Proposed Road
 - Active Railway
 - Land Use Features**
 - Park / Natural Heritage System⁶
 - Provincial Park
 - Waterbody

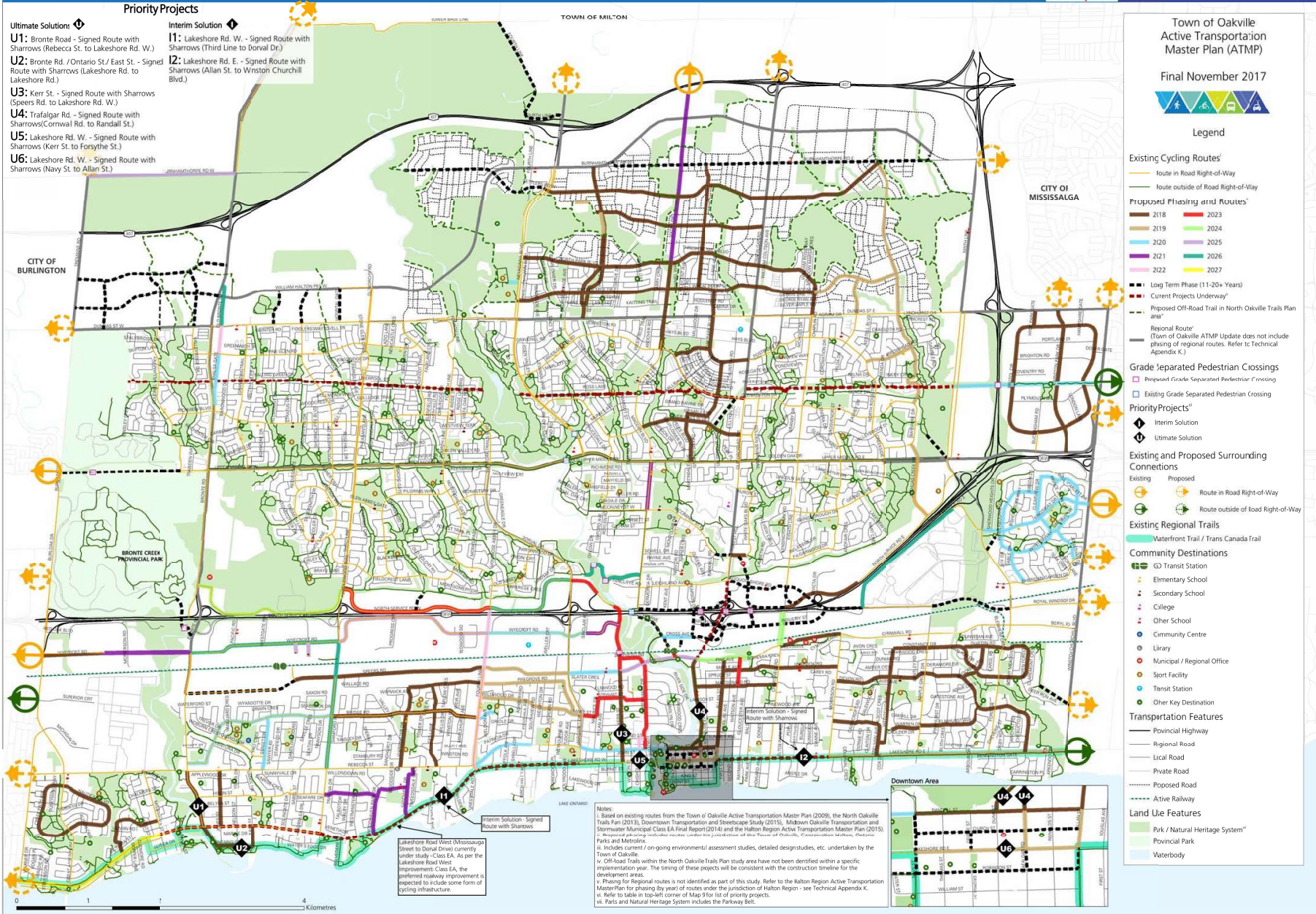
Notes:
 1. Based on existing routes from the Town of Oakville Active Transportation Master Plan (2009), the North Oakville Trails Plan (2010), the Regional Transportation and Mobility Plan (2014), the Midtown Oakville Transportation and Mobility Plan (2014), the Waterfront Trail / Trans Canada Trail (2014) and the Halton Region Active Transportation Master Plan (2015).
 2. Proposed phasing includes routes under the jurisdiction of Conservation Halton, Ontario Parks and Metrolinx.
 3. Includes currently ongoing environmental assessment studies, detailed design studies, etc. undertaken by the Town of Oakville.
 4. Off-Road Trails within the North Oakville Trails Plan study area have not been identified within a specific implementation year. The timing of these projects will be consistent with the construction timeline for the development areas.
 5. Phasing for regional routes is not identified as part of this study. Refer to the Halton Region Active Transportation Master Plan for phasing (by year) of routes under the jurisdiction of Halton Region - see Technical Appendix K.
 6. Parks and Natural Heritage System includes the Parkway Belt.



Map 9 - Proposed Cycling Network Phasing & Priority Projects

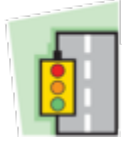


Map 9



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



Traffic Count Map

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





Traffic Count Summary

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

Neyagawa Blvd - Traffic Summary

Hour	North Approach Totals						South Approach Totals					
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles					
	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



Traffic Count Summary

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

Settlers Rd W - Traffic Summary

Hour	East Approach Totals						West Approach Totals					
	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	0
07:15	2	77	0	0	79	0	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	0
07:45	4	58	0	0	62	0	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	0
08:15	19	91	0	0	110	1	3	0	0	4	0	0	0	0	0	0	0
08:30	29	74	0	0	103	0	4	0	0	4	0	0	0	0	0	0	0
08:45	9	47	0	0	56	0	4	0	0	4	0	0	0	0	0	0	0
SUBTOTAL	76	560	0	0	636	1	17	0	0	18	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

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



Peak Hour Diagram

Specified Period

From: 07:00:00
To: 09:00:00

One Hour Peak

From: 08:00:00
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
	262	297	559
	5	17	22
	0	0	0
Totals	267	314	581

Neyagawa Blvd

	0	0	0
	0	5	0
	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
	39	72	111
	0	1	1
	0	0	0
Totals	39	73	112

Totals	68	306	0
	67	289	0
	1	17	0
	0	0	0

Neyagawa Blvd

South Approach

	Out	In	Total
	356	288	644
	18	5	23
	0	0	0
Totals	374	293	667

- Cars

- Trucks

- Bicycles

Comments



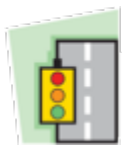
Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

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	0.79	0.59	0.81		0	0	0.82					0	0	0.5		0.6	0	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	-	-	-	0



Peak Hour Diagram

Specified Period

From: 16:00:00
To: 18:00:00

One Hour Peak

From: 16:00:00
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
	297	220	517
	0	2	2
	0	0	0
Totals	297	222	519

Neyagawa Blvd

	0	0	0
	0	0	0
	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
	16	30	46
	0	0	0
	0	0	0
Totals	16	30	46

	Out	In	Total
	28	218	0
	0	2	0
	0	0	0
Totals	28	220	0

Neyagawa Blvd

South Approach

	Out	In	Total
	246	309	555
	2	0	2
	0	0	0
Totals	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 Vehic es
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
16:00		78	1	0	0	79	4	53		0	0	57					0		0		5	0	0	5	141
16:15		61	1	0	0	62	7	59		0	0	66					0		0		3	0	0	3	131
16:30		80	0	0	0	80	9	52		0	0	61					0		0		3	0	0	3	144
16:45		76	0	0	0	76	8	56		0	0	64					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	0.93	0.78	0.93		0	0	0.94					0	0	0.25		0.7	0	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	-		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: \times

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: \times

Heavys	Trucks	Cars	Totals
16	1	294	311

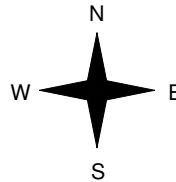


Neyagawa Blvd

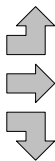
Cars	Trucks	Heavys	Totals
12	0	0	12
76	0	6	82
212	0	0	212
300	0	6	



Burnhamthorpe Rd W



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



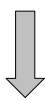
Burnhamthorpe Rd W



Cars	Trucks	Heavys	Totals
368	3	7	378

Peds Cross: \times
 West Peds: 0
 West Entering: 234
 West Leg Total: 545

Cars	549	Cars	162	527	279	968
Trucks	4	Trucks	1	1	1	3
Heavys	16	Heavys	8	1	1	10
Totals	569	Totals	171	529	281	



Neyagawa Blvd

Peds Cross: \times
 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

North Leg Total: 209

North Entering: 93

North Peds: 0

Peds Cross: \times

Heavys	0	5	1	6
Trucks	0	3	0	3
Cars	5	70	9	84
Totals	5	78	10	



Heavys 1

Trucks 3

Cars 112

Totals 116

East Leg Total: 288

East Entering: 137

East Peds: 0

Peds Cross: \times

Heavys	Trucks	Cars	Totals
1	2	91	94

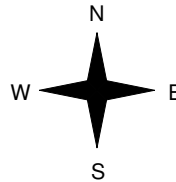


Neyagawa Blvd

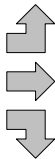
Cars	Trucks	Heavys	Totals
7	3	0	10
22	1	0	23
102	0	2	104
131	4	2	



Burnhamthorpe Rd W



Heavys	Trucks	Cars	Totals
0	0	3	3
0	0	23	23
1	1	63	65
1	1	89	



Burnhamthorpe Rd W



Neyagawa Blvd



Cars	Trucks	Heavys	Totals
145	3	3	151

Peds Cross: \times

West Peds: 1

West Entering: 91

West Leg Total: 185

Cars	235	Cars	64	102	113	279
Trucks	4	Trucks	1	0	3	4
Heavys	8	Heavys	1	1	2	4
Totals	247	Totals	66	103	118	



Peds Cross: \times

South Peds: 0

South Entering: 287

South Leg Total: 534

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

North Leg Total: 671
 North Entering: 446
 North Peds: 0
 Peds Cross: \times

Heavys	0	1	1	2
Trucks	0	0	0	0
Cars	9	419	16	444
Totals	9	420	17	



Heavys	4
Trucks	4
Cars	217
Totals	225

East Leg Total: 618
 East Entering: 336
 East Peds: 0
 Peds Cross: \times

Heavys	Trucks	Cars	Totals
1	1	72	74

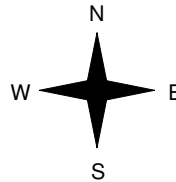


Neyagawa Blvd

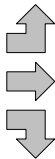
Cars	Trucks	Heavys	Totals
32	0	3	35
24	0	1	25
276	0	0	276
332	0	4	



Burnhamthorpe Rd W



Heavys	Trucks	Cars	Totals
0	0	3	3
1	0	31	32
0	0	40	40
1	0	74	



Burnhamthorpe Rd W



Neyagawa Blvd



Cars	Trucks	Heavys	Totals
277	2	3	282

Peds Cross: \times
 West Peds: 0
 West Entering: 75
 West Leg Total: 149

Cars	735	Cars	39	182	230	451
Trucks	0	Trucks	1	4	2	7
Heavys	1	Heavys	0	1	1	2
Totals	736	Totals	40	187	233	



Peds Cross: \times
 South Peds: 0
 South Entering: 460
 South Leg Total: 1196

Comments

Burnhamthorpe Rd W @ Neyagawa Blvd

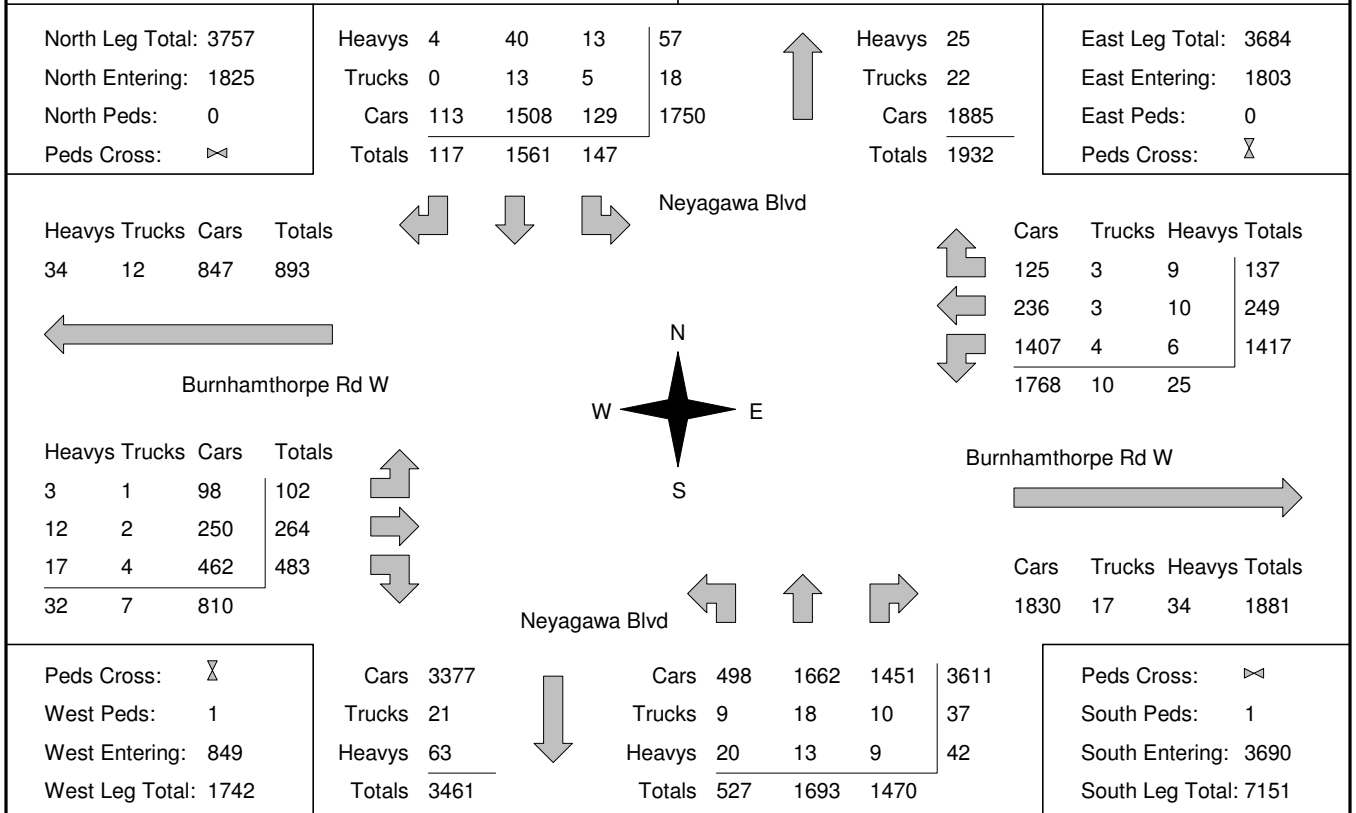
Total Count Diagram

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



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



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

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

Hi Matt and Syed,

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

Transportation Impact Study Requirements (TIS):

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

The TIS report will include:

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

Study Area:

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

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

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

Study Horizon:

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

Background Growth

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

-

Transit Mode Splits:

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

Trip Generation

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

Changes to the Study Area Road Network:

Sixth Line Widening

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

William Halton Parkway

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

Thanks,

Mark

Appendix E

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

Figure 23: 2024 Traffic Assignment (Sheet A)

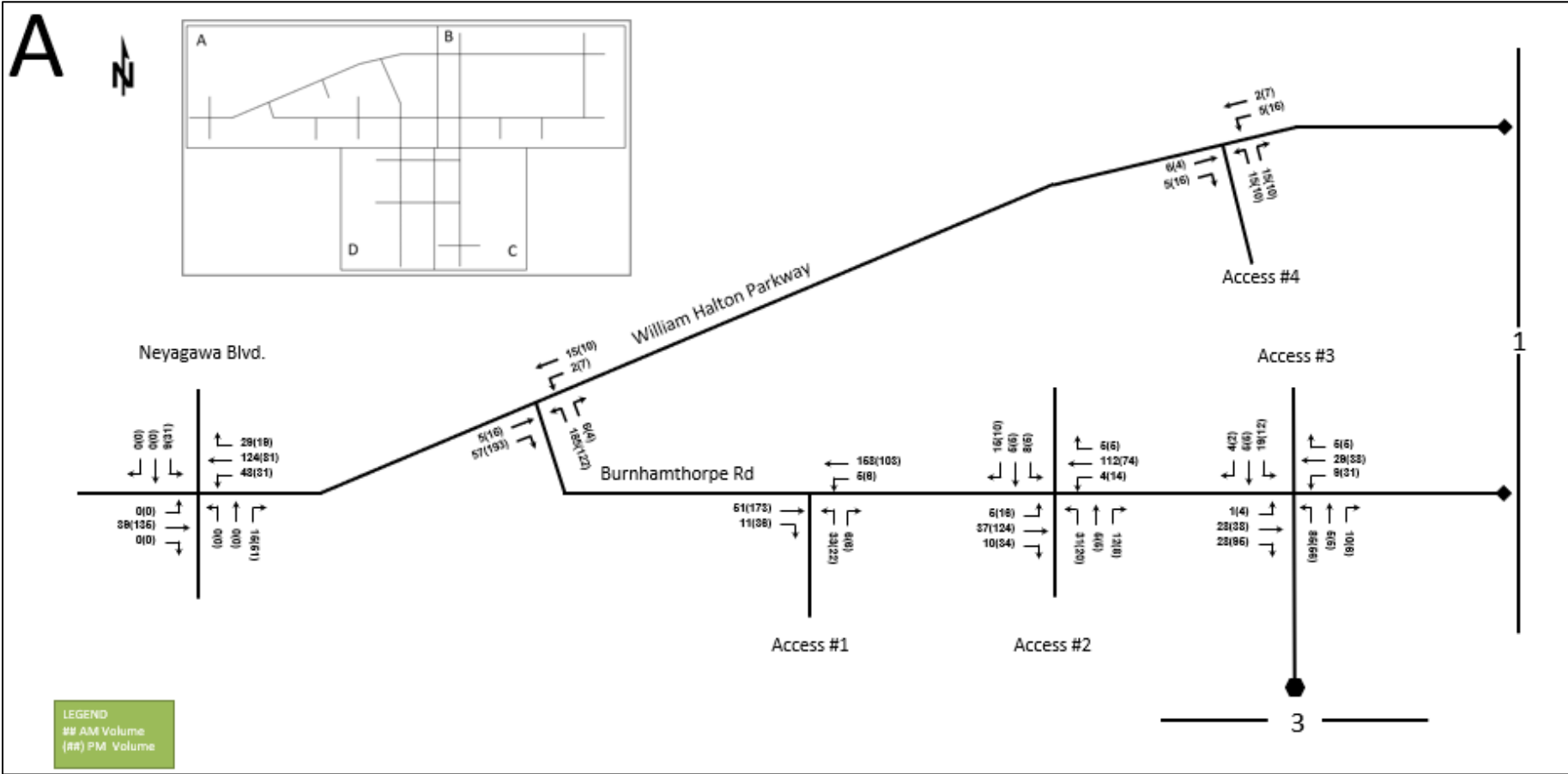


Figure 24: 2024 Traffic Assignment (Sheet B)

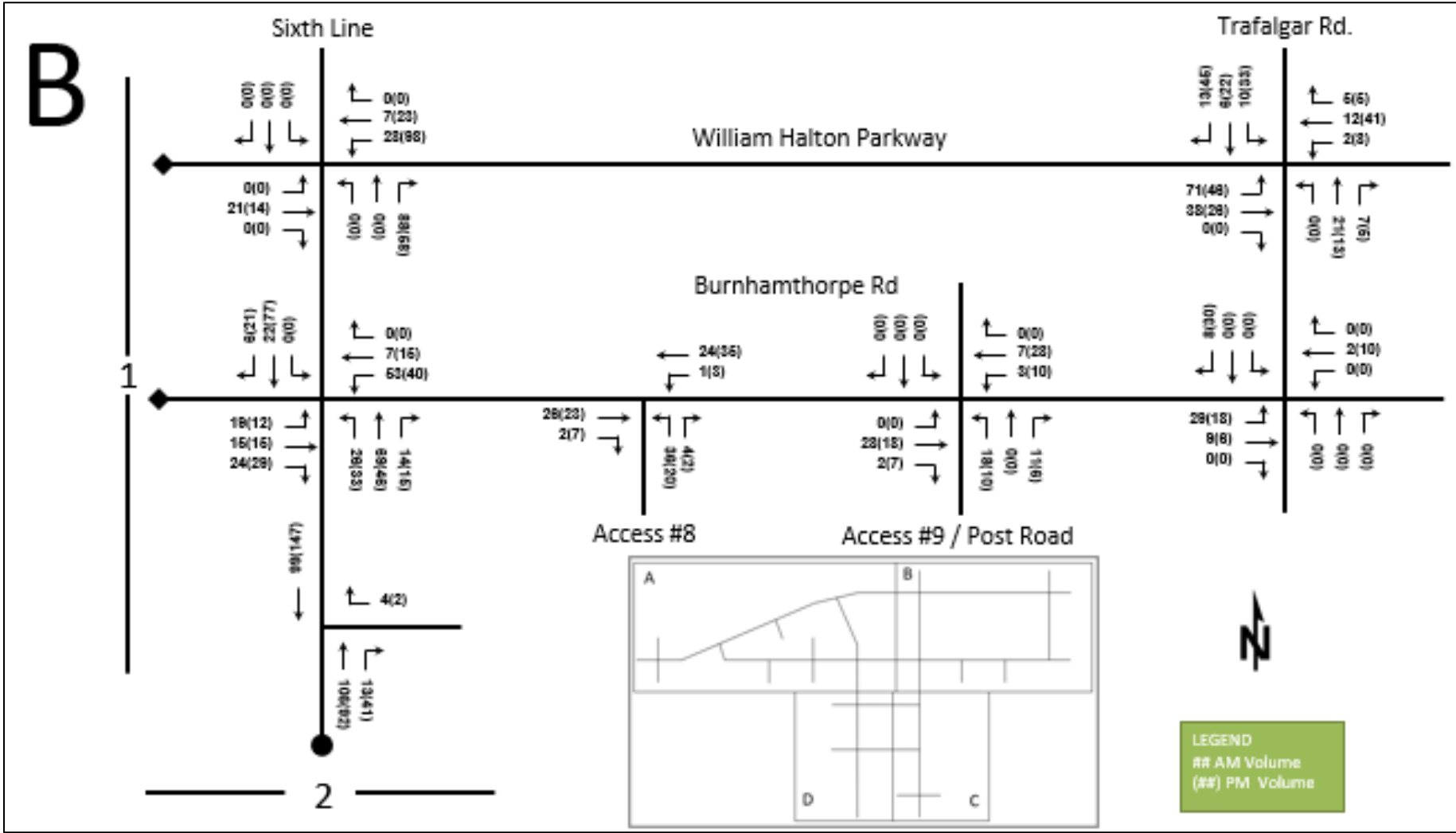


Figure 25: 2024 Traffic Assignment (Sheet C)

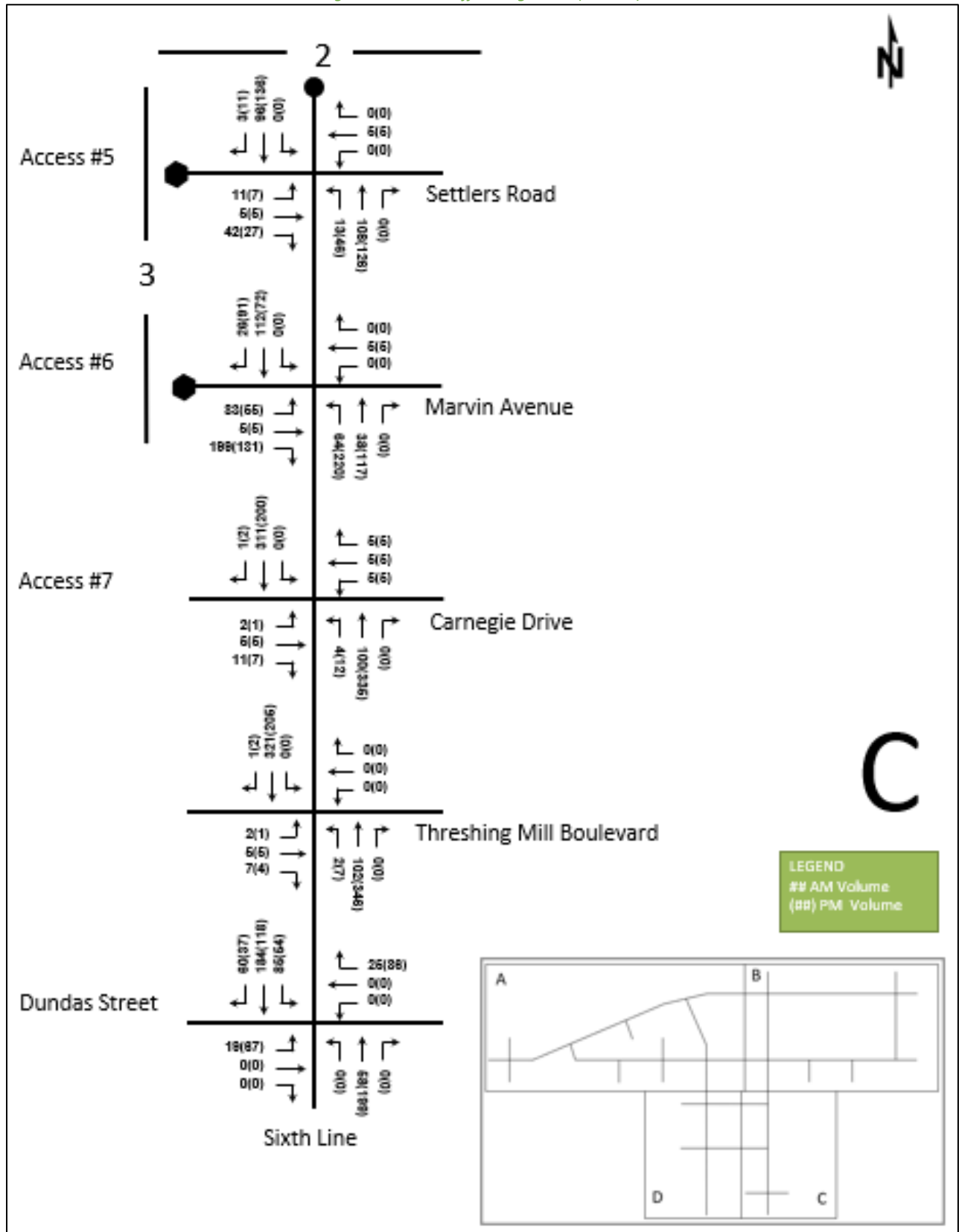


Figure 26: 2024 Traffic Assignment (Sheet D)

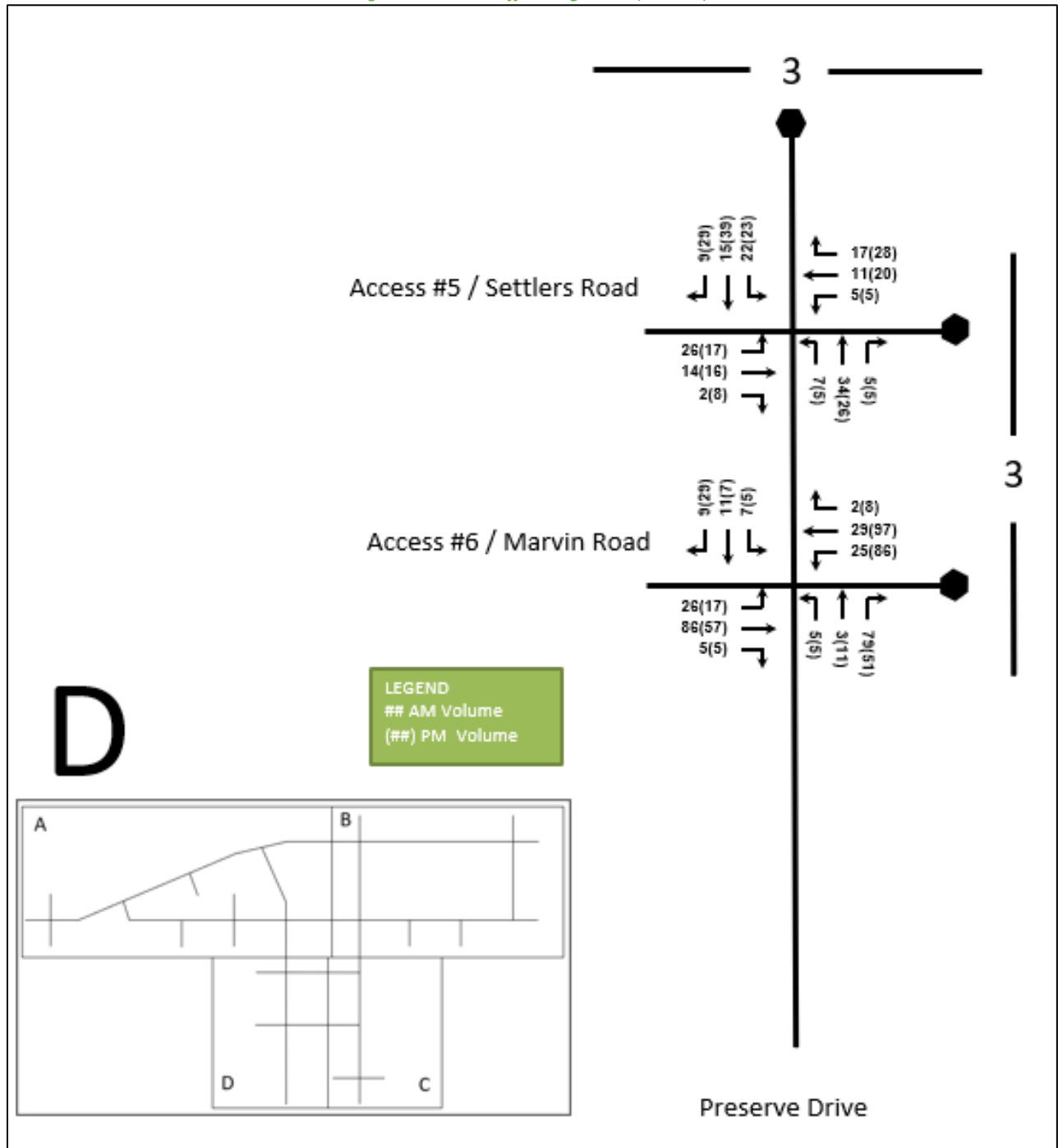


Figure 27: 2030 Traffic Assignment (Sheet A)

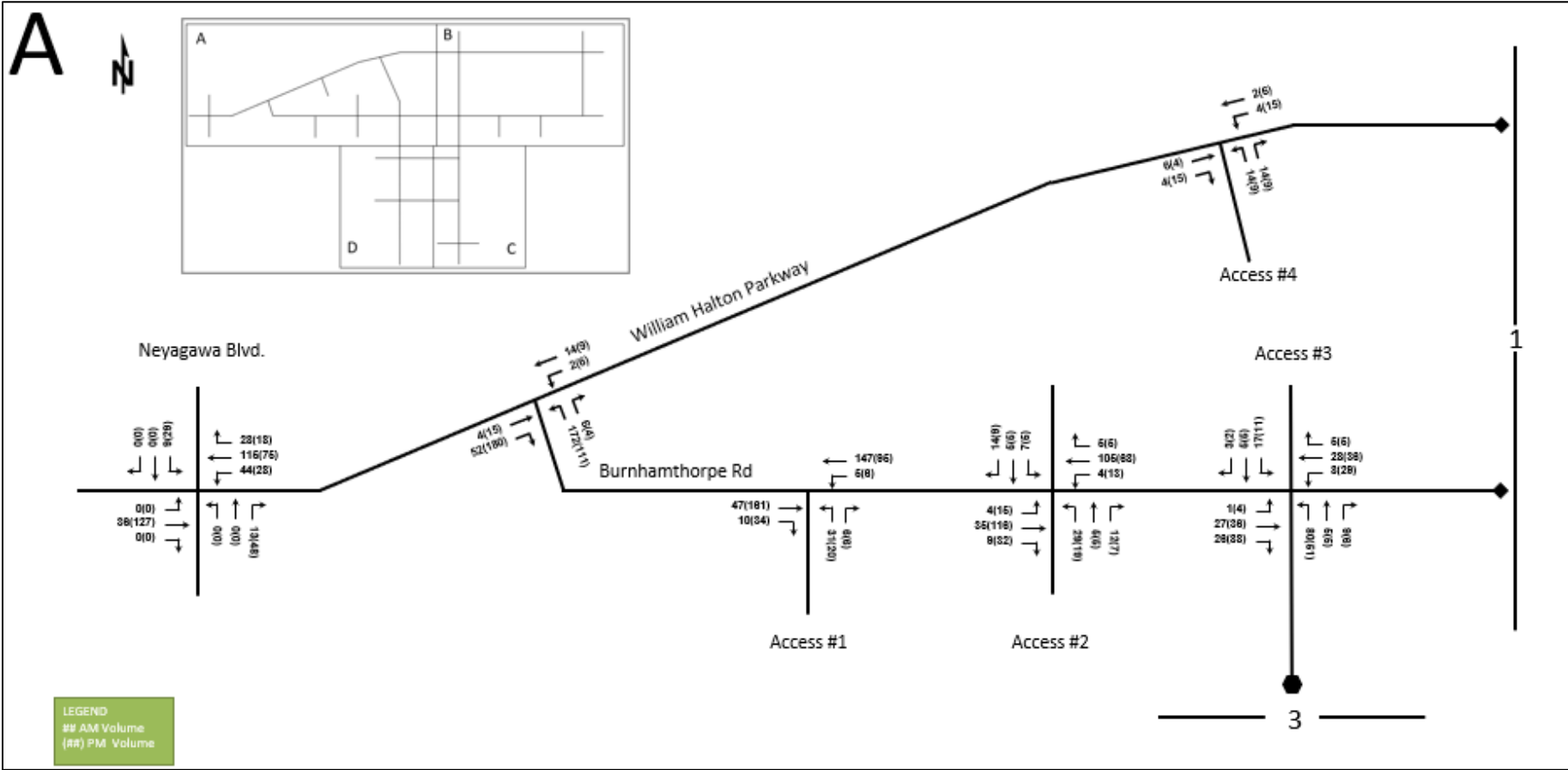


Figure 28: 2030 Traffic Assignment (Sheet B)

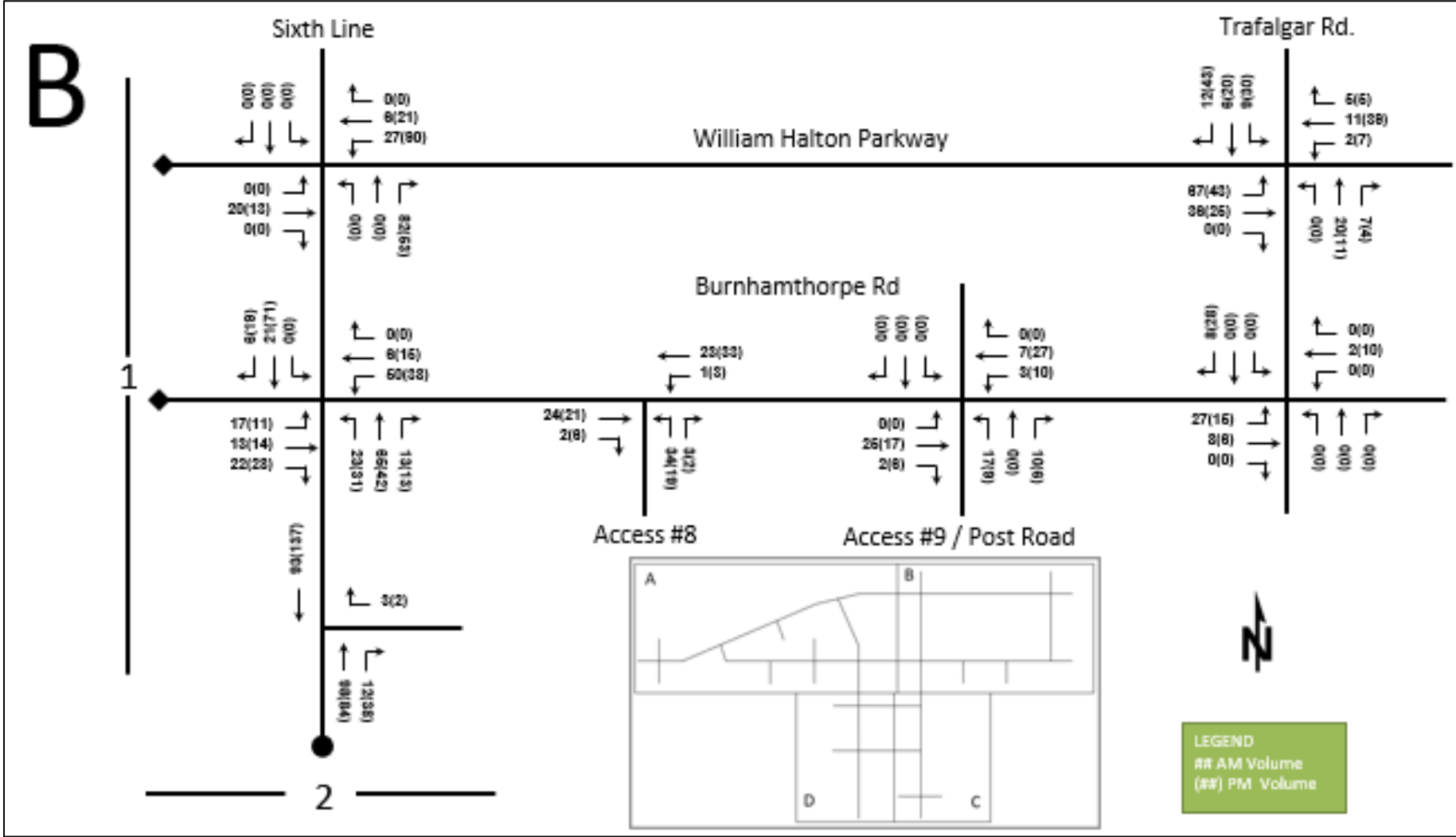


Figure 29: 2030 Traffic Assignment (Sheet C)

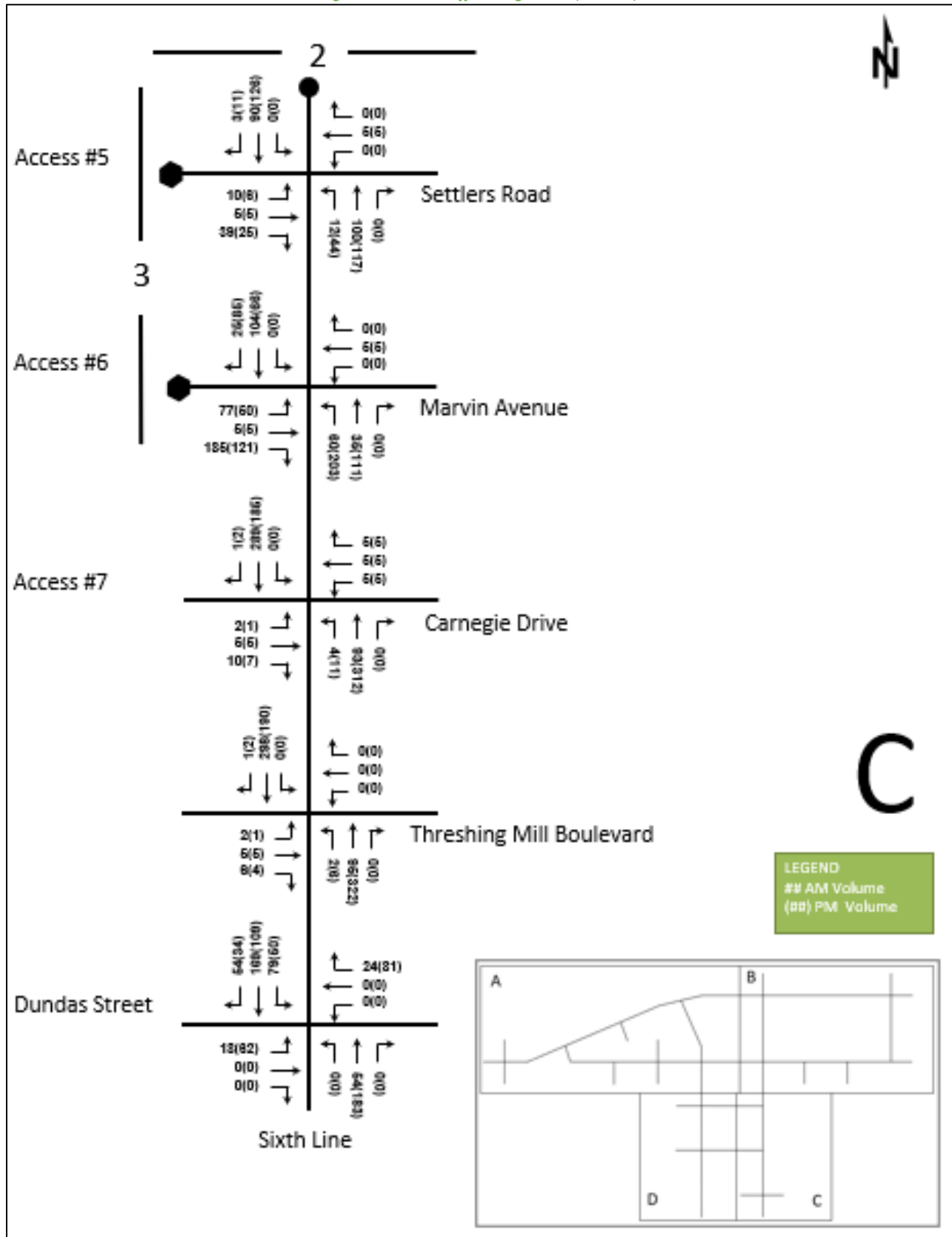
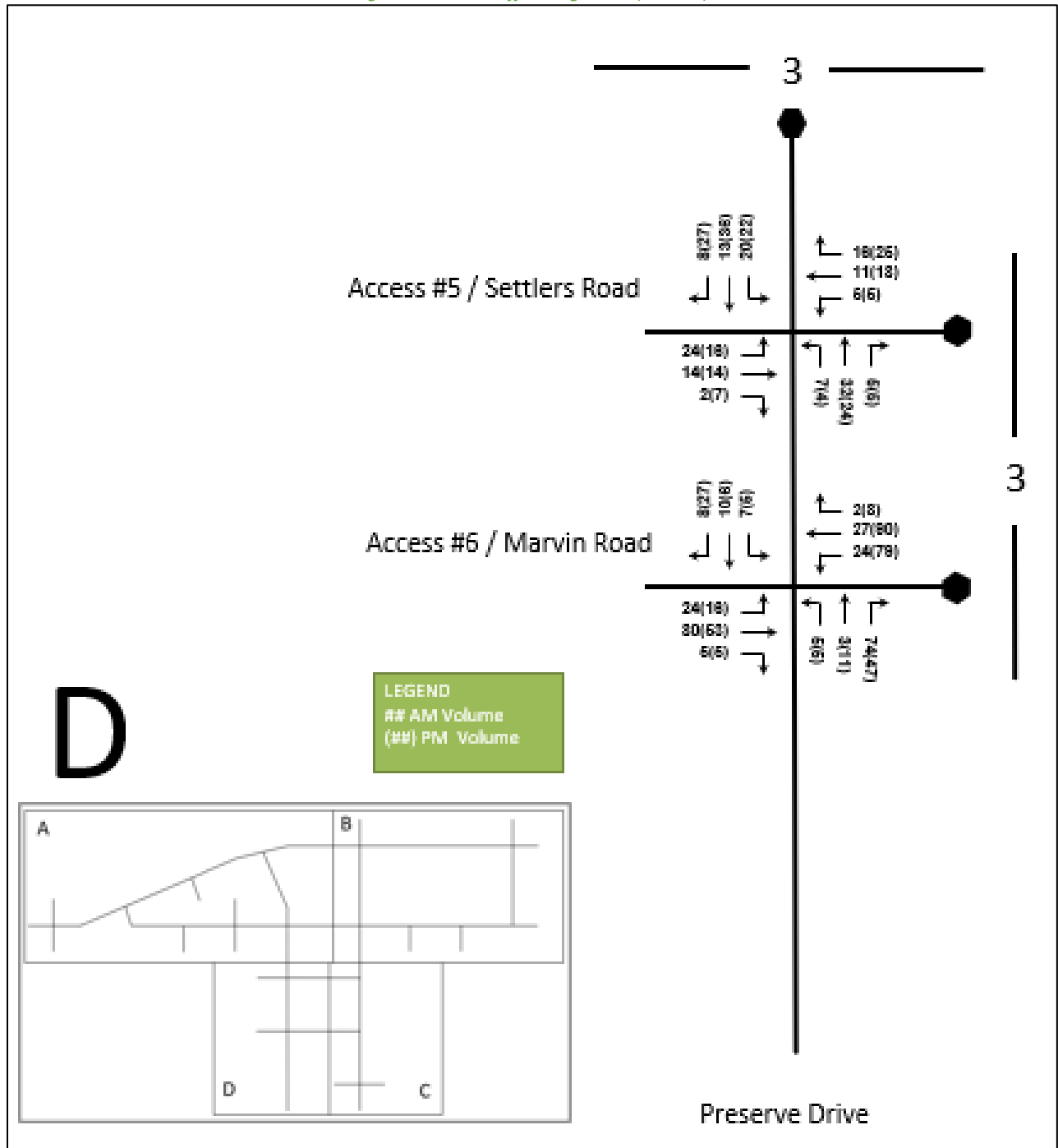


Figure 30: 2030 Traffic Assignment (Sheet D)



Appendix F

Commercial Block Area Calculations

Item #	Address	Lot Area	Building Area	Density
1	2460 Neyagawa Boulevard, Oakville	11496	2705	24%
2	2501-2525 Prince Micheal Drive, Oakville	25574	6553	26%
3	479-519 Dundas Street West, Oakville	45476	15110	33%
4	478-502 Dundas Street West, Oakville	47062	10863	23%
			AVG	26%
			MED	25%

Sherborne Lodge Commercial Block Area 10,070
Approximate Building Area 2517.5

Appendix G

ITE Pass-By Rates

**Table E.9 (Cont'd) Pass-By and Non-Pass-By Trips Weekday, PM Peak Period
Land Use Code 820—Shopping Center**

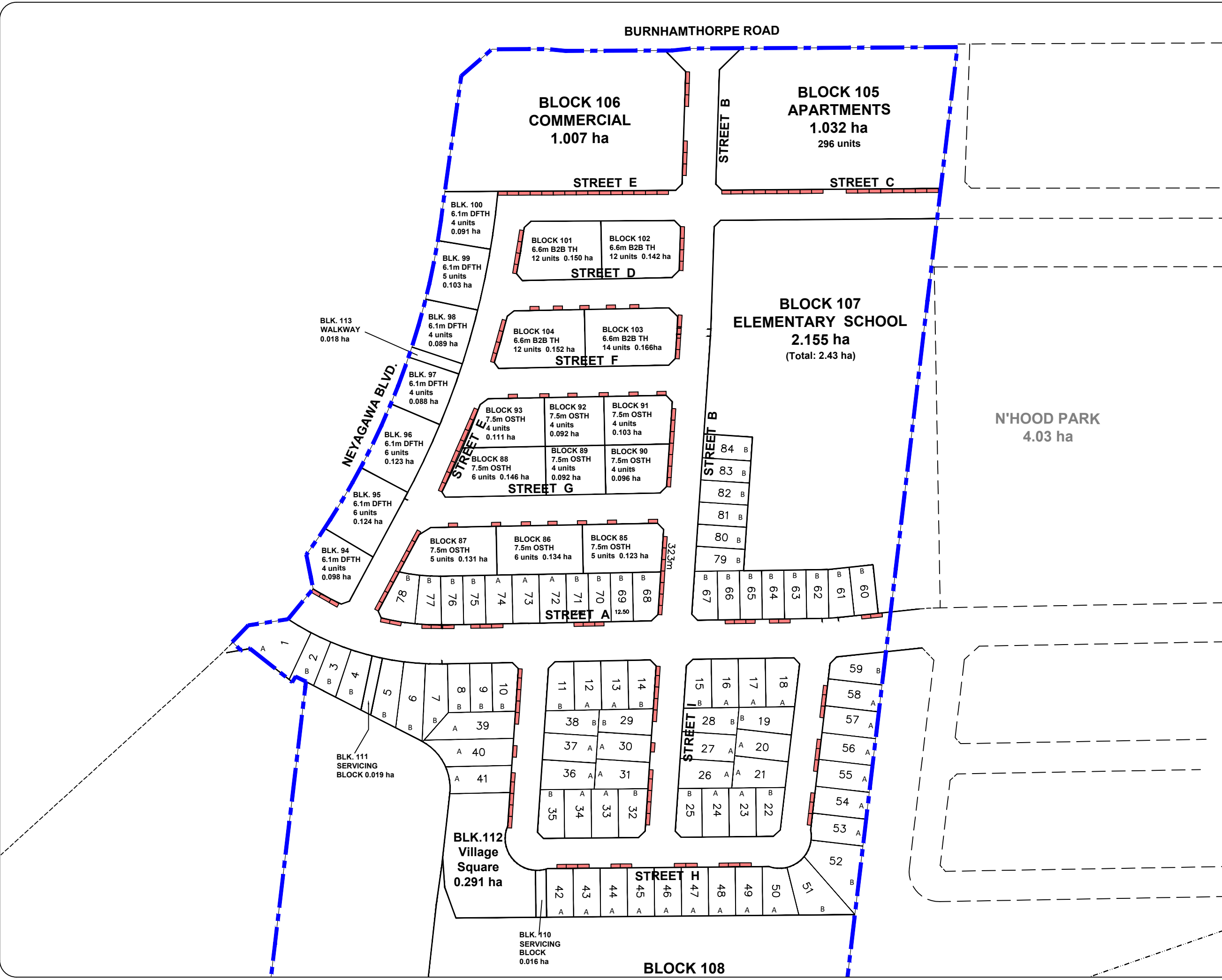
SIZE (1,000 SQ. FT. GLA)	LOCATION	WEEKDAY SURVEY DATE	NO. OF INTERVIEWS	TIME PERIOD	PASS-BY TRIP (%)	NON-PASS-BY TRIP (%)			ADJ. STREET PEAK HOUR VOLUME	AVERAGE 24-HOUR TRAFFIC	SOURCE
						PRIMARY	DIVERTED	TOTAL			
237	W. Windsor Twp, NJ	Winter 1988/89	—	4:00–6:00 p.m.	48	—	—	52	—	46,000	Booz Allen & Hamilton
242	Willow Grove, PA	Winter 1988/89	—	4:00–6:00 p.m.	37	—	—	63	—	26,000	McMahon Associates
297	Whitehall, PA	Winter 1988/89	—	4:00–6:00 p.m.	33	—	—	67	—	26,000	Orth-Rodgers & Assoc. Inc.
360	Broward Cnty., FL	Winter 1988/89	—	4:00–6:00 p.m.	44	—	—	56	—	73,000	McMahon Associates
370	Pittsburgh, PA	Winter 1988/89	—	4:00–6:00 p.m.	19	—	—	81	—	33,000	Wilbur Smith
150	Portland, OR	—	519	4:00–6:00 p.m.	68	6	26	32	—	25,000	Kittelsohn and Associates
150	Portland, OR	—	655	4:00–6:00 p.m.	65	7	28	35	—	30,000	Kittelsohn and Associates
760	Calgary, Alberta	Oct.-Dec. 1987	15,436	4:00–6:00 p.m.	20	39	41	80	—	—	City of Calgary DOT
178	Bordentown, NJ	Apr. 1989	154	2:00–6:00 p.m.	35	—	—	65	—	37,980	Raymond Keyes Assoc.
144	Manalapan, NJ	July 1990	176	3:30–6:15 p.m.	32	44	24	68	—	69,347	Raymond Keyes Assoc.
549	Natick, MA	Feb. 1989	—	4:45–5:45 p.m.	33	26	41	67	—	48,782	Raymond Keyes Assoc.

Average Pass-By Trip Percentage: 34

“—” means no data were provided

Appendix H

Parking Concept Plan



Notes:

TYPICAL ON STREET PARKING SPACES

Single and End Interior

* Subject to adjustment during detailed engineering design
** Per North Oakville Parking Strategy

On Street Townhouse Dwellings
42 Residential Units

Double Frontage Townhouse Dwellings
33 Residential Units

Back to Back Townhouse Dwellings
50 Residential Units

Single-Detached Dwellings
84 Residential Units

Apartment Dwellings
296 Residential Units

Street Parking Within Development
+/- 166 Parking Spaces

01	Issued for Review	AL	2021/08/13
REV:	DESCRIPTION:	BY:	DATE:
STATUS:			

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

CLIENT: Sherborne Lodge Developments

ARCHITECT:

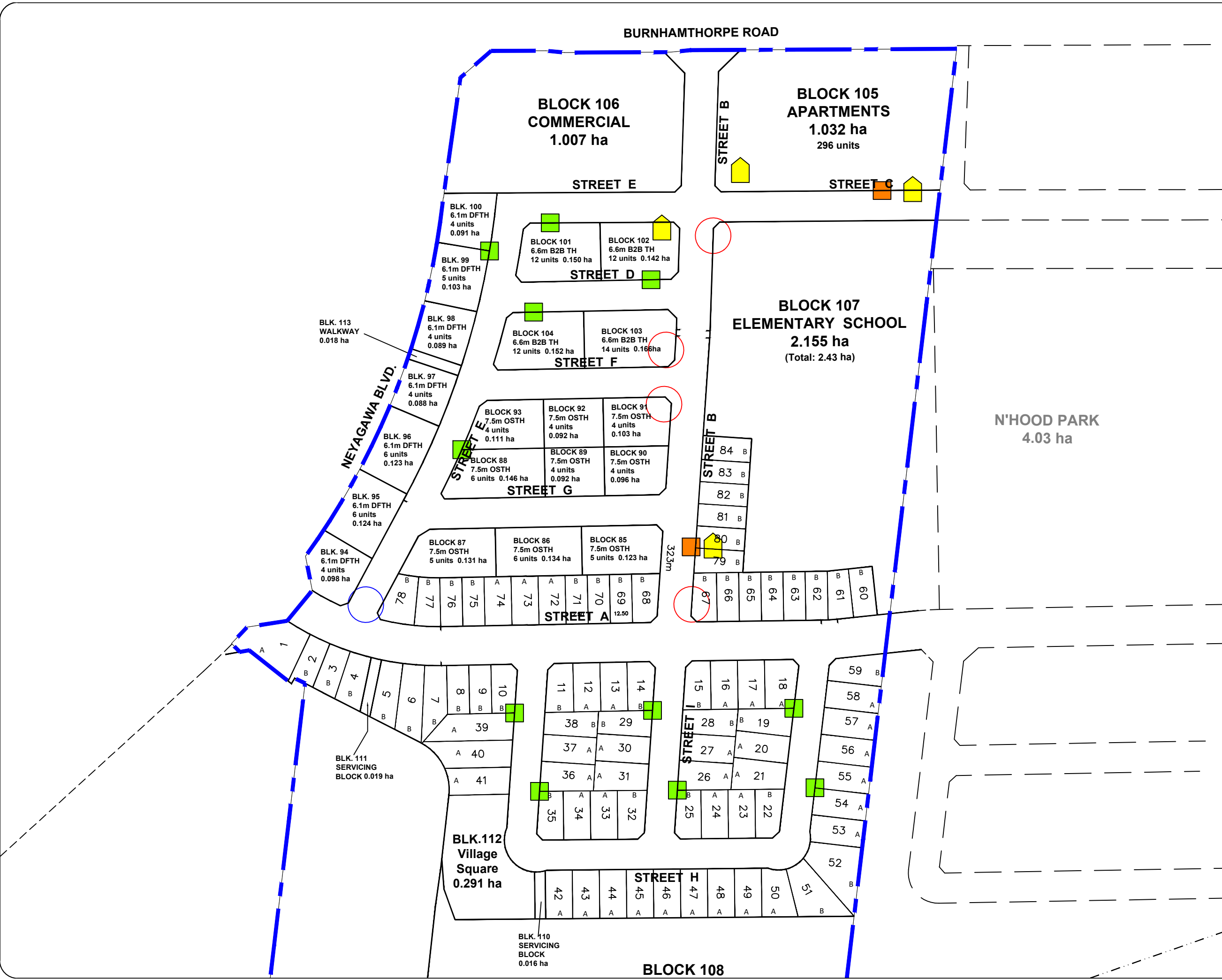
SITE: Sherborne Lodge North Oakville

TITLE: On-Street Parking Concept Plan

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2021/08/13	AL	MC
PROJECT NO:	DRAWING NO:	REVISION:	
2020-37	005	01	

Appendix I

Traffic Calming Concept Plan



Notes:

LEGEND:

- Roadway Narrowing
- School Zone Ahead Singnage (40km/h)
- Reduced Speed Limit Sign (40km/h) c/w Pole Mounted Radar Speed Sign
- Posted Speed Limit Sign (40km/h)
- Splitter Island

Note:
School Zone Signage and Radar Signs to be Installed Only Once School Shown at Block 107 is Confirmed

01	Issued for Review	AL	2021/08/13
REV:	DESCRIPTION:	BY:	DATE:
STATUS:			

		CGH Transportation	
		628 Haines Road Newmarket, ON L3Y 6V5 (905) 251-4070	
CLIENT: Sherborne Lodge Developments			
ARCHITECT:			
SITE: Sherborne Lodge North Oakville			
TITLE: Cycling Facilities Concept Plan			
SCALE AT A3: NTS	DATE: 2021/08/13	DRAWN: AL	CHECKED: MC
PROJECT NO: 2020-37	DRAWING NO: 006	REVISION: 01	

Appendix J

Traffic Control Signals Warrants

William Halton Parkway at Site Access #2
 Future Total 2026

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance		Signal	
		1 Lane Highway		2 or More Lanes		Sectional			Entire %
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	2667	444%	25%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	30	25%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	2647	441%	0%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	0	0%		

Notes

1. Refer to OTM Book 12, pg 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

check OTM book 12

William Halton Parkway at Site Access #2
 Future Total 2031

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance		Signal	
		1 Lane Highway		2 or More Lanes		Sectional			Entire %
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	2681	447%	23%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	28	23%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	2662	444%	0%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	0	0%		

Notes

1. Refer to OTM Book 12, pg 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 K

HV% Calculation

[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%

























[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

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

2021 Existing AM
Sherborne Lodge

												
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

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

2021 Existing AM
Sherborne Lodge










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:NBT 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

 Ø1 11 s	 Ø2 (R) 37 s	 Ø3 15 s	 Ø4 37 s
 Ø5 11 s	 Ø6 (R) 37 s	 Ø8 52 s	

Lanes, Volumes, Timings
24: Neyagawa Boulevard & Settlers Road West

2021 Existing AM
Sherborne Lodge



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	

Lanes, Volumes, Timings
 24: Neyagawa Boulevard & Settlers Road West

2021 Existing AM
 Sherborne Lodge



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:NBT 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



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

2021 Existing PM
Sherborne Lodge

												
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

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

2021 Existing PM
Sherborne Lodge



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

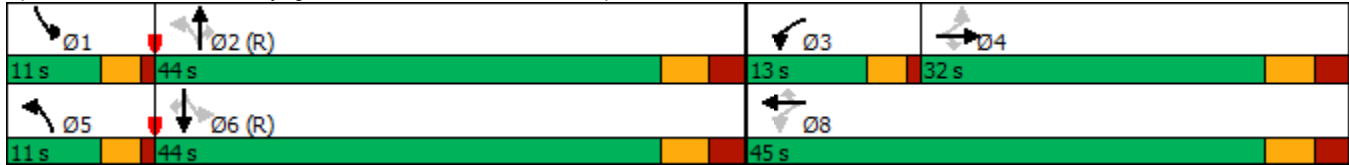
Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	94 (94%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle:	100
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.08
Intersection Signal Delay:	30.0
Intersection LOS:	C
Intersection Capacity Utilization:	54.9%
ICU Level of Service:	A
Analysis Period (min):	15

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

2021 Existing PM
 Sherborne Lodge

- ~ 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



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

2021 Existing PM
Sherborne Lodge



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

Lanes, Volumes, Timings
24: Neyagawa Boulevard & Settlers Road West

2021 Existing PM
Sherborne Lodge



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		

Lanes, Volumes, Timings
 24: Neyagawa Boulevard & Settlers Road West

2021 Existing PM
 Sherborne Lodge

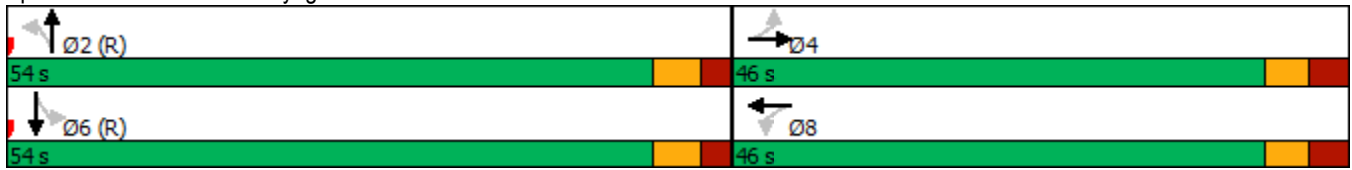


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		15.0	15.0		15.0	15.0	
Minimum Split (s)	36.4	36.4		36.4	36.4		29.0	29.0		29.0	29.0	
Total Split (s)	46.0	46.0		46.0	46.0		54.0	54.0		54.0	54.0	
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



This message, including any attachments, is intended only for the person(s) named above and may contain confidential and/or privileged information. Any use, distribution, copying or disclosure by anyone other than the intended recipient is strictly prohibited. If you are not the intended recipient, please notify us immediately by telephone or e-mail and permanently delete the original transmission from us, including any attachments, without making a copy.

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

CAUTION: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe. If you are unsure or need assistance please contact the IT Service Desk.

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

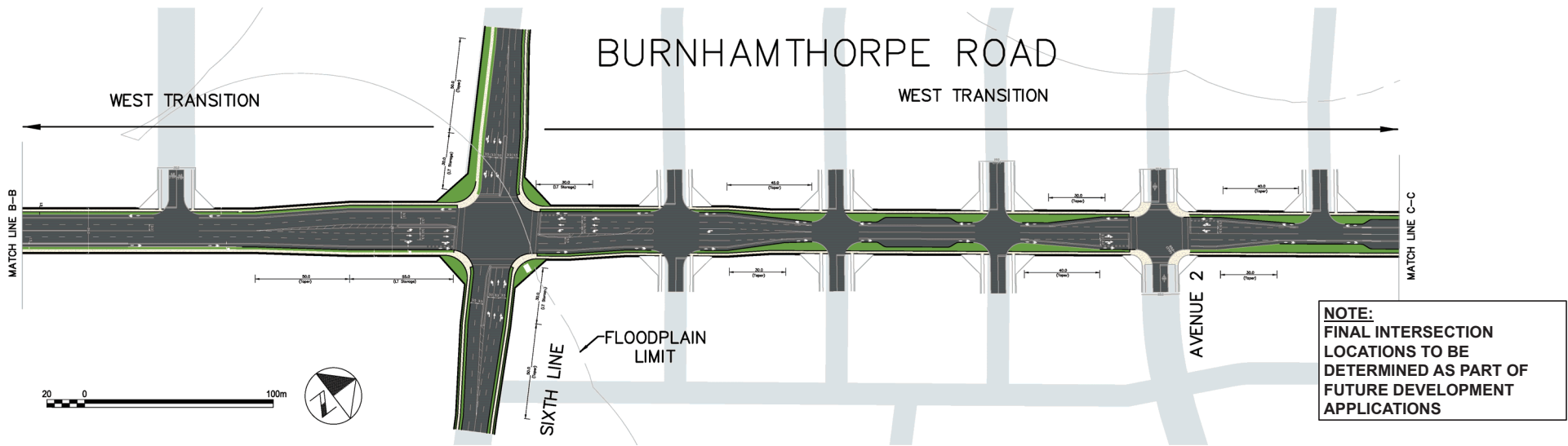
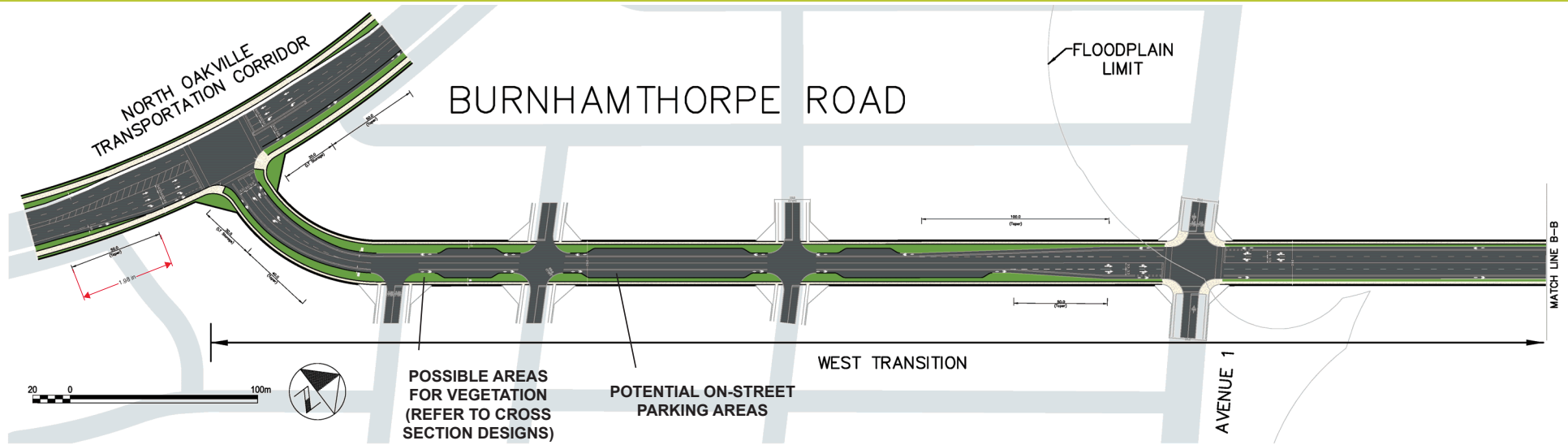
E: viktoriya.zaytseva@cghtransportation.com

Appendix N

Burnhamthorpe Road Character Study and Municipal Class EA

Preliminary Preferred Alternative: Plan View

BURNHAMTHORPE ROAD
CHARACTER STUDY































Appendix O

2026 Future Background Conditions Synchro Worksheets

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

2026 Future Background AM
Sherborne Lodge

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	45	2164	154	292	2281	42	226	607	337	50	261	66
Future Volume (vph)	45	2164	154	292	2281	42	226	607	337	50	261	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			0.552			0.290		
Satd. Flow (perm)	242	3406	1509	216	3374	1583	999	3539	1599	488	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	2352	167	317	2479	46	246	660	366	54	284	72
Shared Lane Traffic (%)												
Lane Group Flow (vph)	49	2352	167	317	2479	46	246	660	366	54	284	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

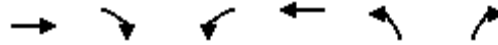
- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

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

↙ Ø1	↕ Ø2 (R)	↙ Ø3	↘ Ø4
11 s	37 s	15 s	37 s
↙ Ø5	↕ Ø6 (R)	↙ Ø8	
11 s	37 s	52 s	

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

2026 Future Background AM
Sherborne Lodge



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	2162	196	2	2125	336	6
Future Volume (vph)	2162	196	2	2125	336	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)		66				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)	2350	213	2	2310	365	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2350	213	2	2310	365	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

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




Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	33.1	33.1	33.1	33.1	39.5	39.5
Total Split (s)	80.5	80.5	80.5	80.5	39.5	39.5
Total Split (%)	67.1%	67.1%	67.1%	67.1%	32.9%	32.9%
Maximum Green (s)	75.4	75.4	75.4	75.4	34.0	34.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.4	1.4	1.4	1.4	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	27.0	27.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	80.5	80.5	80.5	80.5	28.9	28.9
Actuated g/C Ratio	0.67	0.67	0.67	0.67	0.24	0.24
v/c Ratio	0.99	0.20	0.03	0.97	0.86	0.02
Control Delay	36.9	6.2	10.0	33.3	62.6	19.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.9	6.2	10.0	33.3	62.6	19.7
LOS	D	A	A	C	E	B
Approach Delay	34.3			33.3	61.8	
Approach LOS	C			C	E	
Queue Length 50th (m)	~284.4	12.4	0.2	268.9	85.9	0.2
Queue Length 95th (m)	#379.0	25.0	1.4	#368.4	118.1	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)	2374	1083	62	2374	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	0.99	0.20	0.03	0.97	0.73	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: 0.99
 Intersection Signal Delay: 35.8
 Intersection LOS: D
 Intersection Capacity Utilization 87.2%
 ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.

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

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

 Ø2 (R) 80.5 s	 Ø8 39.5 s
 Ø6 (R) 80.5 s	

Lanes, Volumes, Timings
 24: Neyagawa Boulevard & Settlers Road West

2026 Future Background AM
 Sherborne Lodge



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	

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

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



Lanes, Volumes, Timings

2026 Future Background Improvements - AM

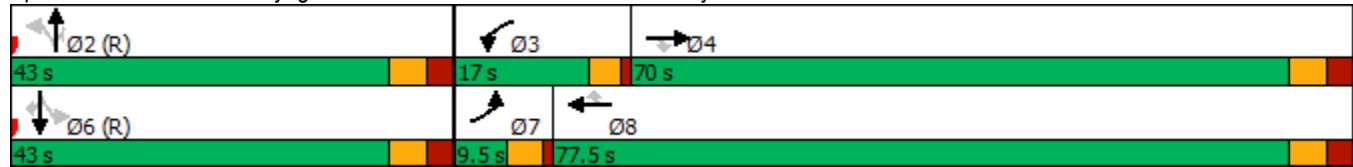
1: Neyagawa Boulevard & William Halton Parkway

Sherborne Lodge

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	2164	154	292	2281	42	226	607	337	50	261	66
Future Volume (vph)	45	2164	154	292	2281	42	226	607	337	50	261	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			0.543			0.220		
Satd. Flow (perm)	3400	4893	1509	3433	4848	1583	983	3539	1599	370	3438	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			116			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	2352	167	317	2479	46	246	660	366	54	284	72
Shared Lane Traffic (%)												
Lane Group Flow (vph)	49	2352	167	317	2479	46	246	660	366	54	284	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	

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



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

2026 Future Background Improvements - AM

Sherborne Lodge



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	2162	196	2	2125	336	6
Future Volume (vph)	2162	196	2	2125	336	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)		66				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)	2350	213	2	2310	365	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2350	213	2	2310	365	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

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



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	33.1	33.1	33.1	33.1	39.5	39.5
Total Split (s)	80.5	80.5	80.5	80.5	39.5	39.5
Total Split (%)	67.1%	67.1%	67.1%	67.1%	32.9%	32.9%
Maximum Green (s)	75.4	75.4	75.4	75.4	34.0	34.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.4	1.4	1.4	1.4	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	27.0	27.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	80.5	80.5	80.5	80.5	28.9	28.9
Actuated g/C Ratio	0.67	0.67	0.67	0.67	0.24	0.24
v/c Ratio	0.99	0.20	0.03	0.97	0.86	0.02
Control Delay	36.9	6.2	10.0	33.3	62.6	19.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.9	6.2	10.0	33.3	62.6	19.7
LOS	D	A	A	C	E	B
Approach Delay	34.3			33.3	61.8	
Approach LOS	C			C	E	
Queue Length 50th (m)	~284.4	12.4	0.2	268.9	85.9	0.2
Queue Length 95th (m)	#379.0	25.0	1.4	#368.4	118.1	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)	2374	1083	62	2374	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	0.99	0.20	0.03	0.97	0.73	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: 0.99
 Intersection Signal Delay: 35.8
 Intersection LOS: D
 Intersection Capacity Utilization 87.2%
 ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

 Ø2 (R) 80.5 s	 Ø8 39.5 s
 Ø6 (R) 80.5 s	

Lanes, Volumes, Timings
24: Neyagawa Boulevard & Settlers Road West



























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	

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



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

2026 Future Background PM
Sherborne Lodge

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	2314	62	348	2220	59	65	215	318	67	482	10
Future Volume (vph)	3	2314	62	348	2220	59	65	215	318	67	482	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			0.403			0.606		
Satd. Flow (perm)	291	3505	1583	251	3471	1482	743	3505	1583	1086	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	2515	67	378	2413	64	71	234	346	73	524	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	2515	67	378	2413	64	71	234	346	73	524	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

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

2026 Future Background PM
Sherborne Lodge



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	2.80	0.13	1.58	1.80	0.10	0.17	0.17	0.41	0.13	0.37	0.02
Control Delay	30.0	833.3	1.1	303.0	388.2	3.5	11.6	18.9	5.2	13.3	22.9	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	833.3	1.1	303.0	388.2	3.5	11.6	18.9	5.2	13.3	22.9	0.0
LOS	C	F	A	F	F	A	B	B	A	B	C	A
Approach Delay		810.8			368.3			10.8			21.3	
Approach LOS		F			F			B			C	
Queue Length 50th (m)	0.5	~464.2	0.0	~93.6	~391.6	0.0	7.1	16.5	0.0	7.3	40.5	0.0
Queue Length 95th (m)	2.9	#507.8	1.4	#152.4	#435.4	6.1	14.5	25.3	34.3	14.7	55.0	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	425	1394	838	562	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	2.80	0.13	1.58	1.80	0.10	0.17	0.17	0.41	0.13	0.37	0.02

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	94 (94%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle:	145
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	2.80
Intersection Signal Delay:	472.8
Intersection LOS:	F
Intersection Capacity Utilization:	119.7%
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

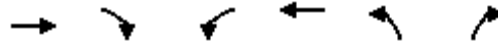
↙ Ø1	↖ Ø2 (R)	↙ Ø3	↗ Ø4
11 s	44 s	13 s	32 s
↙ Ø5	↖ Ø6 (R)	↙ Ø8	
11 s	44 s	45 s	

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



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	2155	260	7	2142	369	4
Future Volume (vph)	2155	260	7	2142	369	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)		88				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)	2342	283	8	2328	401	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2342	283	8	2328	401	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

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



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	33.1	33.1	33.1	33.1	39.5	39.5
Total Split (s)	80.5	80.5	80.5	80.5	39.5	39.5
Total Split (%)	67.1%	67.1%	67.1%	67.1%	32.9%	32.9%
Maximum Green (s)	75.4	75.4	75.4	75.4	34.0	34.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.4	1.4	1.4	1.4	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	27.0	27.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	78.7	78.7	78.7	78.7	30.7	30.7
Actuated g/C Ratio	0.66	0.66	0.66	0.66	0.26	0.26
v/c Ratio	1.01	0.26	0.13	1.00	0.89	0.01
Control Delay	42.8	6.9	15.0	41.2	64.6	19.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.8	6.9	15.0	41.2	64.6	19.5
LOS	D	A	B	D	E	B
Approach Delay	38.9			41.1	64.1	
Approach LOS	D			D	E	
Queue Length 50th (m)	~329.1	18.5	0.7	~325.3	93.6	0.0
Queue Length 95th (m)	#376.8	33.1	3.8	#373.3	#140.4	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)	2320	1068	62	2320	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	1.01	0.26	0.13	1.00	0.80	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: 1.01
 Intersection Signal Delay: 41.8
 Intersection LOS: D
 Intersection Capacity Utilization 88.8%
 ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.

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

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



Lanes, Volumes, Timings
 24: Neyagawa Boulevard & Settlers Road West



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			

Lanes, Volumes, Timings
 24: Neyagawa Boulevard & Settlers Road West

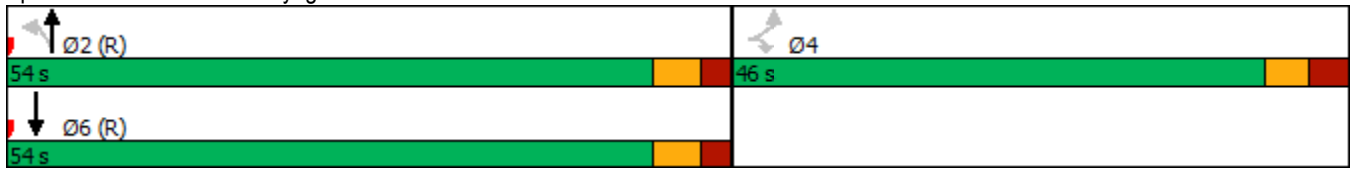


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4	4	2	2	6	
Switch Phase						
Minimum Initial (s)	10.0	10.0	15.0	15.0	15.0	
Minimum Split (s)	36.4	36.4	29.0	29.0	29.0	
Total Split (s)	46.0	46.0	54.0	54.0	54.0	
Total Split (%)	46.0%	46.0%	54.0%	54.0%	54.0%	
Maximum Green (s)	39.6	39.6	48.0	48.0	48.0	
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 Effect 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	1.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	41.0	19.6	2.4	1.7	1.3	
LOS	D	B	A	A	A	
Approach Delay	21.9			1.7	1.3	
Approach LOS	C			A	A	
Queue Length 50th (m)	0.4	0.0	0.0	0.0	0.8	
Queue Length 95th (m)	2.5	5.9	3.2	17.7	m16.4	
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:NBT and 6:SBT, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.32
 Intersection Signal Delay: 1.7
 Intersection Capacity Utilization 42.1%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

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



















































Lanes, Volumes, Timings

2026 Future Background Improvements - PM

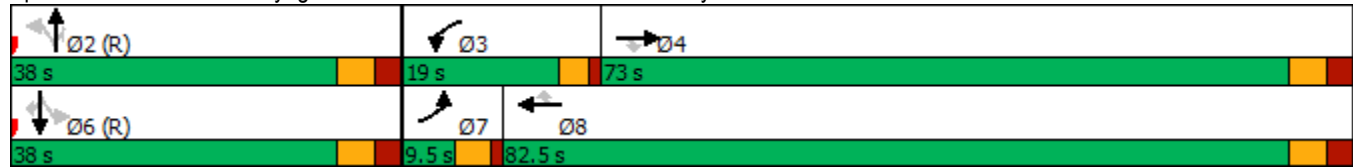
1: Neyagawa Boulevard & William Halton Parkway

Sherborne Lodge

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	  	  	  	  	  	  	  	  	  	  	  	  
Traffic Volume (vph)	3	2314	62	348	2220	59	65	215	318	67	482	10
Future Volume (vph)	3	2314	62	348	2220	59	65	215	318	67	482	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			0.582		
Satd. Flow (perm)	3433	5036	1583	3433	4988	1482	481	3505	1583	1043	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			100			66			149			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	2515	67	378	2413	64	71	234	346	73	524	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	2515	67	378	2413	64	71	234	346	73	524	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	

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

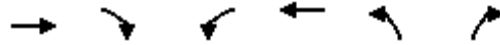
Splits and Phases: 1: Neyagawa Boulevard & William Halton Parkway



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

2026 Future Background Improvements - PM

Sherborne Lodge



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	2155	260	7	2142	369	4
Future Volume (vph)	2155	260	7	2142	369	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)		88				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)	2342	283	8	2328	401	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2342	283	8	2328	401	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

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



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	33.1	33.1	33.1	33.1	39.5	39.5
Total Split (s)	80.5	80.5	80.5	80.5	39.5	39.5
Total Split (%)	67.1%	67.1%	67.1%	67.1%	32.9%	32.9%
Maximum Green (s)	75.4	75.4	75.4	75.4	34.0	34.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.4	1.4	1.4	1.4	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	27.0	27.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	78.7	78.7	78.7	78.7	30.7	30.7
Actuated g/C Ratio	0.66	0.66	0.66	0.66	0.26	0.26
v/c Ratio	1.01	0.26	0.13	1.00	0.89	0.01
Control Delay	42.8	6.9	15.0	41.2	64.6	19.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.8	6.9	15.0	41.2	64.6	19.5
LOS	D	A	B	D	E	B
Approach Delay	38.9			41.1	64.1	
Approach LOS	D			D	E	
Queue Length 50th (m)	~329.1	18.5	0.7	~325.3	93.6	0.0
Queue Length 95th (m)	#376.8	33.1	3.8	#373.3	#140.4	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)	2320	1068	62	2320	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	1.01	0.26	0.13	1.00	0.80	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:	1.01
Intersection Signal Delay:	41.8
Intersection LOS:	D
Intersection Capacity Utilization:	88.8%
ICU Level of Service:	E
Analysis Period (min):	15
~ Volume exceeds capacity, queue is theoretically infinite.	

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

 Ø2 (R) 80.5 s	 Ø8 39.5 s
 Ø6 (R) 80.5 s	

Lanes, Volumes, Timings
 24: Neyagawa Boulevard & Settlers Road West

2026 Future Background Improvements - PM
 Sherborne Lodge



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			

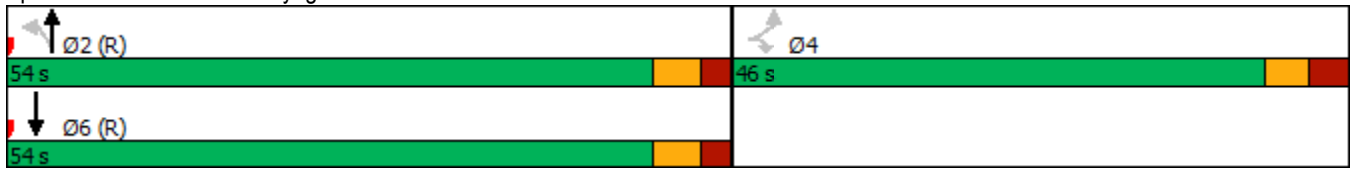
Lanes, Volumes, Timings
 24: Neyagawa Boulevard & Settlers Road West



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	2.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	41.0	19.6	2.4	1.7	2.0	
LOS	D	B	A	A	A	
Approach Delay	21.9			1.7	2.0	
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	3.2	17.7	30.8	
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:NBT and 6:SBT, Start of Green
Natural Cycle:	70
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.32
Intersection Signal Delay:	2.1
Intersection Capacity Utilization:	42.1%
Analysis Period (min):	15
Intersection LOS:	A
ICU Level of Service:	A

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




































Appendix P

2031 Future Background Conditions Synchro Worksheets

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

2031 Future Background - AM
 Sherborne Lodge

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		  	  			 			 	
Traffic Volume (vph)	50	2159	170	313	2268	43	244	670	369	54	288	73
Future Volume (vph)	50	2159	170	313	2268	43	244	670	369	54	288	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			0.516			0.183		
Satd. Flow (perm)	3400	4893	1509	3433	4848	1583	934	3539	1599	308	3438	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			126			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)	54	2347	185	340	2465	47	265	728	401	59	313	79
Shared Lane Traffic (%)												
Lane Group Flow (vph)	54	2347	185	340	2465	47	265	728	401	59	313	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	

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

2031 Future Background - AM
 Sherborne Lodge

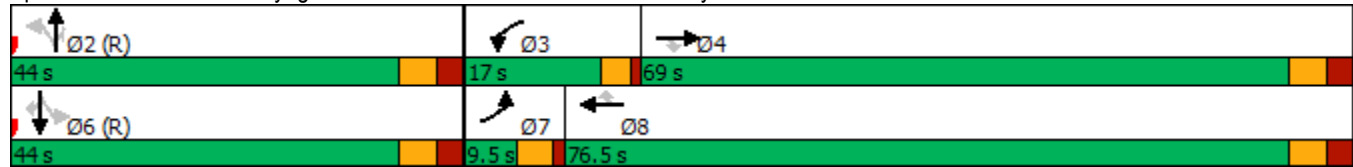


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8	2		2	6		6
Detector Phase	7	4	4	3	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	7.0	10.0	10.0	15.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	9.5	40.4	40.4	11.0	40.4	40.4	37.4	37.4	37.4	37.4	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	0.42	1.00	0.23	0.99	0.92	0.05	0.98	0.71	0.72	0.66	0.31	0.15
Control Delay	70.9	51.3	7.4	104.6	33.6	1.7	96.5	45.9	35.9	76.9	37.2	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	51.3	7.4	104.6	33.6	1.7	96.5	45.9	35.9	76.9	37.2	4.3
LOS	E	D	A	F	C	A	F	D	D	E	D	A
Approach Delay		48.6			41.5			52.7				36.6
Approach LOS		D			D			D				D
Queue Length 50th (m)	7.4	225.5	8.4	47.9	220.2	0.0	71.1	92.6	66.9	14.0	34.7	0.0
Queue Length 95th (m)	14.8	#269.0	22.5	#80.4	247.4	3.6	#128.8	115.9	107.0	#38.4	48.2	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	2356	791	343	2685	906	270	1023	555	89	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	1.00	0.23	0.99	0.92	0.05	0.98	0.71	0.72	0.66	0.31	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:	130
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.00
Intersection Signal Delay:	45.9
Intersection LOS:	D
Intersection Capacity Utilization:	101.0%
ICU Level of Service:	G
Analysis Period (min):	15

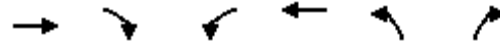
95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

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



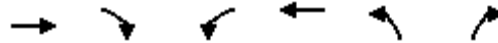
Lanes, Volumes, Timings
2: Burnhamthorpe Road & William Halton Parkway

2031 Future Background - AM
Sherborne Lodge



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	2157	198	2	2123	334	6
Future Volume (vph)	2157	198	2	2123	334	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)		67				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)	2345	215	2	2308	363	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2345	215	2	2308	363	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

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



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	33.1	33.1	33.1	33.1	39.5	39.5
Total Split (s)	80.5	80.5	80.5	80.5	39.5	39.5
Total Split (%)	67.1%	67.1%	67.1%	67.1%	32.9%	32.9%
Maximum Green (s)	75.4	75.4	75.4	75.4	34.0	34.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.4	1.4	1.4	1.4	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	27.0	27.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	80.6	80.6	80.6	80.6	28.8	28.8
Actuated g/C Ratio	0.67	0.67	0.67	0.67	0.24	0.24
v/c Ratio	0.99	0.20	0.03	0.97	0.85	0.02
Control Delay	36.1	6.2	10.0	32.9	62.5	19.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.1	6.2	10.0	32.9	62.5	19.7
LOS	D	A	A	C	E	B
Approach Delay	33.6			32.9	61.6	
Approach LOS	C			C	E	
Queue Length 50th (m)	280.1	12.5	0.2	267.3	85.5	0.2
Queue Length 95th (m)	#377.6	25.1	1.4	#367.8	117.8	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)	2376	1085	62	2376	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	0.99	0.20	0.03	0.97	0.72	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: 0.99
 Intersection Signal Delay: 35.3
 Intersection LOS: D
 Intersection Capacity Utilization 87.0%
 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



Lanes, Volumes, Timings
 24: Neyagawa Boulevard & Settlers Road West

2031 Future Background - AM
 Sherborne Lodge






































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	

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



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

2031 Future Background - PM
Sherborne Lodge

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	  	  		  	  			 		 	 	
Traffic Volume (vph)	4	2300	66	378	2211	62	69	238	343	66	533	11
Future Volume (vph)	4	2300	66	378	2211	62	69	238	343	66	533	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			0.211			0.550		
Satd. Flow (perm)	3433	5036	1583	3433	4988	1482	389	3505	1583	986	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			100			66			164			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	2500	72	411	2403	67	75	259	373	72	579	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	2500	72	411	2403	67	75	259	373	72	579	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	

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

2031 Future Background - PM
 Sherborne Lodge



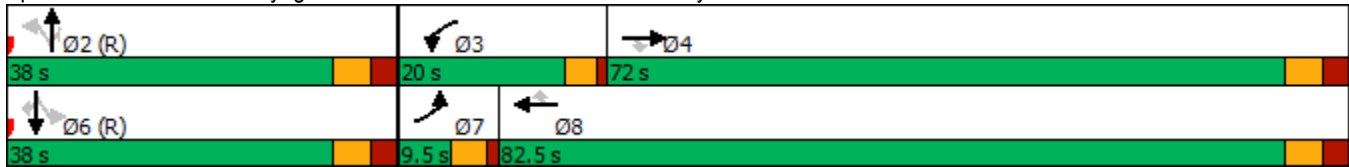
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8	2		2	6		6
Detector Phase	7	4	4	3	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	7.0	10.0	10.0	15.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	9.5	40.4	40.4	11.0	40.4	40.4	37.4	37.4	37.4	37.4	37.4	37.4
Total Split (s)	9.5	72.0	72.0	20.0	82.5	82.5	38.0	38.0	38.0	38.0	38.0	38.0
Total Split (%)	7.3%	55.4%	55.4%	15.4%	63.5%	63.5%	29.2%	29.2%	29.2%	29.2%	29.2%	29.2%
Maximum Green (s)	5.0	65.6	65.6	16.0	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	65.6	65.6	16.0	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	0.12	0.64	0.64	0.24	0.24	0.24	0.24	0.24	0.24
v/c Ratio	0.03	0.98	0.08	0.97	0.75	0.07	0.80	0.30	0.73	0.30	0.67	0.03
Control Delay	60.8	46.3	1.5	94.4	18.3	2.7	97.6	41.4	34.5	44.4	49.1	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	46.3	1.5	94.4	18.3	2.7	97.6	41.4	34.5	44.4	49.1	0.1
LOS	E	D	A	F	B	A	F	D	C	D	D	A
Approach Delay		45.0			28.8			43.7			47.7	
Approach LOS		D			C			D			D	
Queue Length 50th (m)	0.5	236.1	0.0	57.7	145.0	0.1	19.1	30.2	53.3	16.0	74.7	0.0
Queue Length 95th (m)	2.6	#281.0	4.1	#91.1	202.6	6.4	#49.1	43.0	92.3	31.0	95.6	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	2541	848	422	3211	977	94	851	508	239	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	0.98	0.08	0.97	0.75	0.07	0.80	0.30	0.73	0.30	0.67	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: 38.3
 Intersection Capacity Utilization 101.8%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service G

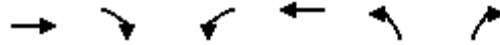
95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

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



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

2031 Future Background - PM
Sherborne Lodge



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	2151	249	6	2138	372	4
Future Volume (vph)	2151	249	6	2138	372	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)		84				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)	2338	271	7	2324	404	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2338	271	7	2324	404	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

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



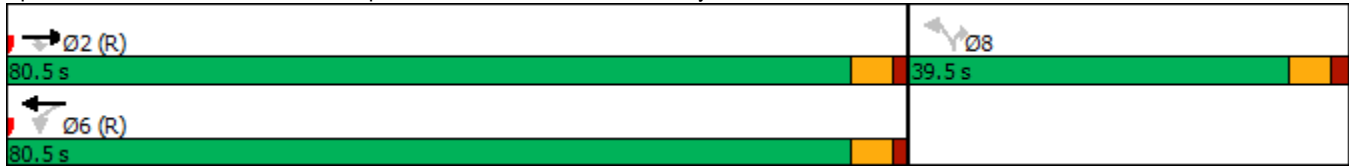
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	33.1	33.1	33.1	33.1	39.5	39.5
Total Split (s)	80.5	80.5	80.5	80.5	39.5	39.5
Total Split (%)	67.1%	67.1%	67.1%	67.1%	32.9%	32.9%
Maximum Green (s)	75.4	75.4	75.4	75.4	34.0	34.0
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.4	1.4	1.4	1.4	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.5	5.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	27.0	27.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	78.5	78.5	78.5	78.5	30.9	30.9
Actuated g/C Ratio	0.65	0.65	0.65	0.65	0.26	0.26
v/c Ratio	1.01	0.25	0.11	1.00	0.89	0.01
Control Delay	42.9	6.9	14.2	41.3	64.8	19.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.9	6.9	14.2	41.3	64.8	19.5
LOS	D	A	B	D	E	B
Approach Delay	39.1			41.2	64.4	
Approach LOS	D			D	E	
Queue Length 50th (m)	~328.8	17.7	0.6	~325.0	94.3	0.0
Queue Length 95th (m)	#376.0	31.5	3.4	#371.9	#142.5	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)	2316	1065	62	2316	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	1.01	0.25	0.11	1.00	0.81	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: 1.01
 Intersection Signal Delay: 42.0
 Intersection LOS: D
 Intersection Capacity Utilization 88.9%
 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



Lanes, Volumes, Timings
24: Neyagawa Boulevard & Settlers Road West

2031 Future Background - PM
Sherborne Lodge



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			

Lanes, Volumes, Timings
 24: Neyagawa Boulevard & Settlers Road West



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)	36.4	36.4	63.6	63.6	63.6	
Total Split (%)	36.4%	36.4%	63.6%	63.6%	63.6%	
Maximum Green (s)	30.0	30.0	57.6	57.6	57.6	
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 Effect 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)	531	486	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:NBT 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

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

2026 Future Total - AM
 Sherborne Lodge

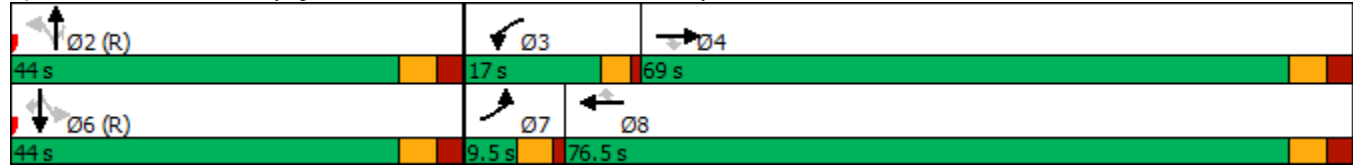
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	  	  		  	  			 		 	  	  
Traffic Volume (vph)	45	2173	154	310	2281	42	248	622	337	53	264	66
Future Volume (vph)	45	2173	154	310	2281	42	248	622	337	53	264	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	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			128.6			327.6			277.5	
Travel Time (s)		26.0			7.7			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	

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

2026 Future Total - AM
 Sherborne Lodge

- ~ 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



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

2026 Future Total - AM
Sherborne Lodge



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

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

2026 Future Total - AM
Sherborne Lodge



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.

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

2026 Future Total - AM
 Sherborne Lodge

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

 Ø2 (R) 80.5 s	 Ø8 39.5 s
 Ø6 (R) 80.5 s	

Lanes, Volumes, Timings
 24: Neyagawa Boulevard & Settlers Road West

2026 Future Total - AM
 Sherborne Lodge



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	30.0		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)		180			45			7			1	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		242.4			275.9			254.4			327.6	
Travel Time (s)		17.5			19.9			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
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	

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



Lanes, Volumes, Timings
26: Street 'B' & William Halton Parkway

2026 Future Total - AM
Sherborne Lodge



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↑↑↑		↑
Traffic Volume (vph)	2545	12	0	2627	0	44
Future Volume (vph)	2545	12	0	2627	0	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		30.0	0.0		0.0	0.0
Storage Lanes		1	0		0	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.91	1.00	1.00	0.91	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	5085	1583	0	5085	0	1611
Flt Permitted						
Satd. Flow (perm)	5085	1583	0	5085	0	1611
Link Speed (k/h)	60			60	50	
Link Distance (m)	128.6			71.2	153.3	
Travel Time (s)	7.7			4.3	11.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2766	13	0	2855	0	48
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2766	13	0	2855	0	48
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.2			7.2	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	59.2%
ICU Level of Service	B
Analysis Period (min)	15

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↑↑↑		↑
Traffic Vol, veh/h	2545	12	0	2627	0	44
Future Vol, veh/h	2545	12	0	2627	0	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	300	-	-	-	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	2766	13	0	2855	0	48




































Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	- - - 1383
Stage 1	-	-	- - -
Stage 2	-	-	- - -
Critical Hdwy	-	-	- - - 7.14
Critical Hdwy Stg 1	-	-	- - -
Critical Hdwy Stg 2	-	-	- - -
Follow-up Hdwy	-	-	- - - 3.92
Pot Cap-1 Maneuver	-	- 0	- 0 114
Stage 1	-	- 0	- 0 -
Stage 2	-	- 0	- 0 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	- - - 114
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -

Approach	EB	WB	NB
HCM Control Delay, s	0	0	57.7
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	114	-	-	-
HCM Lane V/C Ratio	0.42	-	-	-
HCM Control Delay (s)	57.7	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	1.8	-	-	-

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

2026 Future Total - PM
Sherborne Lodge

												
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			138.3			327.6			277.5	
Travel Time (s)		26.0			8.3			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	

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

2026 Future Total - PM
 Sherborne Lodge



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			114.3			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:NBT and 6:SBT, 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

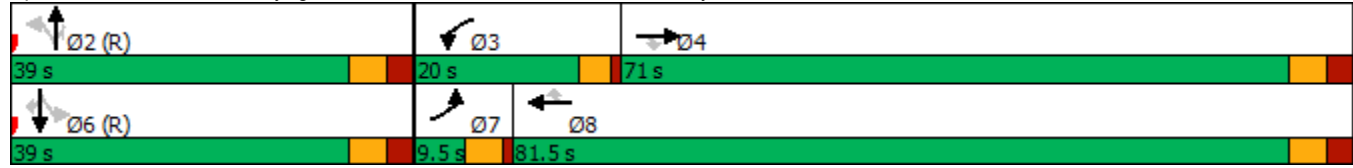
Analysis Period (min) 15

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

2026 Future Total - PM
 Sherborne Lodge

- ~ 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



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

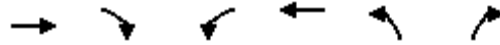
2026 Future Total - PM
Sherborne Lodge



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

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

2026 Future Total - PM
 Sherborne Lodge



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.

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

2026 Future Total - PM
 Sherborne Lodge

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

Ø2 (R) 80.5 s	Ø8 39.5 s
Ø6 (R) 80.5 s	

Lanes, Volumes, Timings
24: Neyagawa Boulevard & Settlers Road West

2026 Future Total - PM
Sherborne Lodge



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	30.0		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)		102			255			56				
Link Speed (k/h)		50			50			60				60
Link Distance (m)		242.4			260.8			254.4				327.6
Travel Time (s)		17.5			18.8			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		

Lanes, Volumes, Timings
 24: Neyagawa Boulevard & Settlers Road West

2026 Future Total - PM
 Sherborne Lodge



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)	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)	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		51.9	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		51.9	0.6		5.4	4.9		5.9	5.8	
LOS	C	A		D	A		A	A		A	A	
Approach Delay		3.9			35.4			4.9			5.8	
Approach LOS		A			D			A			A	
Queue Length 50th (m)	0.4	0.0		21.8	0.0		1.6	22.5		4.3	33.8	
Queue Length 95th (m)	2.2	0.0		37.5	0.0		5.1	33.7		12.0	48.1	
Internal Link Dist (m)		218.4			236.8			230.4			303.6	
Turn Bay Length (m)	40.0			30.0			70.0			80.0		
Base Capacity (vph)	403	546		417	653		354	2540		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		0.27	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



Lanes, Volumes, Timings
 26: Street 'B' & William Halton Parkway

2026 Future Total - PM
 Sherborne Lodge



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↑↑↑		↑
Traffic Volume (vph)	2694	35	0	2673	0	36
Future Volume (vph)	2694	35	0	2673	0	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		30.0	0.0		0.0	0.0
Storage Lanes		1	0		0	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.91	1.00	1.00	0.91	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	5085	1583	0	5085	0	1611
Flt Permitted						
Satd. Flow (perm)	5085	1583	0	5085	0	1611
Link Speed (k/h)	60			60	50	
Link Distance (m)	138.3			61.5	179.9	
Travel Time (s)	8.3			3.7	13.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2928	38	0	2905	0	39
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2928	38	0	2905	0	39
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.2			7.2	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	62.1%
ICU Level of Service	B
Analysis Period (min)	15

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↑↑↑		↑
Traffic Vol, veh/h	2694	35	0	2673	0	36
Future Vol, veh/h	2694	35	0	2673	0	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	300	-	-	-	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	2928	38	0	2905	0	39

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	- - - 1464
Stage 1	-	-	- - -
Stage 2	-	-	- - -
Critical Hdwy	-	-	- - - 7.14
Critical Hdwy Stg 1	-	-	- - -
Critical Hdwy Stg 2	-	-	- - -
Follow-up Hdwy	-	-	- - - 3.92
Pot Cap-1 Maneuver	-	- 0	- 0 101
Stage 1	-	- 0	- 0 -
Stage 2	-	- 0	- 0 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	- - - 101
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -

Approach	EB	WB	NB
HCM Control Delay, s	0	0	61.6
HCM LOS			F


































Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	101	-	-	-
HCM Lane V/C Ratio	0.387	-	-	-
HCM Control Delay (s)	61.6	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	1.6	-	-	-

Appendix R

2031 Total Future Conditions Synchro Worksheets

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

2031 Future Total - AM
 Sherborne Lodge

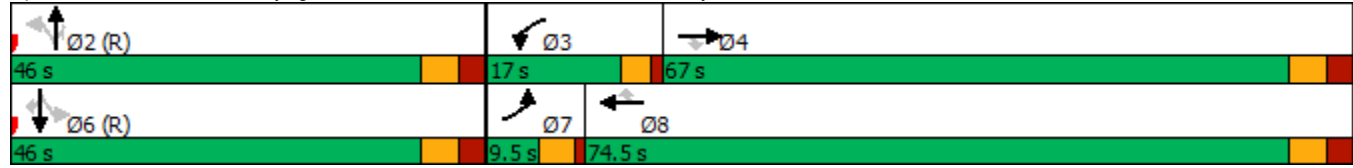
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		  	  			 			 	
Traffic Volume (vph)	50	2167	170	329	2268	43	264	684	369	57	291	73
Future Volume (vph)	50	2167	170	329	2268	43	264	684	369	57	291	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	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			128.6			327.6			277.5	
Travel Time (s)		26.0			7.7			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	

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

2031 Future Total - AM
 Sherborne Lodge

- ~ 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



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

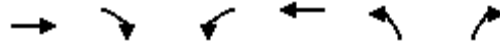
2031 Future Total - AM
Sherborne Lodge



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	2184	212	2	2134	339	6
Future Volume (vph)	2184	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			0.050		0.950	
Satd. Flow (perm)	3539	1583	93	3539	1770	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		71				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)	2374	230	2	2320	368	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2374	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

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

2031 Future Total - AM
 Sherborne Lodge



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)	80.3	80.3	80.3	80.3	29.1	29.1
Actuated g/C Ratio	0.67	0.67	0.67	0.67	0.24	0.24
v/c Ratio	1.00	0.21	0.03	0.98	0.86	0.02
Control Delay	40.0	6.3	10.0	34.6	62.8	19.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.0	6.3	10.0	34.6	62.8	19.7
LOS	D	A	A	C	E	B
Approach Delay	37.0			34.6	62.0	
Approach LOS	D			C	E	
Queue Length 50th (m)	~306.7	13.6	0.2	273.9	86.6	0.2
Queue Length 95th (m)	#385.5	26.9	1.4	#371.1	119.4	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)	2369	1083	62	2369	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	1.00	0.21	0.03	0.98	0.73	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: 1.00
 Intersection Signal Delay: 37.7
 Intersection Capacity Utilization 88.0%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service E
 ~ Volume exceeds capacity, queue is theoretically infinite.

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

2031 Future Total - AM
 Sherborne Lodge

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

 Ø2 (R) 80.5 s	 Ø8 39.5 s
 Ø6 (R) 80.5 s	

Lanes, Volumes, Timings
 24: Neyagawa Boulevard & Settlers Road West

2031 Future Total - AM
 Sherborne Lodge



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	30.0		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			275.9			254.4			327.6	
Travel Time (s)		17.5			19.9			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
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	

Lanes, Volumes, Timings
 24: Neyagawa Boulevard & Settlers Road West

2031 Future Total - AM
 Sherborne Lodge



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			251.9			230.4			303.6	
Turn Bay Length (m)	40.0			30.0			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:NBT 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



Lanes, Volumes, Timings
26: Street 'B' & William Halton Parkway

2031 Future Total - AM
Sherborne Lodge



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗		↑↑↑		↗
Traffic Volume (vph)	2575	11	0	2634	0	41
Future Volume (vph)	2575	11	0	2634	0	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		30.0	0.0		0.0	0.0
Storage Lanes		1	0		0	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.91	1.00	1.00	0.91	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	5085	1583	0	5085	0	1611
Flt Permitted						
Satd. Flow (perm)	5085	1583	0	5085	0	1611
Link Speed (k/h)	60			60	50	
Link Distance (m)	128.6			71.2	153.3	
Travel Time (s)	7.7			4.3	11.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2799	12	0	2863	0	45
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2799	12	0	2863	0	45
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.2			7.2	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	59.8%
ICU Level of Service	B
Analysis Period (min)	15

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↑↑↑		↑
Traffic Vol, veh/h	2575	11	0	2634	0	41
Future Vol, veh/h	2575	11	0	2634	0	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	300	-	-	-	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	2799	12	0	2863	0	45






































Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	-	-	1400
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	111
Stage 1	-	-	0	-	-
Stage 2	-	-	0	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	111
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	57.7
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	111	-	-	-
HCM Lane V/C Ratio	0.401	-	-	-
HCM Control Delay (s)	57.7	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	1.7	-	-	-

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

2031 Future Total - PM
 Sherborne Lodge

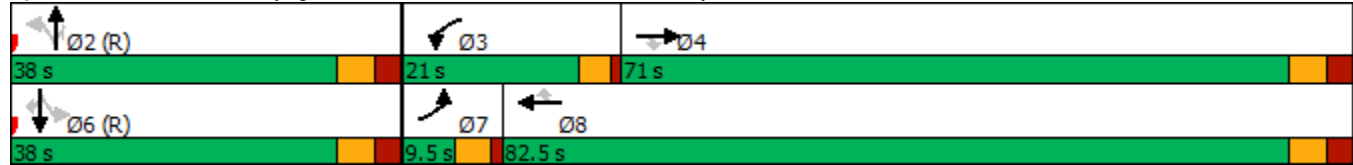
													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	  	  		  	  			 		 	 	 	
Traffic Volume (vph)	4	2324	66	426	2211	62	85	249	343	74	541	11	
Future Volume (vph)	4	2324	66	426	2211	62	85	249	343	74	541	11	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	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			138.3			327.6			277.5		
Travel Time (s)		26.0			8.3			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		

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

2031 Future Total - PM
 Sherborne Lodge

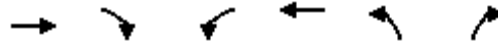
- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

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



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

2031 Future Total - PM
Sherborne Lodge



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			0.051		0.950	
Satd. Flow (perm)	3539	1583	95	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

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

2031 Future Total - PM
 Sherborne Lodge



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)	77.8	77.8	77.8	77.8	31.6	31.6
Actuated g/C Ratio	0.65	0.65	0.65	0.65	0.26	0.26
v/c Ratio	1.03	0.27	0.11	1.03	0.91	0.01
Control Delay	49.2	7.1	14.3	48.8	66.6	19.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.2	7.1	14.3	48.8	66.6	19.5
LOS	D	A	B	D	E	B
Approach Delay	44.7			48.7	66.1	
Approach LOS	D			D	E	
Queue Length 50th (m)	~339.3	19.2	0.7	~338.5	98.5	0.0
Queue Length 95th (m)	#382.2	33.2	3.4	#381.4	#152.3	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)	2293	1056	61	2293	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	0.27	0.11	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: 48.1
 Intersection Capacity Utilization 90.4%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service E
 ~ Volume exceeds capacity, queue is theoretically infinite.

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

2031 Future Total - PM
 Sherborne Lodge

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

Ø2 (R) 80.5 s	Ø8 39.5 s
Ø6 (R) 80.5 s	

Lanes, Volumes, Timings
24: Neyagawa Boulevard & Settlers Road West

2031 Future Total - PM
Sherborne Lodge



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	30.0		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)		69			202			42				
Link Speed (k/h)		50			50			60				60
Link Distance (m)		242.4			260.8			254.4				327.6
Travel Time (s)		17.5			18.8			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		

Lanes, Volumes, Timings
 24: Neyagawa Boulevard & Settlers Road West

2031 Future Total - PM
 Sherborne Lodge



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)	39.0	39.0		39.0	39.0		61.0	61.0		61.0	61.0	
Total Split (%)	39.0%	39.0%		39.0%	39.0%		61.0%	61.0%		61.0%	61.0%	
Maximum Green (s)	32.6	32.6		32.6	32.6		55.0	55.0		55.0	55.0	
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			236.8			230.4			303.6	
Turn Bay Length (m)	40.0			30.0			70.0			80.0		
Base Capacity (vph)	440	562		453	652		338	2722		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



Lanes, Volumes, Timings
 26: Street 'B' & William Halton Parkway

2031 Future Total - PM
 Sherborne Lodge



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↑↑↑		↑
Traffic Volume (vph)	2703	32	0	2693	0	33
Future Volume (vph)	2703	32	0	2693	0	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		30.0	0.0		0.0	0.0
Storage Lanes		1	0		0	1
Taper Length (m)			7.5		7.5	
Lane Util. Factor	0.91	1.00	1.00	0.91	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	5085	1583	0	5085	0	1611
Flt Permitted						
Satd. Flow (perm)	5085	1583	0	5085	0	1611
Link Speed (k/h)	60			60	50	
Link Distance (m)	138.3			61.5	179.9	
Travel Time (s)	8.3			3.7	13.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2938	35	0	2927	0	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2938	35	0	2927	0	36
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.2			7.2	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	62.2%
ICU Level of Service	B
Analysis Period (min)	15

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↑↑↑		↑
Traffic Vol, veh/h	2703	32	0	2693	0	33
Future Vol, veh/h	2703	32	0	2693	0	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	300	-	-	-	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	2938	35	0	2927	0	36

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	- - - 1469
Stage 1	-	-	- - -
Stage 2	-	-	- - -
Critical Hdwy	-	-	- - - 7.14
Critical Hdwy Stg 1	-	-	- - -
Critical Hdwy Stg 2	-	-	- - -
Follow-up Hdwy	-	-	- - - 3.92
Pot Cap-1 Maneuver	-	- 0	- 0 100
Stage 1	-	- 0	- 0 -
Stage 2	-	- 0	- 0 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	- - - 100
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -

Approach	EB	WB	NB
HCM Control Delay, s	0	0	59.9
HCM LOS			F

























Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	100	-	-	-
HCM Lane V/C Ratio	0.359	-	-	-
HCM Control Delay (s)	59.9	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	1.4	-	-	-

Appendix S

2031 Total Future Conditions Sensitivity Analysis

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

2031 Future Total Sensitivity Analysis - AM
 Sherborne Lodge

												
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	0.051			0.050			0.430			0.217		
Satd. Flow (perm)	94	3406	1509	93	3374	1583	778	3539	1599	365	3438	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109			73			72			78
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	

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

2031 Future Total Sensitivity Analysis - AM
Sherborne Lodge

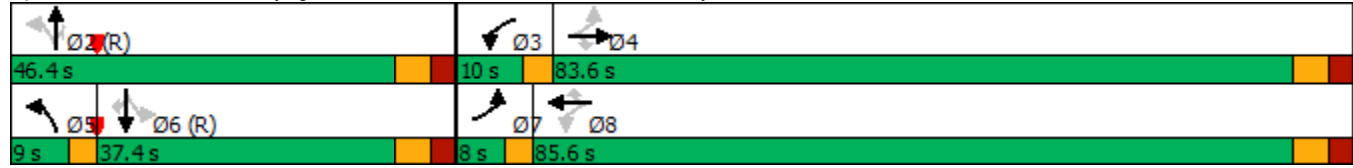


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	7.0	10.0	10.0	5.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	8.0	40.4	40.4	10.0	40.4	40.4	8.0	37.4	37.4	37.4	37.4	37.4
Total Split (s)	8.0	83.6	83.6	10.0	85.6	85.6	9.0	46.4	46.4	37.4	37.4	37.4
Total Split (%)	5.7%	59.7%	59.7%	7.1%	61.1%	61.1%	6.4%	33.1%	33.1%	26.7%	26.7%	26.7%
Maximum Green (s)	5.0	77.2	77.2	7.0	79.2	79.2	6.0	40.0	40.0	31.0	31.0	31.0
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)	85.6	77.2	77.2	89.8	80.8	80.8	43.4	40.0	40.0	31.0	31.0	31.0
Actuated g/C Ratio	0.61	0.55	0.55	0.64	0.58	0.58	0.31	0.29	0.29	0.22	0.22	0.22
v/c Ratio	0.47	1.09	0.21	0.99	0.98	0.05	1.02	0.73	0.23	0.78	0.42	0.19
Control Delay	25.5	80.0	7.1	102.1	46.4	1.2	104.2	50.3	16.9	104.5	48.7	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.5	80.0	7.1	102.1	46.4	1.2	104.2	50.3	16.9	104.5	48.7	10.5
LOS	C	F	A	F	D	A	F	D	B	F	D	B
Approach Delay		72.8			49.1			60.5			49.7	
Approach LOS		E			D			E			D	
Queue Length 50th (m)	5.4	~351.3	10.1	24.7	~287.1	0.0	~71.3	103.3	9.2	17.1	41.9	0.2
Queue Length 95th (m)	13.8	#394.2	22.6	#70.8	#349.6	2.6	#138.8	127.4	25.4	#45.1	57.3	14.3
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)	116	1878	881	143	1947	944	281	1011	508	80	761	407
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	0.47	1.09	0.21	0.99	0.98	0.05	1.02	0.73	0.23	0.78	0.42	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:	1.09
Intersection Signal Delay:	60.4
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



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

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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	0.048			0.046			0.204			0.528		
Satd. Flow (perm)	89	3505	1583	86	3471	1482	376	3505	1583	946	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			73			50			93			73
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	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	

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

↑ Ø2 (R)	↙ Ø3	→ Ø4
40 s	13 s	87 s
↓ Ø5 (R)	↘ Ø7	← Ø8
40 s	9.5 s	91.5 s