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Transportation Impact Study

MID-RISE DEVELOPMENT

Brock Street East and Herrema Boulevard, Town of Uxbridge

August 26, 2021
Project No: NT-18-139

nexTrans
Consulting Engineers
A Division of NextEng Consulting Group Inc.

August 26, 2021

Dolrob Properties Inc.

Attention: David Sud

Re: Transportation Impact Study
Proposed Mid-Rise Development
Brock Street East and Herrema Boulevard, Town of Uxbridge
Our Project No. NT-21-150

Nextrans Consulting Engineers (a Division of NextEng Consulting Group Inc.) is pleased to present the enclosed Transportation Impact Study in support of the Site Plan Application(s) for the above noted property. On behalf of our client, David Sud, nextrans acknowledges the Regional Municipality of Durham Transportation comments, dated April 27, 2021, with respect to the Transportation Impact Study prepared by Nextrans, dated December 4, 2020.

The subject property is located on the northwest corner of the Brock Street East and Herrema Boulevard intersection, known as Block 8, and is the 2nd phase of the Evendale Development Ltd. Brock Street East development. The subject site is currently vacant. Based on the site plan, dated June 17, 2021, the development proposal consists of a four (4)-storey residential condominium building with 59 dwelling units. The proposed development will provide 33 parking spaces at-grade and 61 parking spaces below grade. Site access is proposed through one (1) full movement driveway fronting Herrema Boulevard.

The Region Transportation comments are reiterated in italics and responses are stated below each respective comment.

The Regional Municipality of Durham Transportation Comments

1. *The purpose of this TIS assessment of the 2nd phase of the Evendale Development. As we understand it, the 1st phase of the Evendale Development, comprising of a residential development (Figure 1-2 on page 2 of the TIS) has already been approved and under construction and this TIS is in support of the 2nd phase consisting of the 6-storey condominium on the SW corner of Herrema Boulevard and Low Boulevard. This is referred to in the report as the future development area, but this in fact is the subject of this TIS as the 1st phase has already been approved.*

Response

Acknowledged. TIS revised

2. *Beyond the 1st page of the TIS, which is dated December 4, 2020, this TIS is essentially exactly the same TIS submitted in support of the 1st phase of development. The footnotes all give the same April 2018 date as the previous TIS.*

Response

Acknowledged. TIS revised

3. *This TIS was not specifically scoped with the Township of Uxbridge or the Region. The Terms of Reference included in Appendix A are the terms of reference for the previous study and dated October 2017. We would have expected the consultant to agree the scope of this study with the Region and Township before submitting.*

Response

Acknowledged. Updated Terms of reference was established with the Region. See Appendix sdfsf

4. *The consultant should have been aware that the extension of Herrema Boulevard to form an intersection at Brock Street at Nelkydd Lane, and the closure of Donland Lane was completed in 2020. Therefore, the TIS had a number of significant errors in the base road network assumption, including the road network descriptions in Section 2.1, the existing traffic conditions in table 2.1 and all traffic assessments for existing and 2021 base conditions. A site visit, as required in the Region's TIS Guidelines would have confirmed this.*

Response

Acknowledged. Updated lane configuration was confirmed via site visit.

5. *Given the status of the site plan application, a 2021 opening year is unrealistic. An achievable opening year and 5-year horizon should be selected.*

Response

Acknowledged. Opening year of 2023 and five-year horizon were considered.

6. *We would have expected this TIS to update the base traffic data from the previous TIS or at least provide an explanation as to why traffic data from 2017 is still appropriate for use in this 2020 study. We recognize that traffic counts taken during covid may not be representative, but the TIS needs to discuss this.*

Response

Acknowledged. TIS revised

7. *Had the consultant scoped the study with the Region and reviewed our comments on the previous TIS, they would have been aware that the need to analyse signal warrants at the brock Street / Herrema Boulevard extension, is a critical part of this study. A traffic signal warrant as per OTM Book 12 has not been provided in the updated report.*

Response

Acknowledged. Signal warrant analysis was conducted, see section 7.0.

8. *As noted in 4. Above, the extension of Herrema Boulevard and intersection works on Brock Street East were completed in 2020. Section 7.3 and section 7.4 are outdated as the turn lanes already exist. In addition, Appendix I is not the approved design.*

Response

Acknowledged. TIS revised

9. *The trip rates are consistent with the ITE Trip Generation 10th Edition are acceptable.*

Response

Acknowledged.

10. *Section 8.0 sets out the Transportation Demand Management strategies. However, this section is very light, only noting that sidewalks are to be provided. The section needs to be expanded to include other active transportation measures and include specific recommendations and commitments as part of the development.*

Response

Acknowledged. TIS revised, see section 10.0

11. *We will require a resubmission of the TIS to address all of the above comments.*

Response

Acknowledged. TIS revised.

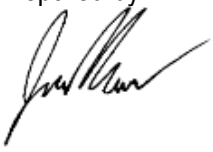
The transportation study concludes that the proposed development can adequately be accommodated by the existing transportation network with negligible traffic impact to the adjacent public roadways.

We trust the enclosed sufficiently addresses your needs. Should you have any questions, please do not hesitate to contact the undersigned.

Yours truly,

NEXTRANS CONSULTING ENGINEERS

Prepared by:



Janus Mora, B.Eng.
Transportation Analyst

Approved by:

Richard Pernicky, MITE
Principal

EXECUTIVE SUMMARY

Nextrans Consulting Engineers (A Division of NextEng Consulting Group Inc.) was retained through Golden Heights Real Estate Invesments Corp. (the 'Client') to undertake a Transportation Impact Study in support of the Draft Plan of Condominium and Site Plan Application(s) for a proposed development consisting of a four (4)-storey residential condominium building

Development Proposal

The subject property is located on the northwest corner of the Brock Street East and Herrema Boulevard intersection, known as Block 8, and is the 2nd phase of the Evendale Development Ltd. Brock Street East development. The subject site is currently vacant. Based on the site plan, dated June 17, 2021, the development proposal consists of a four (4)-storey residential condominium building with 59 dwelling units. The proposed development will provide 33 parking spaces at-grade and 61 parking spaces below grade. Site access is proposed through one (1) full movement driveway fronting Herrema Boulevard.

Capacity Analysis

The proposed development is anticipated to generate 22 two-way trips (6 inbound and 16 outbound) during the AM peak hour and 30 two-way trips (18 inbound and 12 outbound) during the PM peak hour.

The intersection capacity analysis results (based on the methodology and procedures outlined in the Highway Capacity Manual, HCM 2000, published by the Transportation Research Board) indicate that the study intersections and proposed access are expected to continue to operate within acceptable levels of service with the proposed development producing a negligible impact to the surrounding road network.

Access/Parking Review

In accordance with By-law 81-19, the site requires 89 parking spaces. The proposed development will provide 94 parking spaces, which is compliant with the By-law and provides a surplus of five-(5) spaces. The parking provisions for all uses on site are adequate.

AutoTURN software was used to generate a vehicular turning template to confirm and demonstrate the accessibility of the proposed study area. The AutoTURN analysis demonstrates that a passenger vehicle (P TAC-2017) and garbage truck can maneuver through the site without conflict.

Signal Warrant Analysis

Signal warrant analysis was conducted for the Brock Street East and Herrema Boulevard / Nelkydd Lane intersection. In accordance with the Ontario Traffic Manual (OTM) Book 12 for Traffic Signals, existing intersections with forecasted traffic volumes must satisfy a minimum of 120% of the warrant for signal installation. In accordance with OTM guidelines, the Brock Street East and Herrema Boulevard / Nelkydd Lane intersection does not satisfy the overall warrant for signalization.

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1.0 INTRODUCTION

Nextrans Consulting Engineers (A Division of NextEng Consulting Group Inc.) was retained through David Sud (the 'Client') to undertake a Transportation Impact Study in support of the Official Plan Amendment and Zoning By-law Amendment application(s) for the above noted property. The subject property is located at the northwest corner of the Brock Street East and Herrema Boulevard intersection, known as Block 8.

The location of the proposed development is illustrated in **Figure 1-1**.

Figure 1-1 – Site Location

The subject property is currently vacant. The proposed development consists of a four (4)-storey residential condominium building with 59 dwelling units. The proposed development will provide 33 parking spaces at-grade and 61 parking spaces below grade. Site access is proposed through one (1) full movement driveway fronting Herrema Boulevard.

The proposed site plan is shown in **figure 1-2** and provided in full detail in **Appendix A**. Site plan statistics are summarized in **Table 1.1**.

Figure 1-2 – Proposed Site Plan

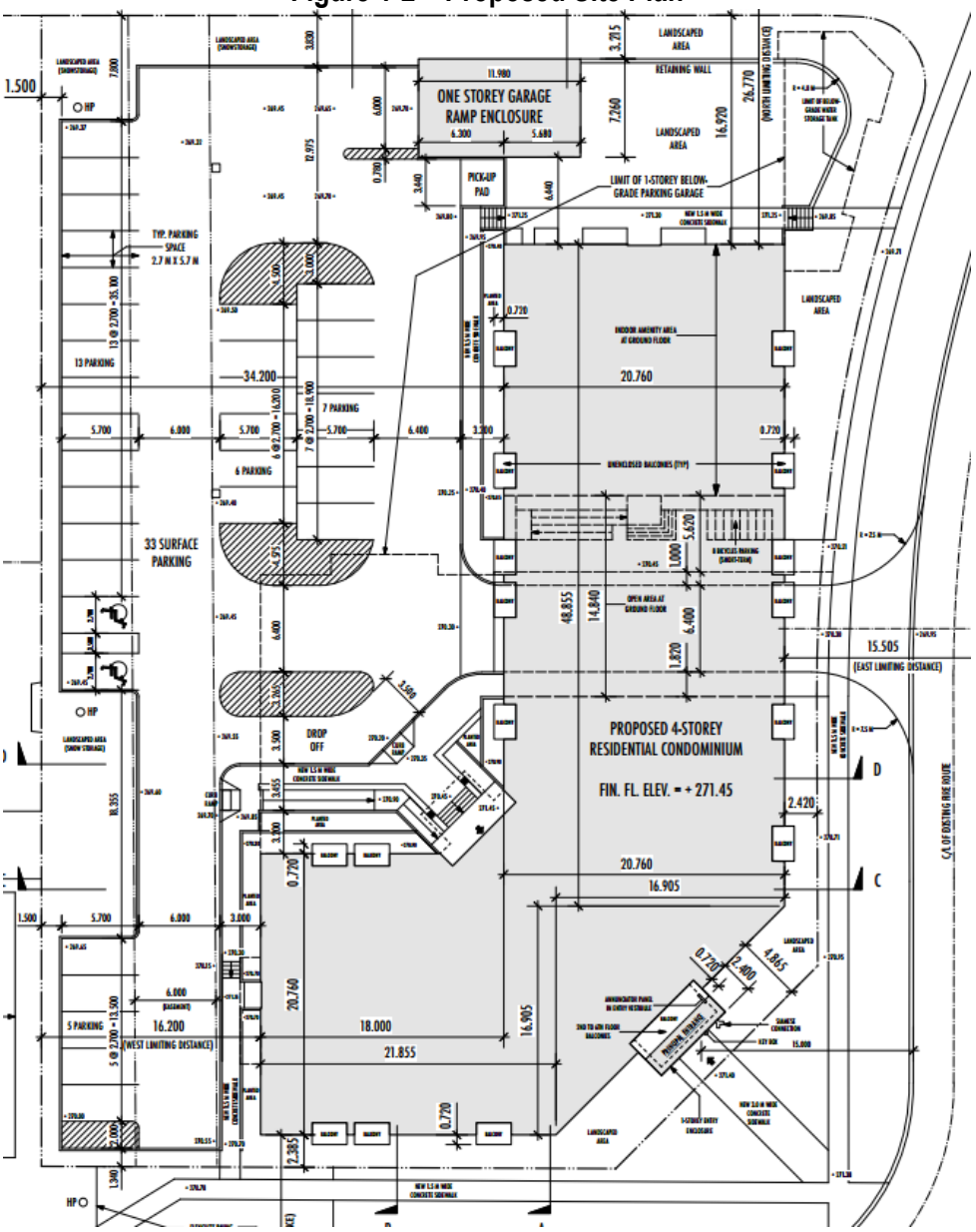


Figure 1.1 – Proposed Site Statistics

Use	Number of Dwelling Units	Non-Residential GFA (m^2)
1-bedroom dwelling unit	25	--
2-bedroom dwelling unit	26	
3-bedroom dwelling unit	8	
Amenities	--	374.66
Total	**59**	**2,345.06**

2.0 EXISTING TRAFFIC CONDITIONS

2.1. Existing Road Network

The existing road network in the study area is described below:

- **Brock Street East:** An east-west type B arterial road under the jurisdiction of Durham Region, designated as Highway 47. Brock Street East has a two (2)-lane cross-section (one (1) lane per direction). There is a speed limit of 50 km/h posted near the subject site.
- **Herrema Boulevard / Nelkydd Lane:** A north-south local road under the jurisdiction of the Township of Uxbridge. Herrema Boulevard / Nelkydd Lane has two (2)-lane cross-section (one (1) lane per direction). There is a speed limit of 50 km/h posted near the subject site.

2.2. Existing Active Transportation Network

Sidewalks

Sidewalks are available on both sides of Nelkydd Lane and Brock Street East west of Herrema Boulevard / Nelkydd Lane. Currently, sidewalk is available on the east side of Herrema Boulevard.

Cycling

There are no dedicated bicycle lanes in the vicinity of the subject site.

2.3. Transit Mode Assessment

Based on the study prepared by the Ministry of Transportation of Ontario (MTO) entitled: 'Transit Supportive Guidelines', dated January 2012, transit users are generally willing to walk 400 meters to a local stop or 800 meters to a transit station. The subject site is situated in a transit supportive area with seven (7) bus stops, all located within a five (5) minute walk from the subject site, which is within comfortable walking distance. The route services in the immediate area are described below, and provided in full detail in **Appendix B**.

- **GO 70-71 Uxbridge - Stouufville - Mount Joy** – This GO bus routes operates generally in the north-south direction and travels between Railway Street at Albert Street and Union GO Station. This route operates Monday to Sunday at approximately five (5)-minute intervals
- **DRT 905 Thickson-Reach** – The Durham Region Transit (DRT) 905 Thickson-Reach bus route operates generally in the north-south direction along Yonge Street direction and travels between Railway Street at Albert Street and Whitby GO Station. This route operates Monday to Friday at approximately 20 to 40-minute intervals.

2.4. Existing Traffic Volumes

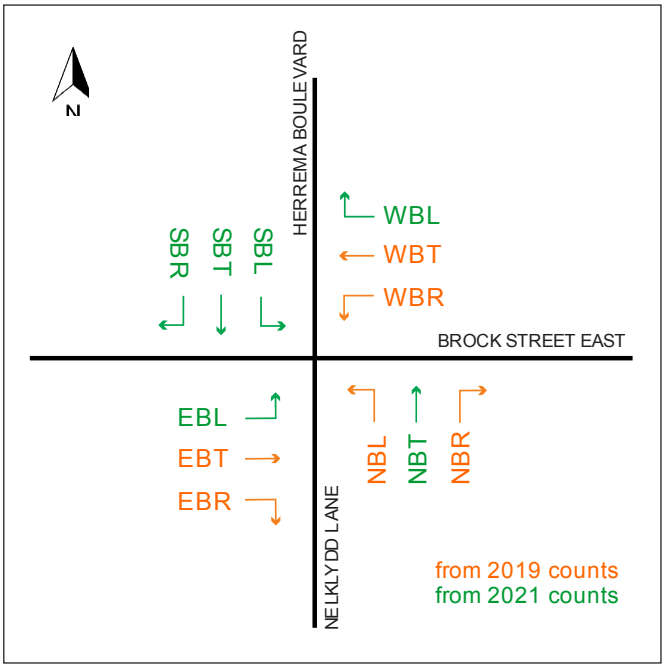
The most recent historic traffic counts at this intersection, dated September 4,2019, were obtained from the Region for the purpose of this study. However, the 2019 counts do not represent the existing lane configuration as the extension of Herrema Boulevard to Brock Street East was completed in 2020. Thus, traffic counts dated April 6, 2021 were obtained from the Region to determine traffic volumes entering and exiting Herrema Boulevard.

The traffic volumes at the Brock Street and Herrema Boulevard / Nelkydd Lane intersection used in this study comprise of volumes taken from both the 2019 and 2021 traffic counts. This is due to the fact the eastbound and westbound turning movements entering and exiting Nelkydd Lane from the 2019 counts better represent typical conditions. Typical conditions refer to the fact that there are two (2) schools located south of Brock Street and west of Nelkydd lane, which would mostly be accessed through Nelkydd Lane and would generate significant traffic in the AM and PM peak hours. Due to the closure of schools as result of COVID restrictions, the traffic generated by the schools is not represented in the 2021 counts. This is evident in the eastbound right movement, which experienced a volume of 149 vehicles in the AM peak hour on September 4, 2019, as opposed to a volume of 20 vehicles on April 6, 2021. All movements entering and exiting Herrema Boulevard were taken from the 2021 counts.

As traffic counts conducted in 2021 do not represent typical conditions, the 2021 volumes were increased using a factor determined through comparing the total approach volumes from the 2019 and 2021 counts. Between 2019 and 2021, the Brock Street East and Herrema Boulevard / Nelkydd Lane intersection experienced total approach volume decreases of 50% and 21% in the AM and PM peak hours, respectively. Thus, all movements taken from the 2021 counts were increased by 50% in the AM peak hour and 21% in the PM peak hour. All movements taken from the 2019 counts were increase by a growth rate of 2% per annum to project 2021 volumes.

Figure 2-1 illustrates each movement at the Brock Street East and Herrema Boulevard / Nelkydd Lane intersection and from which year each volume was taken from. Existing traffic data and calculations are provided in **Appendix C**.

Figure 2-1 –Traffic Volumes at Brock Street East and Herrema Boulevard / Nelkydd Lane intersection



2.5. Existing Traffic Assessment

The 2021 existing traffic volumes are illustrated in **Figure 2-2** and capacity analysis of the study area intersections were conducted using Synchro 10 software. The methodology of the software follows the procedures described and outlined in the highway Capacity manual, HCM 2000, published by the Transportation Research Board. The detailed results are provided in **Appendix D** and summarized in **Table 2.1**.

Table 2.1 – Level of Service – Existing Traffic Assessment

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		LOS (v/c)	Delay (s)	95th Queue (m)	LOS (v/c)	Delay (s)	95th Queue (m)
Brock Street East and Herrema Boulevard / Nelkydd Lane (unsignalized)	EBTL WBTLR NBTLR SBL SBTR	A (0.01) A (0.06) C (0.31) C (0.04) B (0.08)	0.3 2.1 19.3 16.4 12.1	0.1 1.6 10.4 1.0 2.2	A (0.02) A (<0.01) C (0.18) C (0.04) B (0.06)	0.6 0.1 15.9 16.0 12.2	0.4 0.0 5.2 1.0 1.5
Herrema Boulevard and existing access (unsignalized)	WBLR	A (<0.01)	0.0	0.0	A (<0.01)	0.0	0.0

Under existing traffic conditions, the study area intersections operate at excellent levels of service during the AM and PM peak hour periods.

3.0 FUTURE BACKGROUND CONDITIONS

For the purpose of this study, a build-out year of 2023 and a five (5)-year horizon from the build-out year (2028) were considered. To forecast future corridor growth, a growth rate of 2% per annum was applied all traffic volumes, which was established through the Terms of Reference with the Region (See **Appendix E**).

3.1. Background Developments

A review of active developments in the vicinity of the study area was conducted. The following background development was considered in the analysis:

226 Brock Street East: A proposed residential development consisting of 94 townhouse units. Access will be provided via a full movement driveway fronting Brock Street East. Site generated traffic from this development was obtained from the Traffic Operations Assessment prepared by Nextrans, dated August 29, 2018.

Evendale Development Phase 1: A proposed residential / mixed use development consisting of 70 townhouse units, 12 semi-bungalow residential units, and a mixed-use building with five (5) apartment units and 449.82 m^2 GFA for first-floor commercial use. Site generated traffic from this development was obtained from the Transportation Impact Study prepared by Nextrans, dated December 4, 2020.

Site traffic figures for background developments are provided in **Appendix F**.

3.2. Future Background 2023

The future background traffic volumes for the assumed build-out year of 2023 are provided in **Figure 3-1**. The capacity analysis results are summarized in **Table 3.1** and are provided in detail in **Appendix G**.

Table 3.1 – Level of Service – Future (2023) Background Traffic Assessment

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		LOS (v/c)	Delay (s)	95th Queue (m)	LOS (v/c)	Delay (s)	95th Queue (m)
Brock Street East and Herrema Boulevard / Nelkydd Lane (unsignalized)	EBTL WBTLR NBTLR SBL SBTR	A (0.01) A (0.06) C (0.31) C (0.04) B (0.08)	0.3 2.1 19.3 16.4 12.1	0.1 1.6 10.4 1.0 2.2	A (0.02) A (<0.01) C (0.18) C (0.04) B (0.06)	0.6 0.1 15.9 16.0 12.2	0.4 0.0 5.2 1.0 1.5
Herrema Boulevard and existing access (unsignalized)	WBLR	A (<0.01)	0.0	0.0	A (<0.01)	0.0	0.0

Under 2023 future background conditions, the study area intersections will continue to operate at excellent levels of service during the AM and PM peak hour periods.

3.3. Future Background 2028

The future background traffic volumes for the 2028 horizon year are provided in **Figure 3-2**. The capacity analysis results are summarized in **Table 3.1** and are provided in detail in **Appendix H**.

Table 3.2 – Level of Service – Future (2028) Background Traffic Assessment

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		LOS (v/c)	Delay (s)	95th Queue (m)	LOS (v/c)	Delay (s)	95th Queue (m)
Brock Street East and Herrema Boulevard / Nelkydd Lane (unsignalized)	EBTL WBTLR NBTLR SBL SBTR	A (0.02) A (0.05) E (0.55) C (0.11) B (0.19)	1.0 2.2 37.7 22.3 13.6	0.5 2.0 24.1 3.0 5.5	A (0.06) A (<0.01) D (0.34) C (0.12) B (0.14)	1.8 0.1 26.6 24.7 13.0	1.6 0.0 11.5 3.2 3.9
Herrema Boulevard and existing access (unsignalized)	WBLR	A (0.01)	9.5	0.1	A (0.01)	9.7	0.3

Under 2028 future background conditions, the study area intersections will continue to operate at acceptable levels of service during AM and PM peak hour periods. The critical movement identified is the northbound through-left-right movement at the Brock Street East and Herrema Boulevard / Nelkydd Lane intersection, which operates at 'E' level of service (LOS) during the AM peak hour. It should be noted that this movement experiences a volume-to-capacity ratio (v/c) of 0.55, which indicates that there is ample capacity at this approach. The critical level of service is the result of delays primarily due to the east-west free-flow traffic along Brock Street East, allowing fewer opportunities to complete turning movements from the northbound approach.

4.0 SITE TRAFFIC

4.1. Trip Generation

For the purpose of this study, the site generated traffic for the proposed development was calculated assessed. Trip rates and site generated trips were derived from the information contained in the *Trip Generation Manual, 10th Edition* published by the Institute of Transportation Engineers (ITE) for the proposed land uses on site.

The trip generation summary is shown in **Table 4.2**.

Table 4.1 – Site Traffic Trip Generation (Based on ITE)

ITE Land Use	Parameter	Morning Peak Hour			Afternoon Peak Hour		
		In	Out	Total	In	Out	Total
Multi Family Housing (Mid-Rise) LUC 230	Gross New Trips	6	16	22	18	12	30
	Gross Rate	0.10	0.27	0.37	0.31	0.20	0.51
	New Trips	**6**	**16**	**22**	**18**	**12**	**30**

The proposed development is anticipated to generate 22 two-way trips (6 inbound and 16 outbound) during the AM peak hour and 30 two-way trips (18 inbound and 12 outbound) during the PM peak hour.

4.2. Trip Distribution

The trip distribution for site-generated traffic was determined using data from the 2016 Transportation Tomorrow Survey (TTS) and assumptions based on existing road configuration and routes that travellers would be likely to take when accessing the subject site. The site trip distribution is summarized for the inbound and outbound site traffic movements at the study intersections during the morning and afternoon peak hours in **Table 4.3**. TTS data extraction is provided in **Appendix I**.

Table 4.2 – Site Traffic Trip Distribution

Direction	Via	AM Peak Hour		PM Peak Hour	
		Inbound	Outbound	Inbound	Outbound
East	Brock Street East	17%	17%	34%	34%
West	Brock Street East	83%	83%	66%	66%
100%		**100%**	**100%**	**100%**	**100%**

Site traffic volumes are illustrated in **Figure 4-1**.

5.0 FUTURE TOTAL TRAFFIC CONDITIONS

5.1. Future total 2023

Future total 2023 traffic volumes are illustrated in **Figure 5-1**. The capacity analysis results are summarized in **Table 5.1** and detailed results are provided in **Appendix J**.

Table 5.1 – Level of Service – Future (2023) Total - Full Movement -Traffic Assessment

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		LOS (v/c)	Delay (s)	95th Queue (m)	LOS (v/c)	Delay (s)	95th Queue (m)
Brock Street East and Herrema Boulevard / Nelkydd Lane (unsignalized)	EBTL WBTLR NBTLR SBL SBTR	A (0.02) A (0.07) D (0.47) C (0.10) B (0.19)	1.2 2.1 31.2 20.4 12.9	0.6 1.7 18.8 2.7 5.4	A (0.07) A (<0.01) C (0.30) C (0.12) B (0.14)	2.0 0.1 24.7 23.3 12.4	1.8 0.0 9.8 3.4 3.9
Site Access & Herrema Boulevard (unsignalized)	EBTLR WBTLR NBTR	A (0.02) B (<0.01) A (0.01)	8.9 9.9 0.8	0.4 0.1 0.1	A (0.01) B (0.01) A (0.01)	8.7 10.3 1.1	0.3 0.4 0.3

Under 2023 future total conditions, the study area intersections will continue to operate at excellent levels of service during both peak hour periods.

5.2. Future Total 2028

Future total 2028 traffic volumes are illustrated in **Figure 5-2**. The capacity analysis results are summarized in **Table 5.1** and detailed results are provided in **Appendix K**.

Table 5.2 – Level of Service – Future (2023) Total - RIRO -Traffic Assessment

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		LOS (v/c)	Delay (s)	95th Queue (m)	LOS (v/c)	Delay (s)	95th Queue (m)
Brock Street East and Herrema Boulevard / Nelkydd Lane (unsignalized)	EBTL WBTLR NBTLR SBL SBTR	A (0.03) A (0.08) E (0.59) C (0.13) B (0.21)	1.2 2.2 41.9 23.0 13.7	0.6 2.0 26.4 3.4 6.3	A (0.07) A (<0.01) D (0.36) D (0.15) B (0.16)	2.0 0.1 28.9 26.5 13.1	1.9 0.0 12.6 4.1 4.4
Site Access & Herrema Boulevard (unsignalized)	EBTLR WBTLR NBTR	A (0.02) B (<0.01) A (<0.01)	8.9 10.0 0.8	0.4 0.1 0.1	A (0.01) B (0.01) A (0.01)	8.7 10.4 1.0	0.3 0.4 0.3

Under 2028 future total conditions, the study area intersections will continue to operate at excellent levels of service during both peak hour periods. The critical movement identified is the northbound through-left-right movement at the Brock Street East and Herrema Boulevard / Nelkydd Lane intersection, which operates at 'E' level of service (LOS). It should be noted that this movement experiences a maximum volume-to-capacity ratio (v/c) of 0.59, which indicates that there is ample capacity at this approach. The critical level of service is the result of delays primarily due to the east-west free-flow traffic along Brock Street East, allowing fewer opportunities to complete turning movements from the northbound approach.

6.0 SIGNAL WARRANT ANALYSIS

Signal warrant analysis was conducted for the Brock Street East and Herrema Boulevard / Nelkydd Lane intersection under future total 2028 conditions. The results of the evaluation are summarized below, and provided in detail in **Appendix L**.

- Warrant 1: minimum vehicular volumes – 59% satisfied
- Warrant 2: delay to cross traffic – 47% satisfied

Based on the signal warrant methodology outlined in section 4.10 of the Ontario Traffic Manual (OTM) Book 12 for Traffic Signals, existing intersections with forecasted traffic volumes must satisfy a minimum of 120% of the warrant for signal installation. In accordance with OTM guidelines, the Brock Street East and Herrema Boulevard / Nelkydd Lane intersection does not satisfy the overall warrant for signalization.

7.0 PARKING ASSESSMENT

The subject lands are regulated by Zoning By-law 81-19. The parking area requirements are set out in Section 5.15 (General Provisions) of By-law 88-19. The requirements for an Apartment Dwelling House are detailed in **Table 7.1**.

Table 7.1 – Vehicle Parking Requirements (By-law 81-19)

Use	Units / GFA	By-law Parking Rate	Parking spaces required	Parking spaces provided	+ Surplus / - Deficit
Apartment dwelling unit	59	1.5 spaces per dwelling unit	89	94	**+5**
Total				**94**	**+5**

In accordance with By-law 81-19, the site requires 89 parking spaces. The proposed development will provide 94 parking spaces, which is compliant with the By-law and provides a surplus of five-(5) spaces. The parking provisions for all uses on site are adequate.

7.1. Bicycle parking

The proposed development will provide 26 parking spaces, consisting of eight (8) short-term spaces at-grade and 18 long-term spaces below grade

8.0 SITE CIRCULATION

AutoTURN software was used to generate a vehicular turning template to confirm and demonstrate the accessibility of the proposed study area. The AutoTURN analysis demonstrates that a passenger vehicle (P TAC-2017) and garbage truck can maneuver through the site without conflict. The AutoTURN diagrams are provided in **Figure 8-1** and **Figure 8-3**.

9.0 TRANSPORTATION DEMAND MANAGEMENT

Transportation demand management (TDM) refers to variety of strategies to reduce congestion, minimize the number of single-occupant vehicles, encourage non-auto modes of travel, and reduce vehicle dependency to create a sustainable transportation system. This section outlines recommended TDM measures for the proposed development in accordance with the development guidelines outlined in the Township of Uxbridge Official Plan and the Durham Transportation Master Plan.

Active Transportation Strategies

The proposed development will provide internal pedestrian walkways which provide direct connection to the sidewalks on Brock Street East and the future sidewalks along the west side of Herrema Boulevard. The proposed main building entrance fronts the northwest corner of the intersection of Brock Street East and Herrema Boulevard and has direct pedestrian connection the sidewalk via a walkway.

To facilitate and encourage the use of cycling, the proposed development provides 18 indoor long-term bicycle parking spaces and eight (8) short-term bicycle parking spaces at grade.

It is recommended that the proposed development provide information packages to residents with the aim to promote alternative modes of transportation. These information packages would speak to the environmental and health benefits of walking and cycling, and include maps detailing active transportation facilities within Township such as pedestrian and cycling trails.

Transit based Strategies

Though the proposed development is not located along any identified major transit spines, public transit is still relatively accessible with the bus stops being located within a 10-minute walk from the development. It is recommended that the development provide within the information packages transit route information in the area.

Smart Commute Durham

Smart Commute Durham is a program developed by the Region in partnership with Metrolinx with the aim of promoting and encouraging sustainable travel such as carpooling. Smart Commute Durham provides an online platform for commuters to match with carpool partners, minimizing the costs of vehicle travel. The development can provide information to residents seeking carpooling opportunities, which can reduce the amount of single-occupant vehicle (SOV) trips generated by the site.

10.0 CONCLUSION

The findings and conclusions of the analysis are as follows:

- The development proposal consists of a four (4)-storey residential condominium building with 59 dwelling units. The proposed development will provide 33 parking spaces at-grade and 61 parking spaces below grade. Site access is proposed through one (1) full movement driveway fronting Herrema Boulevard.
- The proposed development is anticipated to generate 22 two-way trips (6 inbound and 16 outbound) during the AM peak hour and 30 two-way trips (18 inbound and 12 outbound) during the PM peak hour.
- Under existing traffic conditions, the study area intersections operate at excellent levels of service during the AM and PM peak hour periods.
- Under 2023 and 2028 future background conditions, the study area intersections are expected to operate at excellent levels of service in the AM and PM peak hour periods.
- Under future total 2023 and 2028 conditions, the study area intersections will continue to operate at acceptable levels of service during AM and PM peak hour periods. The critical movement identified is the northbound through-left-right movement at the Brock Street East and Herrema Boulevard / Nelkydd Lane intersection, which operates at 'D' level of service (LOS). It should be noted that this movement experiences a volume-to-capacity ratio (v/c) far below 1.0. The critical level of service is the result of delays caused by the east-west free-flow traffic along Brock Street East, which makes it more difficult to complete turning movements from the northbound approach.
- In accordance with OTM guidelines, the Brock Street East and Herrema Boulevard / Nelkydd Lane intersection does not satisfiy the overall warrant for signalization.
- In accordance with By-law 81-19, the site requires 89 parking spaces. The proposed development will provide 94 parking spaces, which is compliant with the By-law and provides a surplus of five-(5) spaces. The parking provisions for all uses on site are adequate.
- The AutoTURN analysis demonstrates that a passenger vehicle (P TAC-2017) and garbage truck can maneuver through the site without conflict.
- TDM measures are recommended to encourage alternative modes of transportation and reduce the number of single occupant vehicle trips generated by the proposed development.

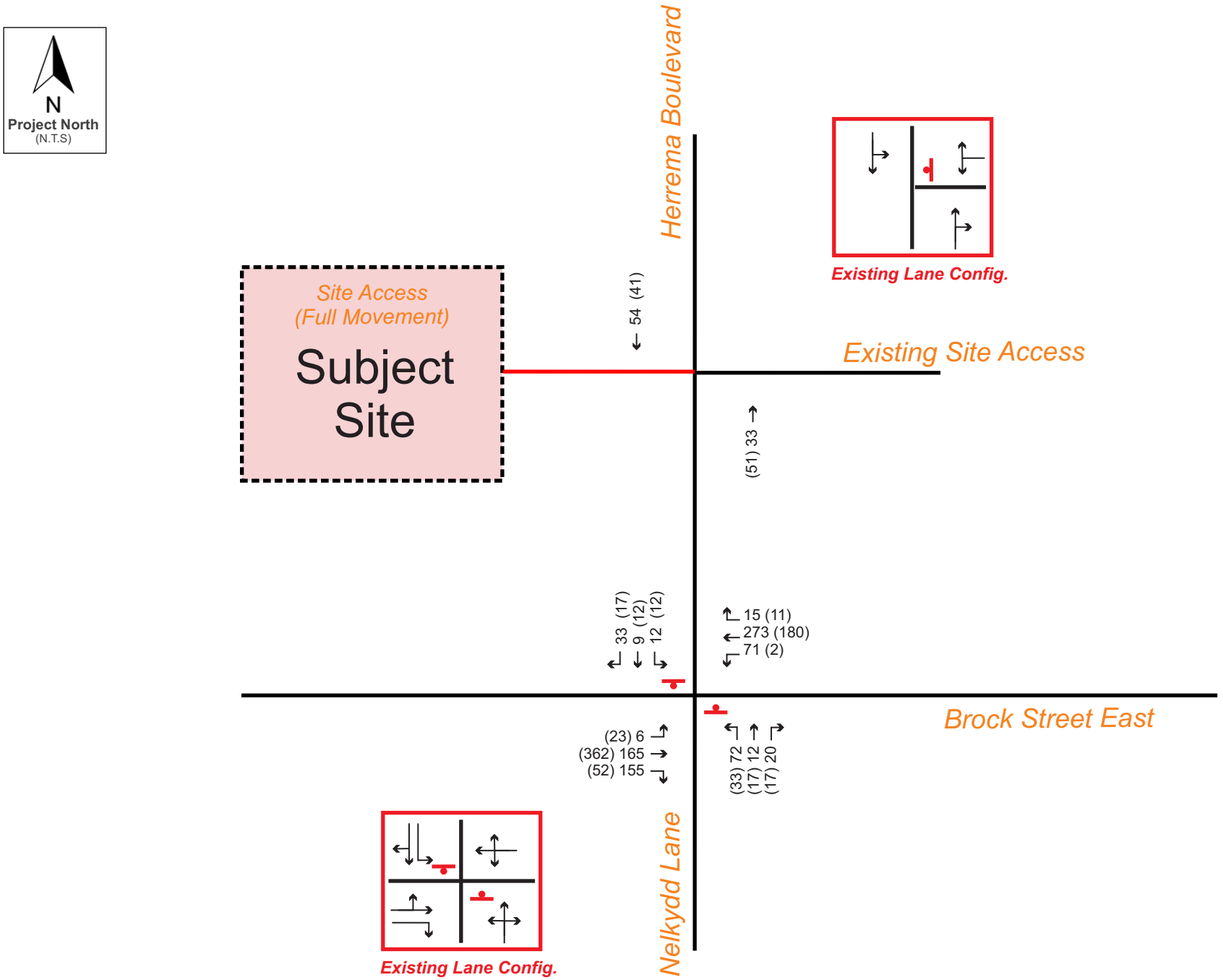


Figure 2-2 – Existing Traffic Volumes

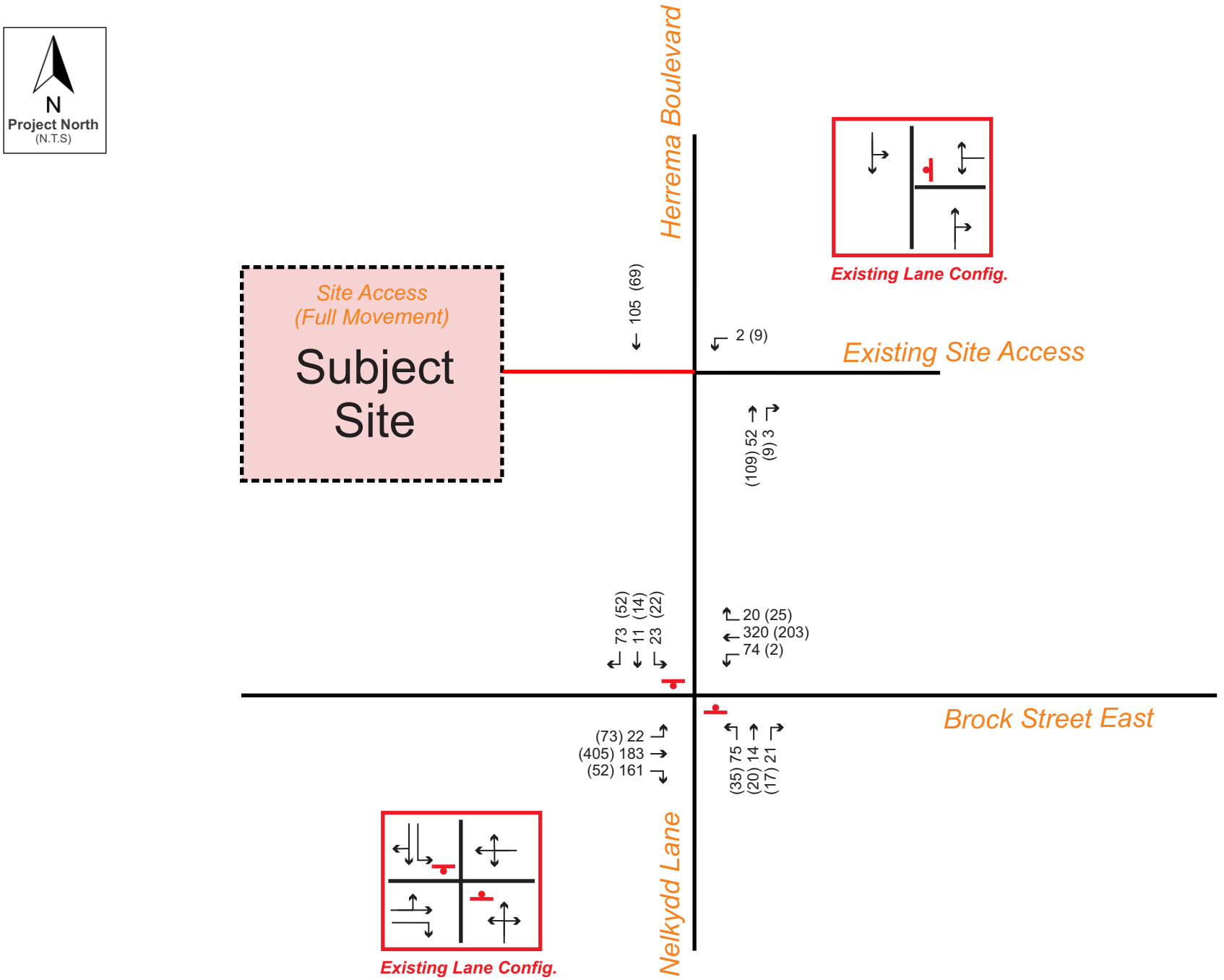


Figure 3-1 – Future (2023) Background Traffic Volumes

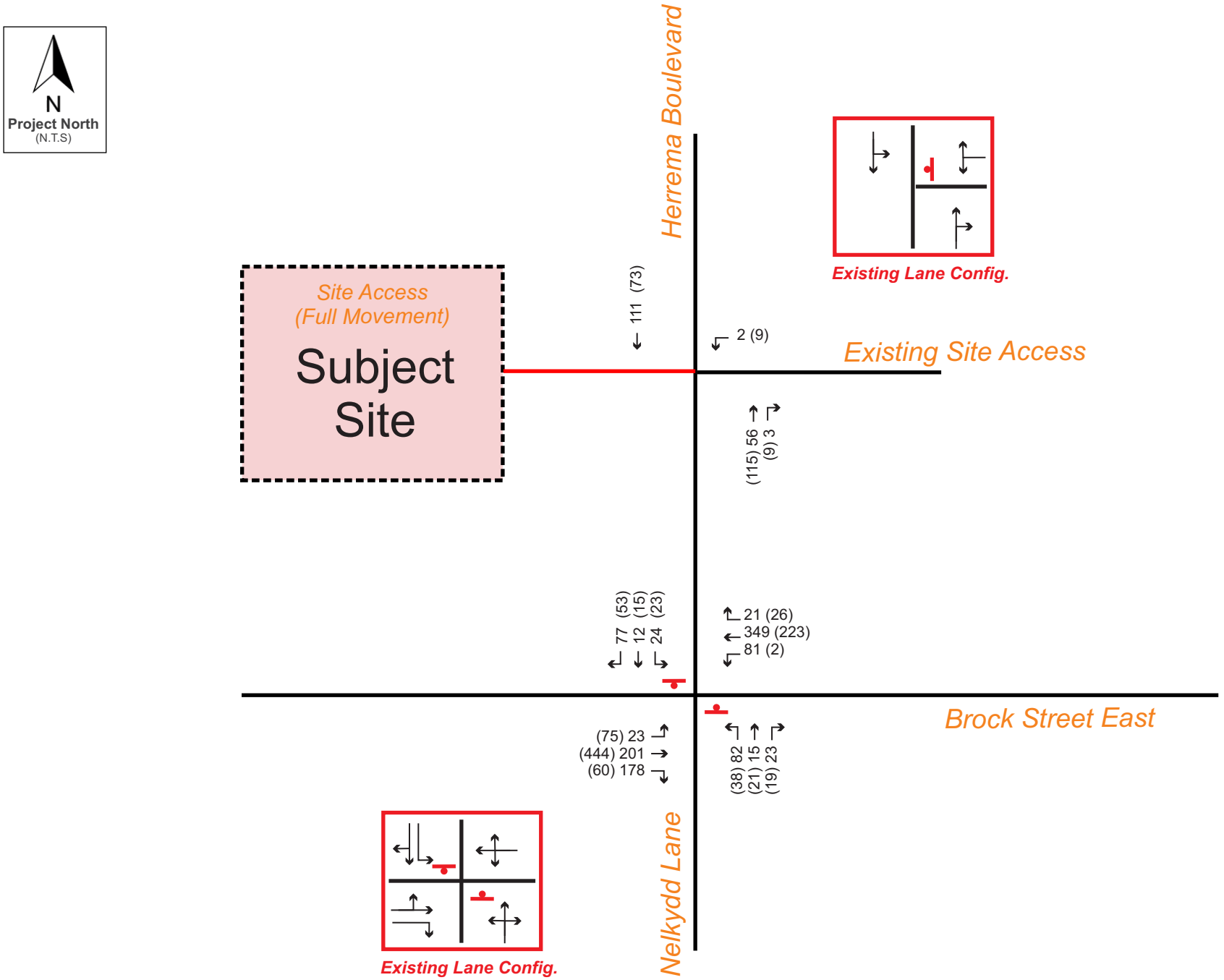


Figure 3-2 – Future (2028) Background Traffic Volumes

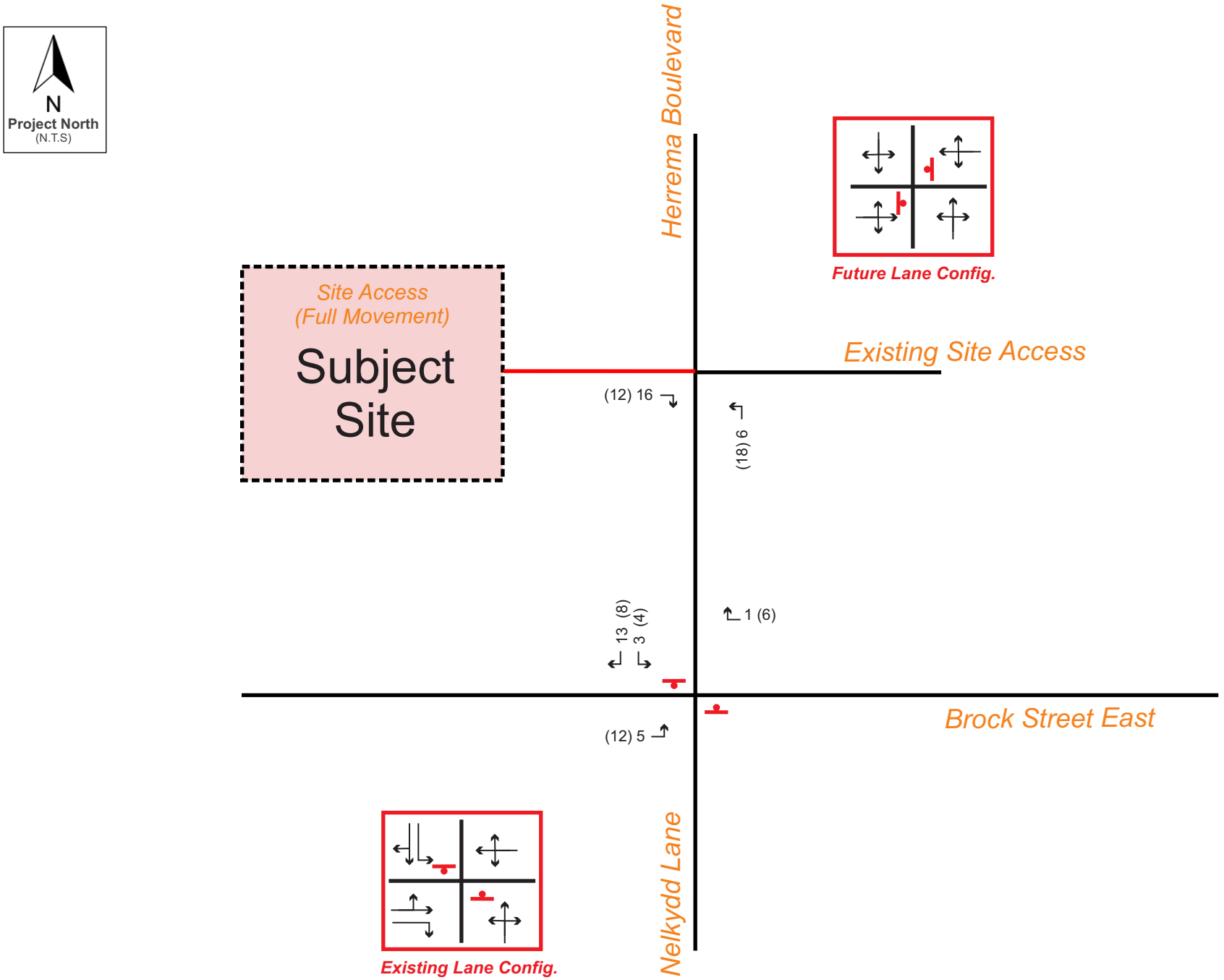


Figure 4-1 – Site Generated Traffic Volumes

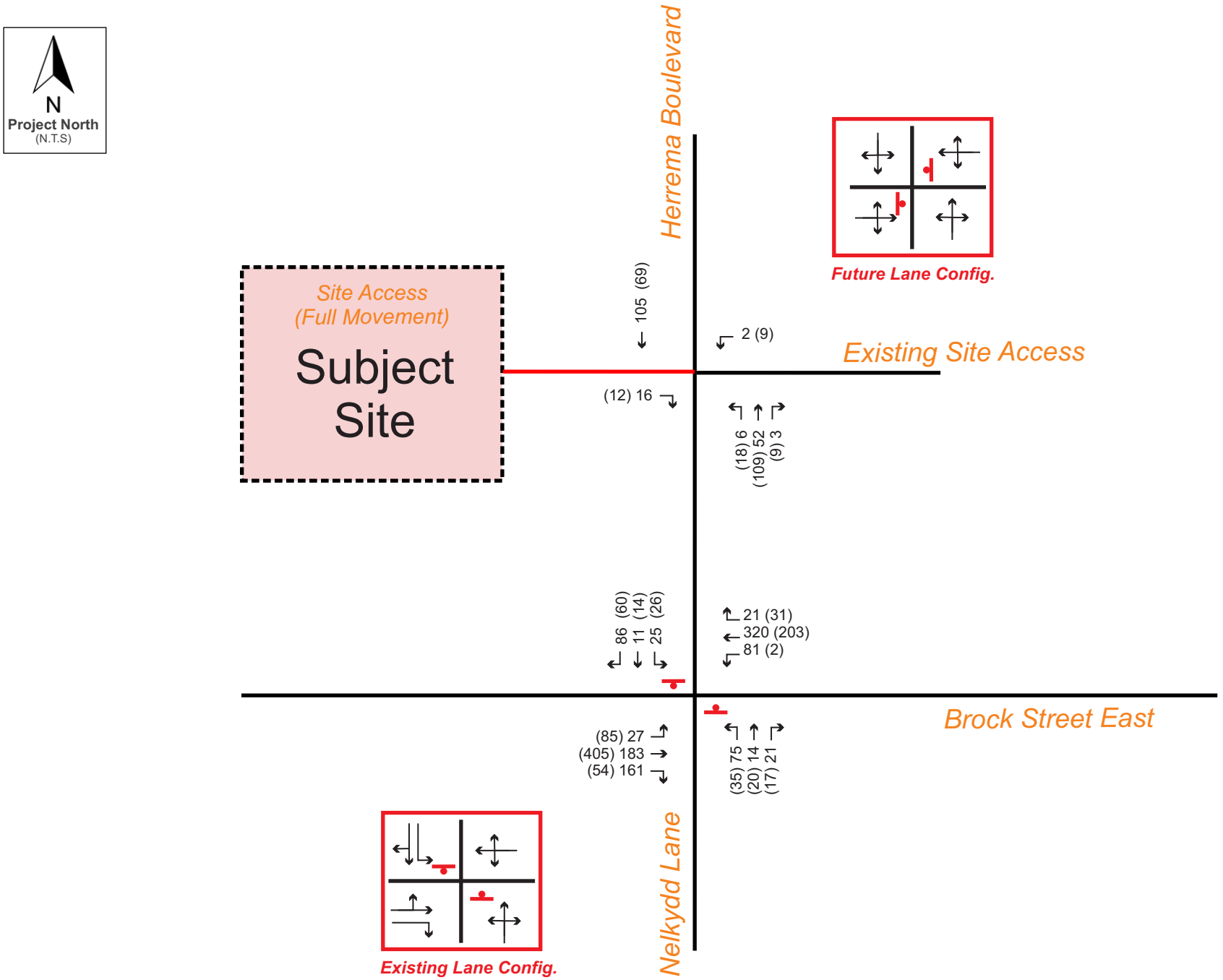


Figure 5-1 – Future (2023) Total Traffic Volumes

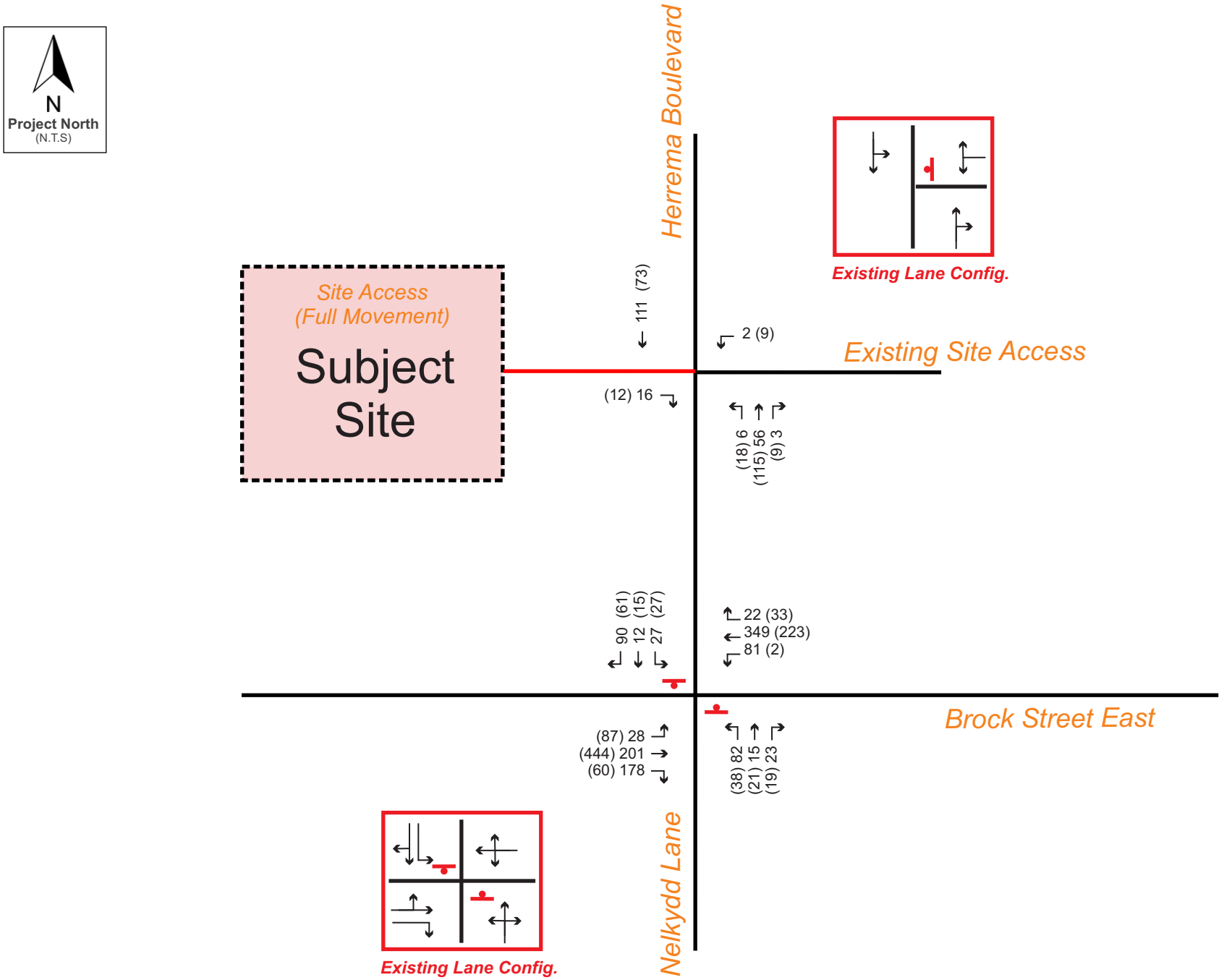


Figure 5-2 – Future (2028) Total Traffic Volumes

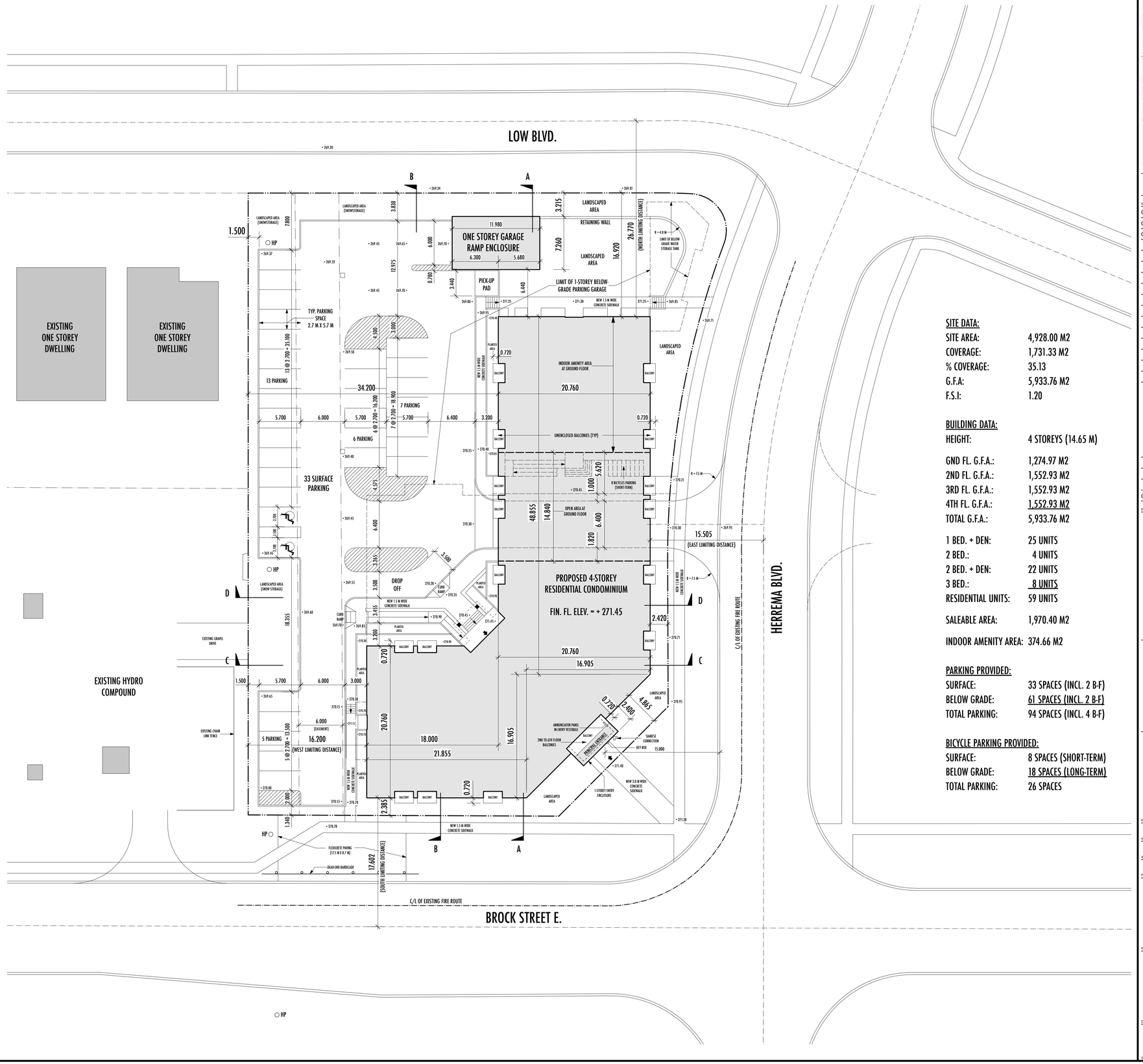
Appendix A – Proposed Site Plan

ONTARIO BUILDING CODE DATA

PROJECT:
CONDOMINIUM RESIDENCE DEVELOPMENT

LOCATION:
BROCK STREET E. AND HERREMA BLVD.
UXBRIDGE, ONTARIO

1	**PROJECT DESCRIPTION:** NEW RESIDENTIAL CONDOMINIUM BUILDING BUILDING HEIGHT = 14.65 M (4 STOREYS)	**DIV. B PART 3**
2	**MAJOR OCCUPANCY:** RESIDENTIAL OCCUPANCY - GROUP C	**B 3.1.2.1(1)**
3	**BUILDING AREA:** EXISTING (0.0) + NEW (1,642.20) = TOTAL 1,642.20 SQ.M.	**A 1.4.1.2**
4	**GROSS AREA:** EXISTING (0.0) + NEW (5,933.76) = TOTAL 5,933.76 SQ.M.	**A 1.4.1.2**
5	**NUMBER OF STOREYS:** ABOVE GRADE = 4 STOREYS, BELOW GRADE = 1 STOREY	**B 3.2.1.1 & A 1.4.1.2**
6	**NUMBER OF STREETS / FIRE FIGHTER ACCESS:** FACING 1 STREET	**B 3.2.2.10 & B 3.2.5**
7	**BUILDING CLASSIFICATION:** 3.2.2.45, GROUP C, UP TO 4 STOREYS, SPRINKLERED	**B 3.2.2.20 - B 3.2.2.83**
8	**SPRINKLER SYSTEM PROPOSED:** FULLY SPRINKLERED	**B 3.2.2.43 & B 3.2.1.5**
9	**STANDPIPE REQUIRED:** YES	**B 3.2.9**
10	**FIRE ALARM REQUIRED:** YES	**B 3.2.4**
11	**WATER SERVICE / SUPPLY IS ADEQUATE:** YES	**B 3.2.5.7**
12	**HIGH BUILDING:** NO	**B 3.2.6**
13	**PERMITTED CONSTRUCTION:** COMBUSTIBLE AND NON-COMBUSTIBLE **ACTUAL CONSTRUCTION:** NON-COMBUSTIBLE	**B 3.2.2.20 - B 3.2.2.83**
14	**MEZZANINE AREA(S):** TOTAL = 0 SQ.M.	**B 3.2.1.1(3) - B 3.2.1.1(8)**
15	**OCCUPANT LOAD:** BASEMENT (F3): 2,186.18 M2 / 46 = 48 PERSONS GROUND FLOOR (A2): 0 PERSONS (RESIDENTS ONLY) GROUND FLOOR (C): 28 PERSONS SECOND FLOOR (C): 58 PERSONS THIRD FLOOR (C): 58 PERSONS FOURTH FLOOR (C): 58 PERSONS TOTAL = 250 PERSONS	**B 3.1.16**
16	**BARRIER FREE DESIGN:** YES	**B 3.8**
17	**HAZARDOUS SUBSTANCES:** NO	**B 3.3.1.2 & B 3.3.1.19**
18	**REQUIRED FIRE-RESISTANCE RATINGS:** GROUND FLOOR ASSEMBLY FRR = 1.5 HR. (3.3.5.6) FLOOR ASSEMBLIES FRR = 1.0 HR. ROOF ASSEMBLIES FRR = 0 HR. MEZZANINE ASSEMBLIES FRR = 1.0 HR. GROUND FLOOR SUPPORTING MEMBERS FRR = 1.5 HR. FLOOR SUPPORTING MEMBERS FRR = 1.0 HR. ROOF SUPPORTING MEMBERS FRR = 0 HR. MEZZANINE SUPPORTING MEMBERS FRR = 1.0 HR.	**B 3.2.2.43 & B 3.2.1.4**



Key Plan

Issue	Date	Description	By
01	DEC 22/20	OWNER REVIEW & COORDINATION	J.M.
02	APR 26/21	OWNER REVIEW	J.M.
03	JUN 17/21	OWNER REVIEW	J.M.

Rev	Date	Description	By
01	N/A	N/A	J.M.

SITE DATA:

SITE AREA:	4,928.00 M2
COVERAGE:	1,731.33 M2
% COVERAGE:	35.13
G.F.A:	5,933.76 M2
F.S.I:	1.20

BUILDING DATA:

HEIGHT:	4 STOREYS (14.65 M)
GND FL. G.F.A.:	1,274.97 M2
2ND FL. G.F.A.:	1,552.93 M2
3RD FL. G.F.A.:	1,552.93 M2
4TH FL. G.F.A.:	1,552.93 M2
TOTAL G.F.A.:	5,933.76 M2
1 BED. + DEN:	25 UNITS
2 BED.:	4 UNITS
2 BED. + DEN:	22 UNITS
3 BED.:	8 UNITS
RESIDENTIAL UNITS:	59 UNITS
SALEABLE AREA:	1,970.40 M2
INDOOR AMENITY AREA:	374.66 M2

PARKING PROVIDED:

SURFACE:	33 SPACES (INCL. 2 B-F)
BELOW GRADE:	61 SPACES (INCL. 2 B-F)
TOTAL PARKING:	94 SPACES (INCL. 4 B-F)

BICYCLE PARKING PROVIDED:

SURFACE:	8 SPACES (SHORT-TERM)
BELOW GRADE:	18 SPACES (LONG-TERM)
TOTAL PARKING:	26 SPACES

ARCHITECT'S INSTRUCTIONS:

THE CONTRACTOR MUST CHECK AND VERIFY ALL DRAWING DIMENSIONS ON THE SITE BEFORE AND DURING CONSTRUCTION, AND REPORT TO THE ARCHITECT ANY DISCREPANCIES PRIOR TO COMMENCING WORK.

DRAWINGS ARE NOT TO BE SCALED FOR PURPOSES OF CONSTRUCTION.

keith loffler mcalpine architects
10 ST. MARY STREET, SUITE 402, TORONTO, ONTARIO, M4Y 1P9 T (416) 964 1902 F (416) 964 9248

klma
KEITH LOFFLER DESIGN INC PARTNERS MCALPINE ARCHITECT INC
A PARTNERSHIP OF CORPORATIONS

ONTARIO ASSOCIATION OF ARCHITECTS
JOHN WILLIAM MCALPINE
LICENCE 4397
Professional Certification

OWNER REVIEW
Issued for

JUNE 17, 2021	1 : 250	
Issue date	Scale	
2028	J.M.	J.M.
Project no.	Drawn by	Checked by

Block 8
Condominium Residences
Brock St. E. & Herrema Blvd., Uxbridge, Ontario
OWNER: Evendale Developments, 905 904 2261
Project

Architectural Site Plan Site & Building Data

Drawing Title

A001

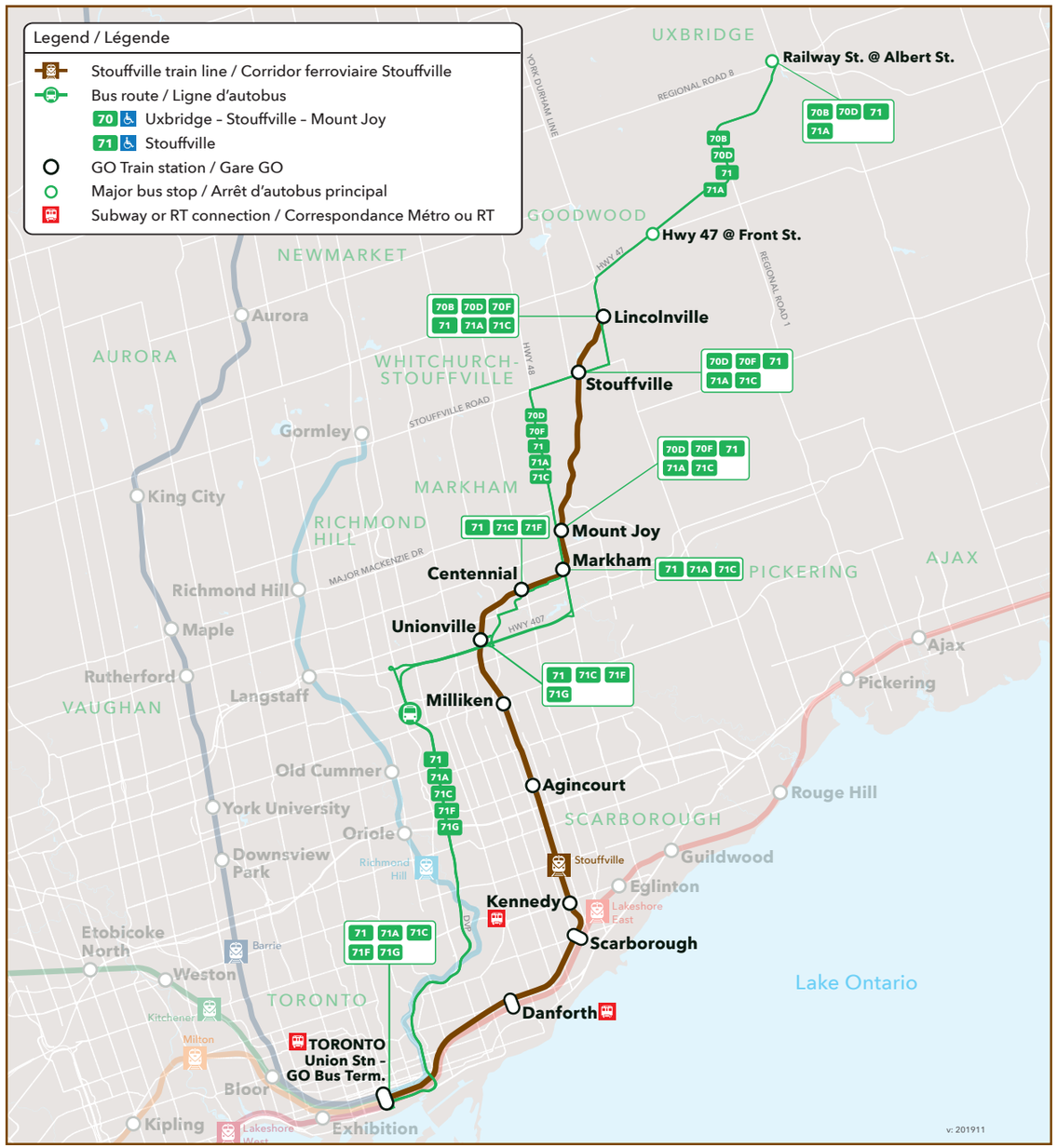
Sheet no.

Appendix B – Transit Routes

70-71

Route number
Numéro du trajet

Stouffville



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gotransit.com/OnTheGO

15-08-2020

Stouffville

GO Train and Bus Schedule/
Horaire des trains et des autobus GO

METROLINX

ST **70** **71**

- Uxbridge
- Goodwood
- Lincolnville GO
- Stouffville GO
- Mount Joy GO
- Markham GO
- Centennial GO
- Unionville GO
- Milliken GO
- Agincourt GO
- Kennedy GO
- Union Station

Daily / Quotidiennement
Includes GO Bus routes 70 and 71/
Inclut les trajets 70 et 71d'autobus GO

Effective / À partir de:
5 SEPTEMBER SEPTEMBRE **2020**

How to read our schedules

Step 1
Find the station or terminal you are departing from. Stops are listed across the top in the order they are served.

Step 2
The upper left corner tells you what day the schedule is for and the direction of travel.

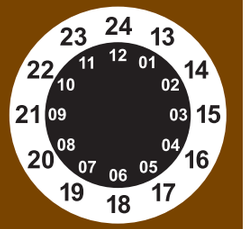
Step 3
Look across the rows for available departure times.

Step 4
Not all trains or buses stop at every station. If you see → the train or bus will not stop at that station.

Schedule times shown in 24-hour clock

Midnight to noon
00 01 - 12 00

Noon to midnight
12 01 - 24 00



Legend

- Train trips
- Bus trips
- → Trip does not serve this location.
- ↓ Check below for connecting trips.
- GO Train service is accessible to passengers using mobility devices at this location.
- GO Bus service is accessible to passengers using mobility devices at this location.
- GO Train & GO Bus service is accessible to passengers using mobility devices at this location.
- Parking available.

For the latest schedule information and updates, please visit gotransit.com/schedules.

Notes

h Trip holds for connection from train.

S GO Bus services GO Station from bus stop on street.

Bicycles

1. Bicycles are not allowed in Union Station or on-board trains during morning rush hour (6:30-9:30) and evening rush hour (15:30-18:30), Monday to Friday.

2. Foldable bicycles are allowed on-board trains at all times.

Comment lire nos horaires

Étape 1
Trouvez votre gare ou terminus de départ. La liste des arrêts est donnée en haut dans l'ordre dans lequel ils sont desservis.

Étape 2
Le coin supérieur gauche vous indique le jour pour lequel l'horaire est donné et la direction de circulation.

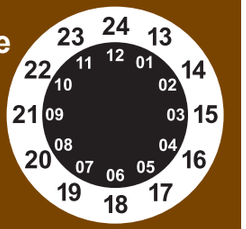
Étape 3
Regardez dans les rangées pour obtenir les heures de départ offertes.

Étape 4
Les trains ou les autobus ne s'arrêtent pas tous à chaque gare. Si vous voyez le symbole → le train ou l'autobus ne s'arrêtera pas à cette gare.

Indications selon un système horaire de 24 heures

De minuit à midi:
00 01 - 12 00

De midi à minuit:
12 01 - 24 00



Légende

- Horaire des trains
- Horaire des autobus
- → Trajet ne sert pas cette station.
- ↓ Vérifiez les trajets de correspondance cidessous.
- Service de trains GO accessible aux personnes utilisant des aides à la mobilité à cet endroit.
- Service d'autobus GO accessible aux personnes utilisant des aides à la mobilité à cet endroit.
- Les services de trains et d'autobus GO sont accessibles aux utilisateurs d'un appareil d'aide à la mobilité à cet endroit.
- Stationnement disponible.

Pour consulter les horaires les plus récents et les mises à jour, veuillez visiter gotransit.com/schedules.

Notes

h Le départ de l'autobus est retardé pour assurer la correspondance avec le service de trains.

S Les autobus GO desservent la gare à partir de l'arrêt situé sur la rue.

Vélos

1. Les vélos ne sont pas autorisés dans la gare Union ou à bord des trains du lundi au vendredi, pendant l'heure de pointe (6:30-9:30) et pendant l'heure de pointe du soir (15:30-18:30).

2. Les vélos pliables sont permis à bord des trains en tout temps.

Monday to Friday (except holidays)
Du lundi au vendredi (sauf les jours fériés)

SOUTHBOUND / EN DIRECTION SUD

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone→	Uxbridge 76 Dp	Railway St. @ Albert St.	Goodwood 75	Hwy. 47 @ Front St.	Stouffville 74 Ar	Lincolnville GO	Transfer/Correspondances	Trip Number/Numéro du parcours	Stouffville 74 Dp	Lincolnville GO	Stouffville 74	Stouffville GO	Markham 73 Dp	Mount Joy GO	Markham 72	Markham GO	Markham 72	Centennial GO	Markham 71	Unionville GO	Scarborough 70	Milliken GO	Scarborough 7	Agincourt GO	Scarborough 77	Kennedy GO	Scarborough 6	Scarborough GO	Toronto 6	Danforth GO	Toronto 2 Ar	Union Station
71	71050		04 20		04 31		04 40		→		04 40		04 46		05 00		05 04		05 08		05 15		→		→		→		→		→		05 45
										7703	05 26		05 32		05 41		05 45		05 50		05 55		06 01		06 07		06 16		→		→		06 34
70B	70060		05 36		05 47		05 56			7605	06 11		06 17		06 26		06 30		06 35		06 40		06 46		06 52		07 01		→		→		07 19
										7805	06 41		06 47		06 56		07 00		07 05		07 10		07 16		07 22		07 31		→		→		07 49
70B	70110		06 36		06 47		06 56			7607	07 11		07 17		07 26		07 30		07 35		07 40		07 46		07 52		08 01		→		→		08 19
70B	70160		07 36		07 47		07 56			7609	08 11		08 17		08 26		08 30		08 35		08 40		08 46		08 52		09 01		→		→		09 19
70D	70220		08 33		08 44		08 53		→		08 53		08 59		09 13↓																		
										7411					09 28		09 32		09 36		09 41		09 47		09 53		10 01		→		→		10 19
70D	70260		09 33		09 44		09 53		→		09 53		09 59		10 13↓																		
										7413					10 28		10 32		10 36		10 41		10 47		10 53		11 01		→		→		11 19
70D	70300		10 33		10 44		10 53		→		10 53		10 59		11 13↓																		
										7415					11 28		11 32		11 36		11 41		11 47		11 53		12 01		→		→		12 19
70D	70340		11 33		11 44		11 53		→		11 53		11 59		12 13↓																		
										7417					12 28		12 32		12 36		12 41		12 47		12 53		13 01		→		→		13 19
70D	70380		12 33		12 44		12 53		→		12 53		12 59		13 13↓																		
										7419					13 28		13 32		13 36		13 41		13 47		13 53		14 01		→		→		14 19
70D	70420		13 33		13 44		13 53		→		13 53		13 59		14 13↓																		
										7421					14 28		14 32		14 36		14 41		14 47		14 53		15 01		→		→		15 19
70D	70460		14 33		14 44		14 53		→		14 53		14 59		15 13↓																		
										7423					15 28		15 32		15 36		15 41		15 47		15 53		16 01		→		→		16 19
71	71620		15 35		15 48		15 55		→		15 55		16 01		16 15		16 20		16 26		16 40		→		→		→		→		→		17 30
71	71670		16 35		16 48		16 55		→		16 55		17 01		17 15		17 20		17 26		17 40		→		→		→		→		→		18 30
71C	71710										18 00		18 06		18 20		18 25		18 31		18 40		→		→		→		→		→		19 20
70D	70750		18 33		18 44		18 53		→		18 53		18 59		19 13↓																		
										7431					19 28		19 32		19 36		19 41		19 47		19 53		20 01		→		→		20 19
70D	70770		19 33		19 44		19 53		→		19 53		19 59		20 13↓																		
										7433					20 28		20 32		20 36		20 41		20 47		20 53		21 01		→		→		21 19
70D	70780		20 33		20 44		20 53		→		20 53		20 59		21 13↓																		
										7435					21 28		21 32		21 36		21 41		21 47		21 53		22 01		→		→		22 19
70D	70790		21 33		21 44		21 53		→		21 53		21 59		22 13↓																		
										7437					22 28		22 32		22 36		22 41		22 47		22 53		23 01		→		→		23 19
71C	71840										23 05		23 11		23 25		23 30		23 36		23 45		→		→		→		→		→		00 15
71C	71900										00 10		00 16		00 30		00 34		00 38		00 45		→		→		→		→		→		01 10
71C	71910										01 10		01 16		01 30		01 34		01 38		01 45		→		→		→		→		→		02 10

Monday to Friday (except holidays)
Du lundi au vendredi (sauf les jours fériés)

NORTHBOUND / EN DIRECTION NORD

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone→	Exception	Toronto 2 Dp	Union Station	Toronto 6	Danforth GO	Scarborough 6	Scarborough GO	Scarborough 77	Kennedy GO	Scarborough 7	Agincourt GO	Scarborough 70	Milliken GO	Markham 71	Unionville GO	Markham 72	Centennial GO	Markham 72	Markham GO	Markham 73	Mount Joy GO	Stouffville 74	Stouffville GO	Stouffville 74 Ar	Lincolnville GO	Transfer/Correspondances	Trip Number/Numéro du parcours	Stouffville 74 Dp	Lincolnville GO	Goodwood 75	Hwy. 47 @ Front St.	Uxbridge 76 Ar	Railway St. @ Albert St.
71C	71111			06 43	→	→	→	→	→	07 08	07 15	07 20	07 28	07 40	07 53																				
71	71171			07 43	→	→	→	→	→	08 23	08 30	08 35	08 41	08 53	09 03	→	09 03	09 09	09 28																
71C	71211			08 43	→	→	→	→	→	09 23	09 30	09 35	09 41	09 53	10 03																				
	7410			09 12	→	→	09 28	09 36	09 41	09 47	09 52	09 56	10 00↓																						
70D	70261												10 08h	10 21	10 31	→	10 31	10 37	10 53																
	7412			10 12	→	→	10 28	10 36	10 41	10 47	10 52	10 56	11 00↓																						
70D	70331												11 08h	11 21	11 31	→	11 31	11 37	11 53																
	7414			11 12	→	→	11 28	11 36	11 41	11 47	11 52	11 56	12 00↓																						
70D	70371												12 08h	12 21	12 31	→	12 31	12 37	12 53																
	7416			12 12	→	→	12 28	12 36	12 41	12 47	12 52	12 56	13 00↓																						
70D	70411												13 08h	13 21	13 31	→	13 31	13 37	13 53																
	7418			13 12	→	→	13 28	13 36	13 41	13 47	13 52	13 56	14 00↓																						
70D	70451												14 08h	14 21	14 31	→	14 31	14 37	14 53																
	7420			14 12	→	→	14 28	14 36	14 41	14 47	14 52	14 56	15 00↓																						
70D	70491												15 08h	15 21	15 31	→	15 31	15 37	15 53																
	7422			15 12	→	→	15 28	15 36	15 41	15 47	15 52	15 56	16 00↓																						
70D	70571												16 08h	16 21	16 31	→	16 31	16 37	16 53																
70B	7624			16 12	→	→	16 28	16 36	16 41	16 47	16 52	16 56	17 00	17 09	17 17	70651	17 25h	17 31	17 45																
	7924			16 57	→	→	17 13	17 21	17 26	17 32	17 37	17 41	17 45	17 54	18 02																				
70B	7726			17 27	→	→	17 43	17 51	17 56	18 02	18 07	18 11	18 15	18 24	18 32	70691	18 40h	18 46	19 00																
	7428			18 12	→	→	18 28	18 36	18 41	18 47	18 52	18 56	19 00↓																						
70D	70721												19 08h	19 21	19 31	→	19 31	19 37	19 53																
	7430			19 12	→	→	19 28	19 36	19 41	19 47	19 52	19 56	20 00↓																						
70D	70761												20 08h	20 20	20 28	→	20 28	20 34	20 48																
	7432			20 12	→	→	20 28	20 36	20 41	20 47	20 52	20 56	21 00↓																						
70D	70781												21 08h	21 20	21 28	→	21 28	21 34	21 48																
	7434			21 12	→	→	21 28	21 36	21 41	21 47	21 52	21 56	22 00↓																						
70D	70821												22 08h	22 20	22 28	→	22 28	22 34	22 48																
70B	7636			22 12	→	→	22 28	22 36	22 41	22 47	22 52	22 56	23 00	23 09	23 17	70851	23 25h	23 31	23 45																
70B	7638			23 12	→	→	23 28	23 36	23 41	23 47	23 52	23 56	00 00	00 09	00 17	70891	00 25h	00 31	00 45																
71C	71871			23 43	→	→	→	→	→	00 08	00 13	00 18	00 23	00 33	00 43																				
71C	71901			00 43	→	→	→	→	→	01 08	01 13	01 18	01 23	01 33	01 43																				
71C	71931			01 43	→	→	→	→	→	02 06	02 11	02 15	02 19	02 28	02 38																				
71C	71961			02 43	→	→	→	→	→	03 06	03 11	03 15	03 19	03 28	03 38																				

Saturday and Sunday
Samedi et dimanche

SOUTHBOUND / EN DIRECTION SUD

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone →	Uxbridge 76 Dp	Goodwood 75	Stouffville 74 Ar	Transfer/Correspondances	Trip Number/Numéro du parcours	Stouffville 74 Ar	Stouffville 74	Markham 73	Markham 72	Markham 72	Markham 71	Scarborough 70	Scarborough 7	Scarborough 77	Toronto 2 Ar
			Railway St. @ Albert St.	Hwy. 47 @ Front St.	Lincolnville GO			Lincolnville GO	Stouffville GO s	Mount Joy GO	Markham GO s	Centennial GO s	Unionville GO	Milliken GO	Agincourt GO	Kennedy GO	Union Station
71	71140		05 45	05 58	06 05	→		06 05	06 11	06 25	06 29	06 33	06 40	→	→	→	07 10
							7607	07 13	07 19	07 28	07 32	07 36	07 41	07 47	07 53	08 01	08 19
70B	70160		07 38	07 51	07 58		7609	08 13	08 19	08 28	08 32	08 36	08 41	08 47	08 53	09 01	09 19
							7611	09 13	09 19	09 28	09 32	09 36	09 41	09 47	09 53	10 01	10 19
70D	70260		09 33	09 46	09 53	→		09 53	09 59	10 13↓							
							7413			10 28	10 32	10 36	10 41	10 47	10 53	11 01	11 19
70F	70310							10 53	10 59	11 13↓							
							7415			11 28	11 32	11 36	11 41	11 47	11 53	12 01	12 19
70D	70340		11 33	11 46	11 53	→		11 53	11 59	12 13↓							
							7417			12 28	12 32	12 36	12 41	12 47	12 53	13 01	13 19
70F	70390							12 53	12 59	13 13↓							
							7419			13 28	13 32	13 36	13 41	13 47	13 53	14 01	14 19
70D	70420		13 33	13 46	13 53	→		13 53	13 59	14 13↓							
							7421			14 28	14 32	14 36	14 41	14 47	14 53	15 01	15 19
70F	70470							14 53	14 59	15 13↓							
							7423			15 28	15 32	15 36	15 41	15 47	15 53	16 01	16 19
70D	70510		15 33	15 46	15 53	→		15 53	15 59	16 13↓							
							7425			16 28	16 32	16 36	16 41	16 47	16 53	17 01	17 19
70F	70590							16 53	16 59	17 13↓							
							7427			17 28	17 32	17 36	17 41	17 47	17 53	18 01	18 19
70D	70630		17 33	17 46	17 53	→		17 53	17 59	18 13↓							
							7429			18 28	18 32	18 36	18 41	18 47	18 53	19 01	19 19
70F	70690							18 53	18 59	19 13↓							
							7431			19 28	19 32	19 36	19 41	19 47	19 53	20 01	20 19
70D	70720		19 33	19 46	19 53	→		19 53	19 59	20 13↓							
							7433			20 28	20 32	20 36	20 41	20 47	20 53	21 01	21 19
70F	70770							20 53	20 59	21 13↓							
							7435			21 28	21 32	21 36	21 41	21 47	21 53	22 01	22 19
70D	70780		21 40	21 53	22 00	→		22 00	22 06	22 20↓							
71E	71860									22 25	22 30	22 36	22 45	→	→	→	23 15
71C	71880							23 10	23 16	23 30	23 34	23 38	23 45	→	→	→	00 15
71C	71900							00 10	00 16	00 30	00 34	00 38	00 45	→	→	→	01 10
71C	71910							01 10	01 16	01 30	01 34	01 38	01 45	→	→	→	02 10

Saturday and Sunday
Samedi et dimanche

NORTHBOUND / EN DIRECTION NORD

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone →	Toronto 2 Dp	Scarborough 77	Scarborough 7	Scarborough 70	Markham 71	Markham 72	Markham 72	Markham 73	Stouffville 74	Stouffville 74 Ar	Transfer/Correspondances	Stouffville 74 Ar	Goodwood 75	Uxbridge 76 Ar
			Union Station	Kennedy GO	Agincourt GO	Milliken GO	Unionville GO	Centennial GO s	Markham GO s	Mount Joy GO	Stouffville GO s	Lincolnville GO	Trip Number/Numéro du parcours	Lincolnville GO	Hwy. 47 @ Front St.	Railway St. @ Albert St.
71	71171		07 43	→	→	→	08 08	08 14	08 18	08 23	08 35	08 43	→	08 43	08 49	09 08
	7410		09 12	09 28	09 36	09 41	09 47	09 52	09 56	10 00↓						
70D	70291									10 08**h**	10 21	10 31	→	10 31	10 37	10 53
	7412		10 12	10 28	10 36	10 41	10 47	10 52	10 56	11 00↓						
70F	70331									11 08**h**	11 21	11 31				
	7414		11 12	11 28	11 36	11 41	11 47	11 52	11 56	12 00↓						
70D	70371									12 08**h**	12 21	12 31	→	12 31	12 37	12 53
	7416		12 12	12 28	12 36	12 41	12 47	12 52	12 56	13 00↓						
70F	70411									13 08**h**	13 21	13 31				
	7418		13 12	13 28	13 36	13 41	13 47	13 52	13 56	14 00↓						
70D	70451									14 08**h**	14 21	14 31	→	14 31	14 37	14 53
	7420		14 12	14 28	14 36	14 41	14 47	14 52	14 56	15 00↓						
70F	70491									15 08**h**	15 21	15 31				
	7422		15 12	15 28	15 36	15 41	15 47	15 52	15 56	16 00↓						
70D	70551									16 08**h**	16 21	16 31	→	16 31	16 37	16 53
	7424		16 12	16 28	16 36	16 41	16 47	16 52	16 56	17 00↓						
70F	70611									17 08**h**	17 21	17 31				
	7426		17 12	17 28	17 36	17 41	17 47	17 52	17 56	18 00↓						
70D	70671									18 08**h**	18 21	18 31	→	18 31	18 37	18 53
	7428		18 12	18 28	18 36	18 41	18 47	18 52	18 56	19 00↓						
70F	70711									19 08**h**	19 21	19 31				
	7430		19 12	19 28	19 36	19 41	19 47	19 52	19 56	20 00↓						
70D	70751									20 08**h**	20 20	20 28	→	20 28	20 34	20 48
	7432		20 12	20 28	20 36	20 41	20 47	20 52	20 56	21 00↓						
70F	70791									21 08**h**	21 20	21 28				
70B	7634		21 12	21 28	21 36	21 41	21 47	21 52	21 56	22 00	22 09	22 17	70821	22 25	22 31	22 45
	7636		22 12	22 28	22 36	22 41	22 47	22 52	22 56	23 00	23 09	23 17				
70B	7638		23 12	23 28	23 36	23 41	23 47	23 52	23 56	00 00	00 09	00 17	70891	00 25**h**	00 31	00 45
71C	71891		23 43	→	→	→	00 08	00 13	00 18	00 23	00 33	00 43				
71C	71901		00 43	→	→	→	01 08	01 13	01 18	01 23	01 33	01 43				
71C	71931		01 43	→	→	→	02 06	02 11	02 15	02 19	02 28	02 38				
71C	71961		02 43	→	→	→	03 06	03 11	03 15	03 19	03 28	03 38				

905 Thickson-Reach

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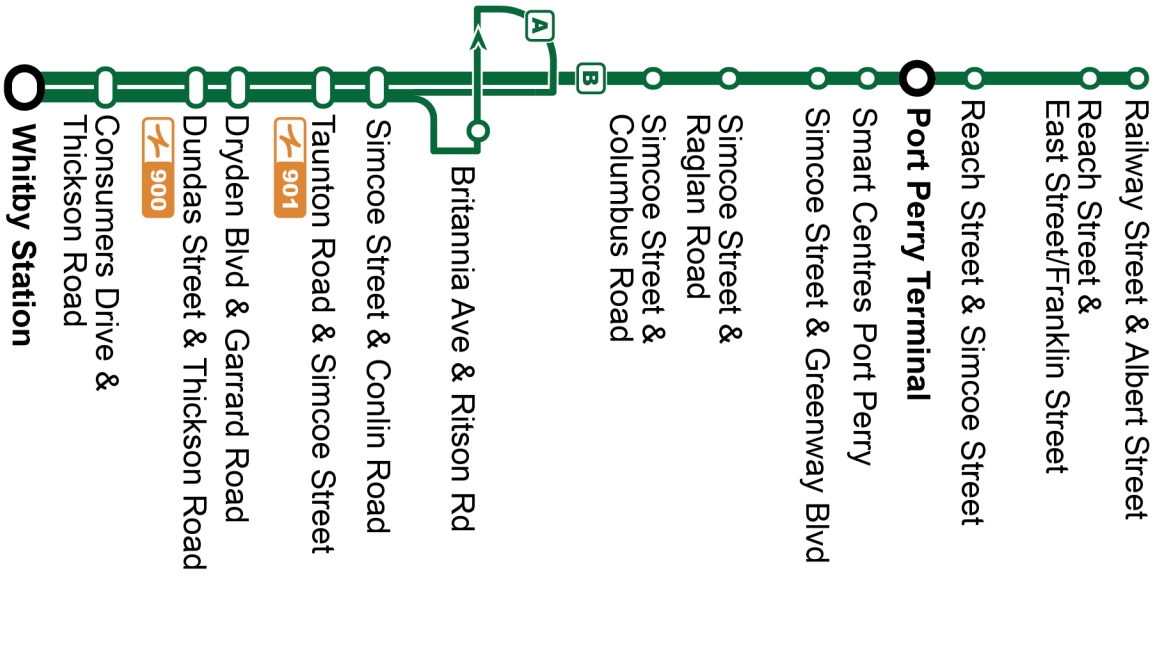
Dashes indicate the stop is not served by a trip. Trip notes are indicated by a letter or symbol and explained at the bottom of each timetable. Schedule times are shown in 24-hour clock. If you require this information in an accessible format, please contact Customer Service at 1-866-247-0055. See **durhamregiontransit.com** for more information.



905 Thickson-Reach

Effective April 5, 2021

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Weekday — North

Whitby Station **Stop #2576**	Thickson Northbound @ Dundas **Stop #276**	Garrard Northbound @ Dryden **Stop #93737**	Simcoe Northbound @ Taunton (North side stop) **Stop #691**	Simcoe Northbound @ Conlin **Stop #2712**	Curts Eastbound @ Port Perry Terminal **Stop #2491**	Railway Southbound @ Albert **Stop #93704**
B 5:40	5:50	5:55	6:03	6:09	6:43	7:06
A 6:20	6:30	6:35	6:43	6:49	—	—
A 6:50	7:00	7:05	7:13	7:19	—	—
B 7:10	7:20	7:25	7:33	7:39	8:13	8:36
A 7:50	8:01	8:07	8:15	8:19	—	—
A 8:20	8:31	8:37	8:45	8:49	—	—
B 8:40	8:51	8:57	9:05	9:09	9:43	10:08
A 9:20	9:31	9:37	9:45	9:49	—	—
A 9:50	10:01	10:07	10:15	10:19	—	—
B 10:10	10:21	10:27	10:35	10:39	11:13	11:38
A 10:50	11:01	11:07	11:15	11:19	—	—
A 11:20	11:31	11:37	11:45	11:49	—	—
B 11:40	11:51	11:57	12:05	12:09	12:43	13:08
A 12:10	12:21	12:27	12:35	12:39	—	—
A 12:40	12:51	12:57	13:05	13:09	—	—
B 13:10	13:21	13:27	13:35	13:39	14:13	14:38
A 13:40	13:51	13:57	14:05	14:09	—	—
A 14:10	14:21	14:27	14:35	14:39	—	—
B 14:40	14:53	14:59	15:08	15:13	15:47	16:11
A 15:10	15:23	15:29	15:38	15:43	—	—
A 15:40	15:53	15:59	16:08	16:13	—	—
B 16:10	16:23	16:29	16:38	16:43	17:17	17:41
A 16:40	16:53	16:59	17:08	17:13	—	—
A 17:10	17:23	17:29	17:38	17:43	—	—
B 17:40	17:53	17:59	18:08	18:13	18:47	19:11
A 18:10	18:23	18:29	18:38	18:43	—	—
A 18:40	18:53	18:59	19:08	19:13	—	—
B 19:10	19:23	19:29	19:38	19:43	20:17	20:41
A 19:40	19:51	19:57	20:05	20:11	—	—
A 20:10	20:21	20:27	20:35	20:41	—	—
B 20:40	20:51	20:57	21:05	21:11	21:45	22:06
A 21:10	21:21	21:27	21:35	21:41	—	—
A 21:40	21:51	21:57	22:05	22:11	—	—
B 22:10	22:21	22:27	22:35	22:41	23:15	23:36

A To Windfields Farm Drive via Ritson Road and Britannia Avenue
B To Railway Street and Albert Street

Weekday — South

Railway Southbound @ Albert **Stop #93704**	Curts Eastbound @ Port Perry Terminal **Stop #2491**	Conlin Eastbound @ Bridle **Stop #3541**	Simcoe Southbound @ Windfields Farm **Stop #93026**	Garrard Southbound @ Dryden **Stop #295**	Thickson Southbound @ Dundas **Stop #313**	Whitby Station **Stop #2576**
—	—	5:22	5:35	5:48	5:56	6:06
—	—	5:52	6:05	6:18	6:26	6:36
5:41	6:04	—	6:32	6:45	6:53	7:03
—	—	6:49	7:02	7:15	7:23	7:33
—	—	7:19	7:33	7:48	7:55	8:04
7:11	7:34	—	8:02	8:17	8:24	8:33
—	—	8:19	8:33	8:48	8:55	9:04
—	—	8:49	9:03	9:18	9:25	9:35
8:41	9:05	—	9:34	9:49	9:56	10:06
—	—	9:49	10:03	10:18	10:25	10:35
—	—	10:19	10:33	10:48	10:55	11:05
10:11	10:35	—	11:04	11:19	11:26	11:36
—	—	11:19	11:33	11:48	11:55	12:05
—	—	11:49	12:03	12:18	12:25	12:35
11:41	12:05	—	12:34	12:49	12:56	13:06
—	—	12:39	12:53	13:08	13:15	13:25
—	—	13:09	13:23	13:38	13:46	13:56
13:11	13:36	—	14:04	14:19	14:27	14:37
—	—	14:09	14:23	14:38	14:46	14:56
—	—	14:39	14:53	15:08	15:16	15:26
14:41	15:06	—	15:34	15:49	15:57	16:07
—	—	15:43	15:57	16:12	16:20	16:30
—	—	16:13	16:27	16:42	16:50	17:00
16:11	16:36	—	17:04	17:19	17:27	17:37
—	—	17:13	17:27	17:42	17:50	18:00
—	—	17:43	17:57	18:11	18:18	18:28
17:41	18:05	—	18:33	18:47	18:54	19:04
—	—	18:43	18:57	19:11	19:18	19:28
—	—	19:13	19:27	19:41	19:48	19:58
19:11	19:35	—	20:03	20:17	20:24	20:34
—	—	20:11	20:25	20:39	20:46	20:56
—	—	20:41	20:55	21:09	21:16	21:26
20:41	21:04	—	21:32	21:46	21:53	22:03
—	—	21:41	21:55	—	—	—

905 Thickson-Reach

Effective April 5, 2021

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Saturday — North

	Whitby Station **Stop #2576**	Thickson Northbound @ Dundas **Stop #276**	Garrard Northbound @ Dryden **Stop #93737**	Simcoe Northbound @ Taunton (North side stop) **Stop #691**	Simcoe Northbound @ Conlin **Stop #2712**	Curts Eastbound @ Port Perry Terminal **Stop #2491**	Railway Southbound @ Albert **Stop #93704**
A	6:45	6:55	7:02	7:10	7:14	—	—
B	7:10	7:20	7:27	7:35	7:39	8:16	8:38
A	7:45	7:55	8:02	8:10	8:14	—	—
A	8:15	8:25	8:32	8:40	8:44	—	—
B	8:40	8:50	8:57	9:05	9:09	9:46	10:08
A	9:15	9:25	9:32	9:40	9:44	—	—
A	9:45	9:55	10:02	10:10	10:14	—	—
B	10:10	10:20	10:27	10:35	10:39	11:16	11:38
A	10:45	10:55	11:02	11:10	11:14	—	—
A	11:15	11:25	11:32	11:40	11:44	—	—
B	11:40	11:50	11:57	12:05	12:09	12:46	13:08
A	12:15	12:25	12:32	12:40	12:44	—	—
A	12:45	12:55	13:02	13:10	13:14	—	—
B	13:10	13:20	13:27	13:35	13:39	14:16	14:38
A	13:45	13:55	14:02	14:10	14:14	—	—
A	14:15	14:25	14:32	14:40	14:44	—	—
B	14:40	14:50	14:57	15:05	15:09	15:46	16:08
A	15:15	15:25	15:32	15:40	15:44	—	—
A	15:45	15:55	16:02	16:10	16:14	—	—
B	16:10	16:20	16:27	16:35	16:39	17:14	17:40
A	16:45	16:55	17:02	17:10	17:14	—	—
A	17:15	17:25	17:32	17:40	17:44	—	—
B	17:40	17:50	17:57	18:05	18:09	18:44	19:10
A	18:15	18:25	18:32	18:40	18:44	—	—
A	18:45	18:55	19:02	19:10	19:14	—	—
B	19:10	19:20	19:27	19:35	19:39	20:13	20:35
A	19:45	19:55	20:02	20:10	20:14	—	—
A	20:15	20:25	20:32	20:40	20:44	—	—
A	20:45	20:55	21:02	21:10	21:14	—	—
A	21:15	21:25	21:32	21:40	21:44	—	—
A	21:45	21:55	22:02	22:10	22:14	—	—
A	22:15	22:25	22:32	22:40	22:44	—	—

A To Windfields Farm Drive via Ritson Road and Britannia Avenue
B To Railway Street and Albert Street

Saturday — South

Railway Southbound @ Albert **Stop #93704**	Curts Eastbound @ Port Perry Terminal **Stop #2491**	Conlin Eastbound @ Bridle **Stop #3541**	Simcoe Southbound @ Windfields Farm **Stop #93026**	Garrard Southbound @ Dryden **Stop #295**	Thickson Southbound @ Dundas **Stop #313**	Whitby Station **Stop #2576**
—	—	5:44	5:57	6:12	6:19	6:28
—	—	6:14	6:27	6:42	6:49	6:58
—	—	6:44	6:57	7:12	7:19	7:28
—	—	7:14	7:27	7:42	7:49	7:58
7:11	7:34	—	8:03	8:18	8:25	8:34
—	—	8:14	8:27	8:42	8:49	8:58
—	—	8:44	8:57	9:12	9:19	9:28
8:41	9:04	—	9:33	9:48	9:55	10:04
—	—	9:44	9:57	10:12	10:19	10:28
—	—	10:14	10:28	10:45	10:51	11:02
10:11	10:34	—	11:03	11:18	11:25	11:34
—	—	11:14	11:28	11:45	11:51	12:02
—	—	11:44	11:58	12:15	12:21	12:32
11:41	12:05	—	12:32	12:49	12:55	13:06
—	—	12:44	12:58	13:15	13:21	13:32
—	—	13:14	13:28	13:45	13:51	14:02
13:11	13:35	—	14:02	14:19	14:25	14:36
—	—	14:14	14:28	14:45	14:51	15:02
—	—	14:44	14:58	15:15	15:21	15:32
14:41	15:05	—	15:32	15:49	15:55	16:06
—	—	15:44	15:58	16:15	16:21	16:32
—	—	16:14	16:27	16:43	16:50	17:00
16:11	16:35	—	17:02	17:19	17:25	17:36
—	—	17:14	17:27	17:43	17:50	18:00
—	—	17:44	17:57	18:13	18:20	18:30
17:41	18:02	—	18:28	18:44	18:51	19:01
—	—	18:44	18:57	19:13	19:20	19:30
—	—	19:14	19:27	19:43	19:50	20:00
19:11	19:32	—	19:58	20:14	20:21	20:31
—	—	20:14	20:27	20:43	20:50	21:00
—	—	20:44	20:57	21:13	21:20	21:30
—	—	21:14	21:27	21:43	21:50	22:00
—	—	21:44	21:57	22:13	22:20	22:30
—	—	22:14	22:27	22:41	22:48	22:57

905 Thickson-Reach

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Sunday — North

Whitby Station **Stop #2576**	Thickson Northbound @ Dundas **Stop #276**	Garrard Northbound @ Dryden **Stop #93737**	Simcoe Northbound @ Taunton (North side stop) **Stop #691**	Simcoe Northbound @ Conlin **Stop #2712**	Curts Eastbound @ Port Perry Terminal **Stop #2491**	Railway Southbound @ Albert **Stop #93704**
A 6:45	6:55	7:02	7:10	7:14	—	—
B 7:10	7:20	7:27	7:35	7:39	8:16	8:38
A 7:45	7:55	8:02	8:10	8:14	—	—
A 8:15	8:25	8:32	8:40	8:44	—	—
B 8:40	8:50	8:57	9:05	9:09	9:46	10:08
A 9:15	9:25	9:32	9:40	9:44	—	—
A 9:45	9:55	10:02	10:10	10:14	—	—
B 10:10	10:20	10:27	10:35	10:39	11:16	11:38
A 10:45	10:55	11:02	11:10	11:14	—	—
A 11:15	11:25	11:32	11:40	11:44	—	—
B 11:40	11:50	11:57	12:05	12:09	12:46	13:08
A 12:15	12:25	12:32	12:40	12:44	—	—
A 12:45	12:55	13:02	13:10	13:14	—	—
B 13:10	13:20	13:27	13:35	13:39	14:16	14:38
A 13:45	13:55	14:02	14:10	14:14	—	—
A 14:15	14:25	14:32	14:40	14:44	—	—
B 14:40	14:50	14:57	15:05	15:09	15:46	16:08
A 15:15	15:25	15:32	15:40	15:44	—	—
A 15:45	15:55	16:02	16:10	16:14	—	—
B 16:10	16:20	16:27	16:35	16:39	17:14	17:40
A 16:45	16:55	17:02	17:10	17:14	—	—
A 17:15	17:25	17:32	17:40	17:44	—	—
B 17:40	17:50	17:57	18:05	18:09	18:44	19:10
A 18:15	18:25	18:32	18:40	18:44	—	—
A 18:45	18:55	19:02	19:10	19:14	—	—
B 19:10	19:20	19:27	19:35	19:39	20:13	20:35
A 19:45	19:55	20:02	20:10	20:14	—	—
A 20:15	20:25	20:32	20:40	20:44	—	—
A 20:45	20:55	21:02	21:10	21:14	—	—
A 21:15	21:25	21:32	21:40	21:44	—	—
A 21:45	21:55	22:02	22:10	22:14	—	—
A 22:15	22:25	22:32	22:40	22:44	—	—

A To Windfields Farm Drive via Ritson Road and Britannia Avenue
B To Railway Street and Albert Street

Sunday — South

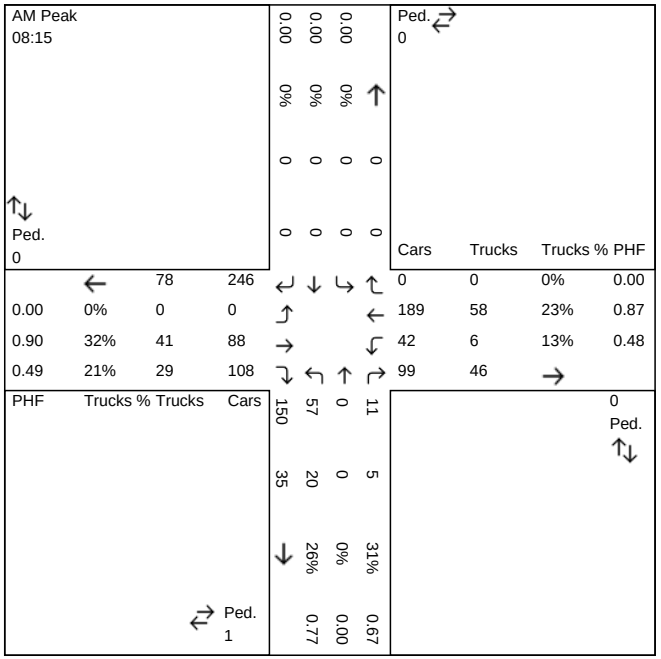
Railway Southbound @ Albert **Stop #93704**	Curts Eastbound @ Port Perry Terminal **Stop #2491**	Conlin Eastbound @ Bridle **Stop #3541**	Simcoe Southbound @ Windfields Farm **Stop #93026**	Garrard Southbound @ Dryden **Stop #295**	Thickson Southbound @ Dundas **Stop #313**	Whitby Station **Stop #2576**
—	—	5:44	5:57	6:12	6:19	6:28
—	—	6:14	6:27	6:42	6:49	6:58
—	—	6:44	6:57	7:12	7:19	7:28
—	—	7:14	7:27	7:42	7:49	7:58
7:11	7:34	—	8:03	8:18	8:25	8:34
—	—	8:14	8:27	8:42	8:49	8:58
—	—	8:44	8:57	9:12	9:19	9:28
8:41	9:04	—	9:33	9:48	9:55	10:04
—	—	9:44	9:57	10:12	10:19	10:28
—	—	10:14	10:28	10:45	10:51	11:02
10:11	10:34	—	11:03	11:18	11:25	11:34
—	—	11:14	11:28	11:45	11:51	12:02
—	—	11:44	11:58	12:15	12:21	12:32
11:41	12:05	—	12:32	12:49	12:55	13:06
—	—	12:44	12:58	13:15	13:21	13:32
—	—	13:14	13:28	13:45	13:51	14:02
13:11	13:35	—	14:02	14:19	14:25	14:36
—	—	14:14	14:28	14:45	14:51	15:02
—	—	14:44	14:58	15:15	15:21	15:32
14:41	15:05	—	15:32	15:49	15:55	16:06
—	—	15:44	15:58	16:15	16:21	16:32
—	—	16:14	16:27	16:43	16:50	17:00
16:11	16:35	—	17:02	17:19	17:25	17:36
—	—	17:14	17:27	17:43	17:50	18:00
—	—	17:44	17:57	18:13	18:20	18:30
17:41	18:02	—	18:28	18:44	18:51	19:01
—	—	18:44	18:57	19:13	19:20	19:30
—	—	19:14	19:27	19:43	19:50	20:00
19:11	19:32	—	19:58	20:14	20:21	20:31
—	—	20:14	20:27	20:43	20:50	21:00
—	—	20:44	20:57	21:13	21:20	21:30
—	—	21:14	21:27	21:43	21:50	22:00
—	—	21:44	21:57	22:13	22:20	22:30
—	—	22:14	22:27	22:41	22:48	22:57

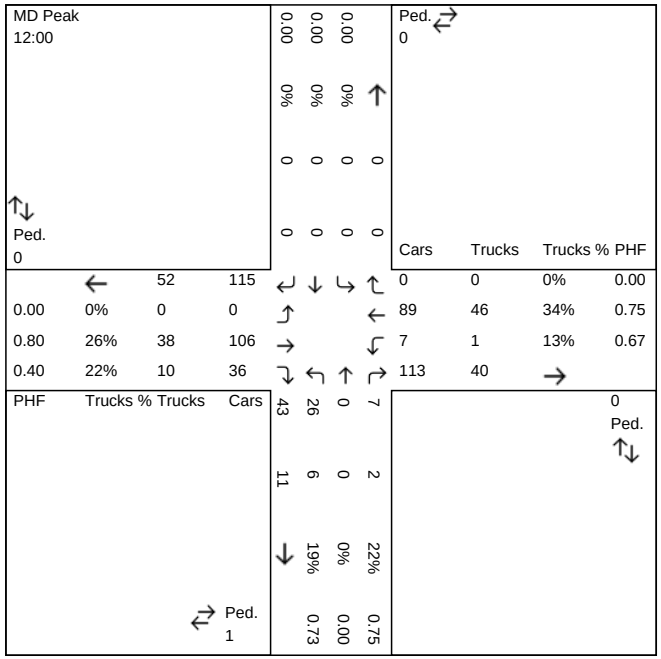
Appendix C – Existing Traffic Data

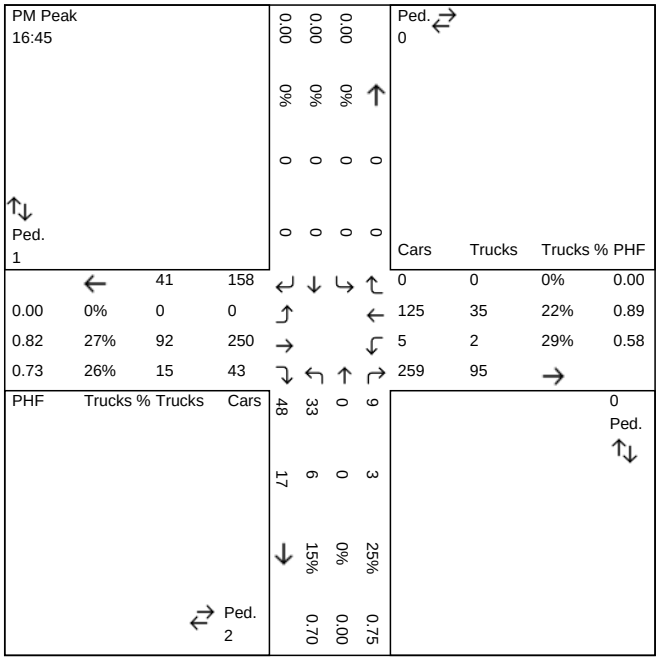
TMC Tabular Report

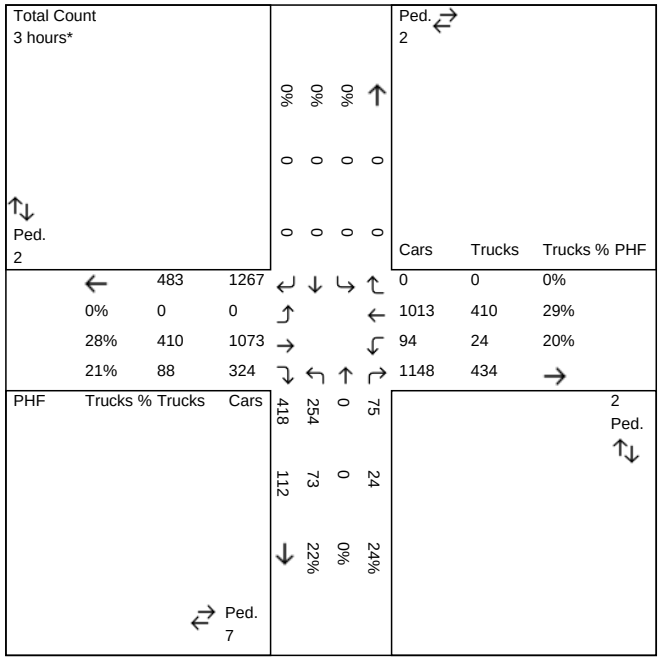
Brock St E (RHwy 47) @ Nelkydd Ln/Herrema Bv

TMC No: 0741300000 **Intersection ID:** 11772 **Count ID:** 35702017968 **Count Date:** 06/11/2019, Tue









Brock St E (RHwy 47) @ Nelkydd Ln/Herrema Bv

TMC No: 0741300000 **Intersection ID:** 11772 **Count ID:** 35702017968 **Count Date:** 06/11/2019, Tue

Time	NORTH APPROACH										EAST APPROACH										SOUTH APPROACH										WEST APPROACH										Total
	Cars			Trucks			Heavies			Ped	Cars			Trucks			Heavies			Ped	Cars			Trucks			Heavies			Ped	Cars			Trucks			Heavies			Ped	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
Period 1																																								
06:00	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*
06:15	0	0	0	0	0	0	0	0	0	0	0	26	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	7	1	0	6	0	0	0	0	1	55
06:30	0	0	0	0	0	0	0	0	0	0	0	31	0	0	25	0	0	0	0	0	1	0	0	3	0	0	0	0	0	0	10	1	0	6	1	0	0	0	0	78
06:45	0	0	0	0	0	0	0	0	0	2	0	48	0	0	13	0	0	0	0	2	2	0	0	0	0	0	0	1	0	12	3	0	8	1	0	0	0	0	92
07:00	0	0	0	0	0	0	0	0	0	0	0	34	0	0	16	0	0	0	0	0	2	0	1	2	0	0	0	0	0	17	0	0	2	0	0	0	0	0	74
07:15	0	0	0	0	0	0	0	0	0	0	1	47	0	0	25	0	0	0	0	0	5	0	2	2	0	0	0	0	0	21	1	0	9	2	0	0	0	0	115
07:30	0	0	0	0	0	0	0	0	0	0	2	38	0	4	18	0	0	0	0	0	8	0	2	2	0	1	0	0	0	21	5	0	11	3	0	0	0	0	115
07:45	0	0	0	0	0	0	0	0	0	0	5	35	0	1	17	0	0	0	0	0	3	0	2	1	0	1	0	0	0	29	4	0	7	1	0	0	0	0	106
08:00	0	0	0	0	0	0	0	0	0	0	5	48	0	2	29	0	0	0	0	0	6	0	2	1	0	1	0	0	0	26	9	0	9	3	0	0	0	0	141
08:15	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**45**	**0**	**3**	**7**	**0**	**0**	**0**	**0**	**0**	**10**	**0**	**2**	**6**	**0**	**3**	**0**	**0**	**0**	**23**	**24**	**0**	**7**	**13**	**0**	**0**	**0**	**0**	**153**
08:30	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**23**	**46**	**0**	**2**	**17**	**0**	**0**	**0**	**0**	**0**	**18**	**0**	**5**	**7**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**27**	**58**	**0**	**9**	**12**	**0**	**0**	**0**	**0**	**226**
08:45	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**44**	**0**	**1**	**17**	**0**	**0**	**0**	**0**	**0**	**12**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**21**	**11**	**0**	**15**	**1**	**0**	**0**	**0**	**0**	**129**
09:00	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**54**	**0**	**0**	**17**	**0**	**0**	**0**	**0**	**0**	**17**	**0**	**3**	**5**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**17**	**15**	**0**	**10**	**3**	**0**	**0**	**0**	**0**	**147**
09:15	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*
Period 2																																								
11:30	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*
11:45	0	0	0	0	0	0	0	0	0	0	3	18	0	0	8	0	0	0	0	0	3	0	1	1	0	0	0	0	0	0	23	8	0	12	2	0	0	0	0	79
12:00	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**23**	**0**	**0**	**13**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**2**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**36**	**22**	**0**	**9**	**7**	**0**	**0**	**0**	**0**	**123**
12:15	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**14**	**0**	**1**	**10**	**0**	**0**	**0**	**0**	**0**	**9**	**0**	**3**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**23**	**3**	**0**	**6**	**1**	**0**	**0**	**0**	**0**	**74**
12:30	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**33**	**0**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**1**	**1**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**25**	**7**	**0**	**9**	**1**	**0**	**0**	**0**	**0**	**98**
12:45	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**19**	**0**	**0**	**11**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**22**	**4**	**0**	**14**	**1**	**0**	**0**	**0**	**0**	**80**
13:00	0	0	0	0	0	0	0	0	0	0	3	26	0	1	8	0	0	0	0	0	9	0	0	2	0	0	0	0	0	0	19	7	0	13	3	0	0	0	0	91
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13:30	0	0	0	0	0	0	0	0	0	0	0	18	0	0	10	0	0	0	0	0	14	0	0	2	0	0	0	0	0	0	30	3	0	10	2	0	0	0	0	89
Period 3																																								
13:45	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*
15:00	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*
15:15	0	0	0	0	0	0	0	0	0	0	1	26	0	2	9	0	0	0	0	0	10	0	9	3	0	4	0	0	0	1	0	39	8	0	14	1	0	0	0	0	127
15:30	0	0	0	0	0	0	0	0	0	0	4	26	0	1	11	0	0	0	0	0	12	0	2	3	0	0	0	0	0	1	0	44	15	0	12	2	0	0	0	0	133
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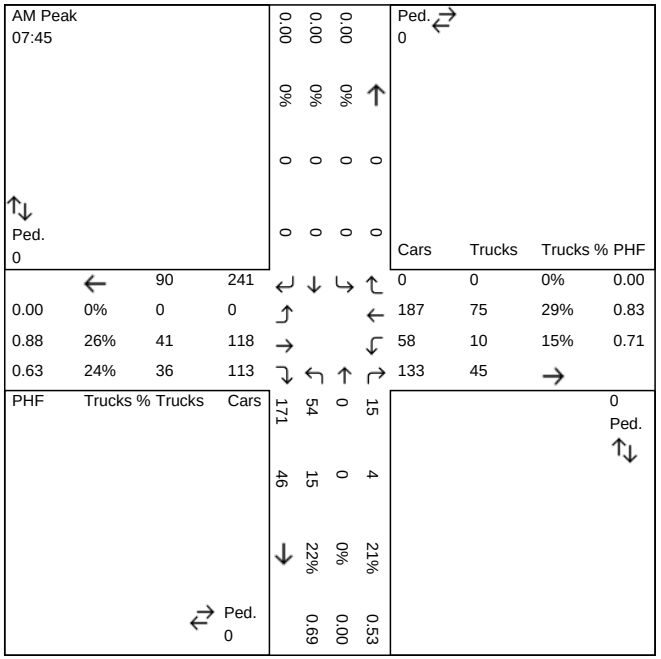
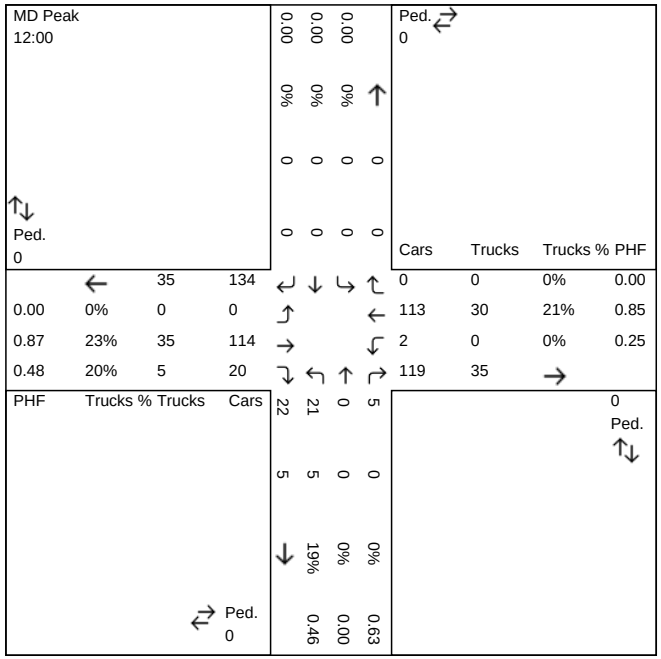
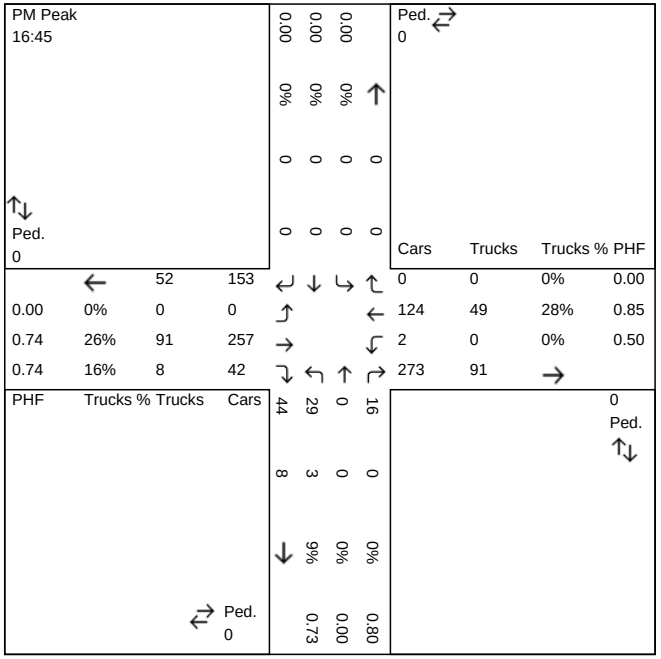
16:45	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**27**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**0**	**3**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**66**	**6**	**0**	**23**	**2**	**0**	**0**	**0**	**0**	**150**
17:00	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**35**	**0**	**0**	**10**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**70**	**14**	**0**	**19**	**6**	**0**	**0**	**0**	**1**	**164**
17:15	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**28**	**0**	**1**	**7**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**77**	**7**	**0**	**27**	**3**	**0**	**0**	**0**	**0**	**164**
17:30	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**35**	**0**	**1**	**10**	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**2**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**37**	**16**	**0**	**23**	**4**	**0**	**0**	**0**	**0**	**143**
17:45	0	0	0	0	0	0	0	0	0	0	0	33	0	0	9	0	0	0	0	0	7	0	2	1	0	2	0	0	0	0	0	41	11	0	24	2	0	0	0	0	132
18:00	0	0	0	0	0	0	0	0	0	0	1	42	0	0	10	0	0	0	0	0	7	0	1	4	0	0	0	0	0	0	0	44	9	0	21	3	0	0	0	0	142
18:15	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*
18:30	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*

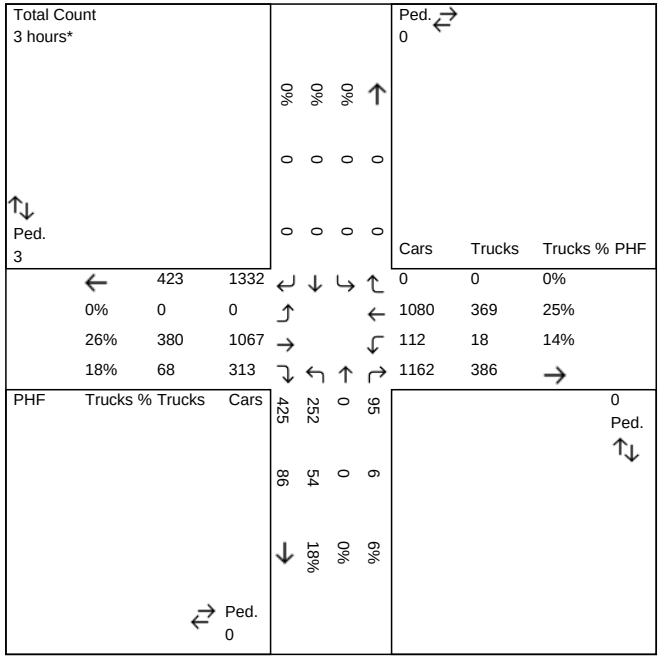
Brock St E (RHwy 47) @ Nelkydd Ln/Herrema Bv

TMC No: 0741300000 **Intersection ID:** 11772 **Count ID:** 35702018059 **Count Date:** 09/04/2019, Wed









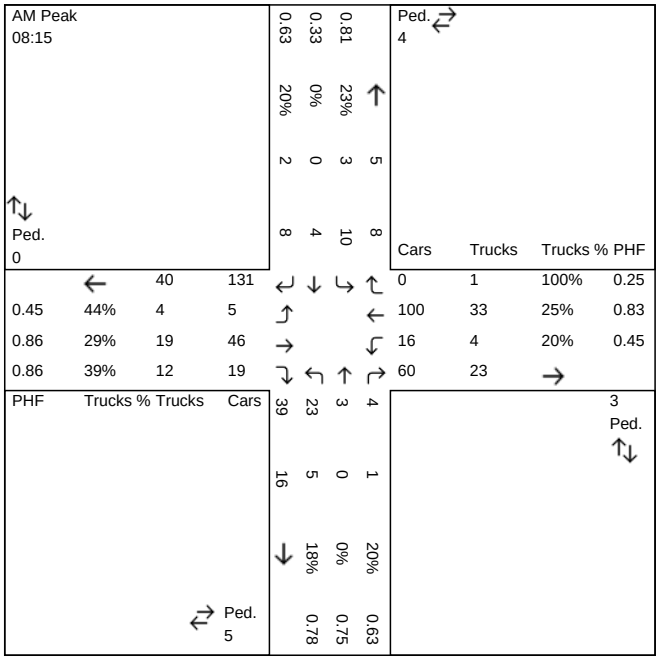
Brock St E (RHwy 47) @ Nelkydd Ln/Herrema Bv

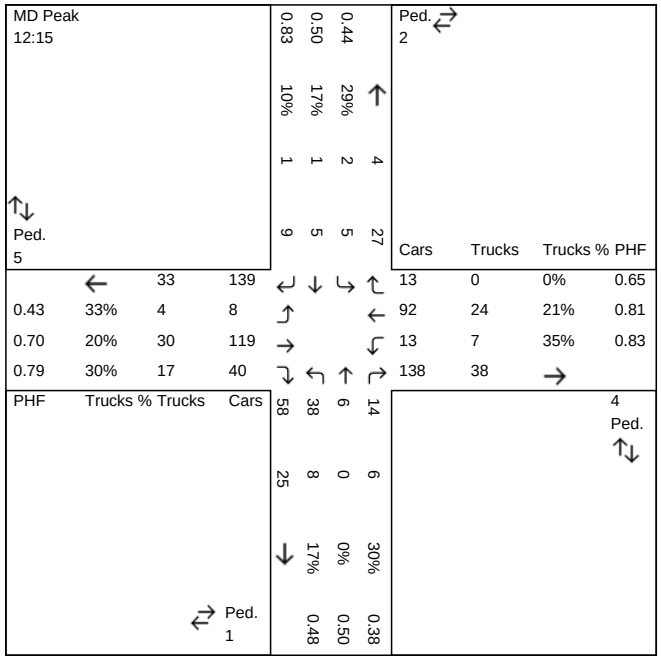
TMC No: 0741300000 **Intersection ID:** 11772 **Count ID:** 35702018059 **Count Date:** 09/04/2019, Wed

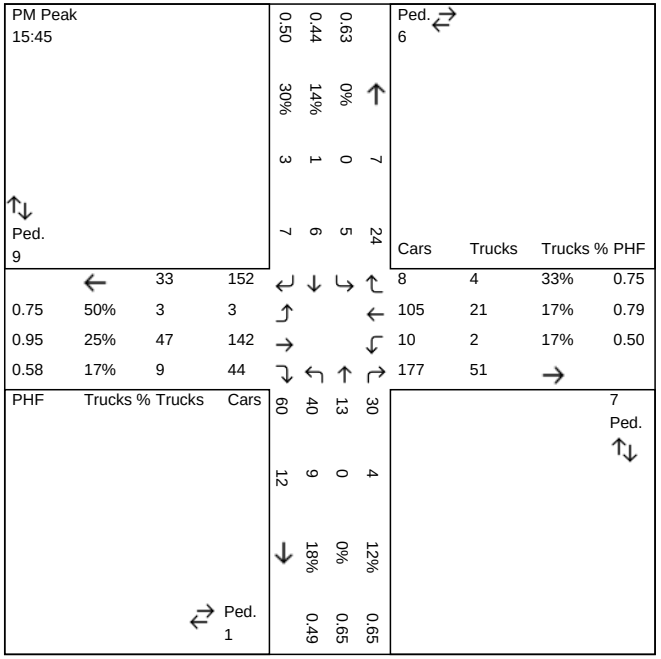
Time	NORTH APPROACH										EAST APPROACH										SOUTH APPROACH										WEST APPROACH										
	Cars			Trucks			Heavies			Ped	Cars			Trucks			Heavies			Ped	Cars			Trucks			Heavies			Ped	Cars			Trucks			Heavies			Ped	Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
Period 1																																								
06:00	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*
06:15	0	0	0	0	0	0	0	0	0	0	1	39	0	0	2	0	0	0	0	0	1	0	0	5	0	1	0	0	0	0	0	0	15	1	0	2	0	0	0	0	0	67
06:30	0	0	0	0	0	0	0	0	0	0	0	47	0	1	11	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	12	2	0	3	1	0	0	0	0	78
06:45	0	0	0	0	0	0	0	0	0	0	0	44	0	0	15	0	0	0	0	0	3	0	0	1	0	0	0	0	0	0	0	0	13	1	0	7	0	0	0	0	0	84
07:00	0	0	0	0	0	0	0	0	0	0	1	32	0	0	13	0	0	0	0	0	2	0	3	0	0	0	0	0	0	0	0	0	13	2	0	4	0	0	0	0	3	73
07:15	0	0	0	0	0	0	0	0	0	0	2	39	0	0	17	0	0	0	0	0	6	0	2	1	0	0	0	0	0	0	0	0	16	2	0	6	1	0	0	0	0	92
07:30	0	0	0	0	0	0	0	0	0	0	8	40	0	1	20	0	0	0	0	0	7	0	3	2	0	0	0	0	0	0	0	0	15	0	0	3	1	0	0	0	0	100
07:45	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**45**	**0**	**1**	**19**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**3**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**30**	**12**	**0**	**15**	**3**	**0**	**0**	**0**	**0**	**144**
08:00	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**13**	**54**	**0**	**3**	**25**	**0**	**0**	**0**	**0**	**0**	**12**	**0**	**3**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**27**	**14**	**0**	**6**	**5**	**0**	**0**	**0**	**0**	**164**
08:15	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**21**	**46**	**0**	**3**	**21**	**0**	**0**	**0**	**0**	**0**	**16**	**0**	**7**	**5**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**31**	**44**	**0**	**7**	**12**	**0**	**0**	**0**	**0**	**215**
08:30	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**17**	**42**	**0**	**3**	**10**	**0**	**0**	**0**	**0**	**0**	**19**	**0**	**2**	**6**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**30**	**43**	**0**	**13**	**16**	**0**	**0**	**0**	**0**	**203**
08:45	0	0	0	0	0	0	0	0	0	0	7	46	0	2	12	0	0	0	0	0	9	0	1	1	0	0	0	0	0	0	0	0	12	7	0	7	1	0	0	0	0	105
09:00	0	0	0	0	0	0	0	0	0	0	6	36	0	1	18	0	0	0	0	0	16	0	5	0	0	0	0	0	0	0	0	0	16	21	0	3	1	0	0	0	0	123
Period 2																																								
11:30	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*
11:45	0	0	0	0	0	0	0	0	0	0	0	12	0	1	15	0	0	0	0	0	6	0	0	2	0	0	0	0	0	0	0	0	19	9	0	12	0	0	0	0	0	76
12:00	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**31**	**0**	**0**	**11**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**35**	**9**	**0**	**8**	**4**	**0**	**0**	**0**	**0**	**101**
12:15	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**20**	**0**	**0**	**9**	**0**	**0**	**0**	**0**	**0**	**12**	**0**	**2**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**27**	**7**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**91**
12:30	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**31**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**27**	**1**	**0**	**6**	**1**	**0**	**0**	**0**	**0**	**80**
12:45	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**31**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**25**	**3**	**0**	**9**	**0**	**0**	**0**	**0**	**0**	**78**
13:00	0	0	0	0	0	0	0	0	0	0	2	28	0	0	6	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	27	2	0	9	1	0	0	0	0	82
13:15	0	0	0	0	0	0	0	0	0	0	1	35	0	0	6	0	0	0	0	0	5	0	3	1	0	0	0	0	0	0	0	0	21	6	0	11	1	0	0	0	0	90
13:30	0	0	0	0	0	0	0	0	0	0	0	31	0	0	7	0	0	0	0	0	8	0	1	0	0	0	0	0	0	0	0	0	23	7	0	17	1	0	0	0	0	95
Period 3																																								
13:45	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*
15:00	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*
15:15	0	0	0	0	0	0	0	0	0	0	2	24	0	0	8	0	0	0	0	0	4	0	5	3	0	0	0	0	0	0	0	0	35	7	0	11	0	0	0	0	0	99
15:30	0	0	0	0	0	0	0	0	0	0	6	29	0	1	8	0	0	0	0	0	12	0	3	0	0	0	0	0	0	0	0	0	40	12	0	13	0	0	0	0	0	124
15:45	0	0	0	0	0	0	0	0	0	0	4	34	0	0	9	0	0	0	0	0	9	0	9	2	0	0	0	0	0	0	0	0	49	25	0	17	4	0	0	0	0	162
16:00	0	0	0	0	0	0	0	0	0	0	2	32	0	0	9	0	0	0	0	0	30	0	9	8	0	0	0	0	0	0	0	0	38	5	0	11	3	0	0	0	0	147
16:15	0	0	0	0	0	0	0	0	0	0	0	21	0	0	14	0	0	0	0	0	6	0	6	3	0	1	0	0	0	0	0	0	71	8	0	16	0	0	0	0	0	146
16:30	0	0	0	0	0	0	0	0	0	0	2	28	0	1	6	0	0	0	0	0	7	0	4	1	0	0	0	0	0	0	0	0	47	3	0	17	1	0	0	0	0	117
16:45	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**37**	**0**	**0**	**9**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**64**	**14**	**0**	**19**	**3**	**0**	**0**	**0**	**0**	**158**
17:00	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**35**	**0**	**0**	**16**	**0**	**0**	**0**	**0**	**0**	**9**	**0**	**5**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**50**	**6**	**0**	**23**	**0**	**0**	**0**	**0**	**0**	**147**
17:15	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**22**	**0**	**0**	**15**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**5**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**98**	**12**	**0**	**20**	**3**	**0**	**0**	**0**	**0**	**184**
17:30	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**30**	**0**	**0**	**9**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**45**	**10**	**0**	**29**	**2**	**0**	**0**	**0**	**0**	**132**
17:45	0	0	0	0	0	0	0	0	0	0	4	28	0	0	7	0	0	0	0	0	4	0	1	0	0	0	0	0	0	0	0	0	58	11	0	21	2	0	0	0	0	136
18:00	0	0	0	0	0	0	0	0	0	0	2	31	0	0	12	0	0	0	0	0	6	0	4	0	0	0	0	0	0	0	0	0	38	7	0	23	1	0	0	0	0	124
18:15	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*
18:30	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*

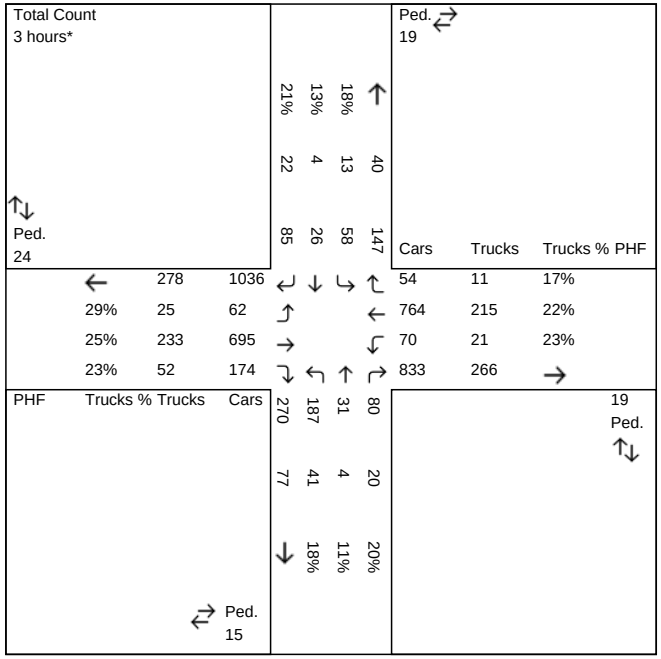
Brock St E (RHwy 47) @ Nelkydd Ln/Herrema Bv

TMC No: 0741300000 **Intersection ID:** 11772 **Count ID:** 35702018301 **Count Date:** 09/16/2020, Wed









Brock St E (RHwy 47) @ Nelkydd Ln/Herrema Bv

TMC No: 0741300000 **Intersection ID:** 11772 **Count ID:** 35702018301 **Count Date:** 09/16/2020, Wed

Time	NORTH APPROACH										EAST APPROACH										SOUTH APPROACH										WEST APPROACH										Total
	Left	Cars Thru	Right	Left	Trucks Thru	Right	Left	Heavies Thru	Right	Ped	Left	Cars Thru	Right	Left	Trucks Thru	Right	Left	Heavies Thru	Right	Ped	Left	Cars Thru	Right	Left	Trucks Thru	Right	Left	Heavies Thru	Right	Ped	Left	Cars Thru	Right	Left	Trucks Thru	Right	Left	Heavies Thru	Right	Ped	
Period 1																																								
06:00	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*
06:15	3	0	3	2	0	0	0	0	0	0	0	14	1	0	2	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	5	1	0	1	0	0	0	0	0	34
06:30	2	1	2	0	0	1	0	0	0	0	0	23	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3	1	0	0	0	0	0	0	0	0	41
06:45	3	1	3	0	0	1	0	0	0	0	1	22	1	0	14	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	4	0	0	3	0	0	0	0	0	0	54
07:00	0	0	2	1	0	1	0	0	0	0	2	24	1	0	5	0	0	0	0	0	1	0	0	0	0	0	0	0	1	6	1	0	2	0	0	0	0	0	0	0	47
07:15	2	1	4	0	0	0	0	0	0	2	0	23	0	1	9	1	0	0	0	0	8	0	0	2	0	0	0	0	0	2	9	1	1	1	0	0	0	0	0	0	67
07:30	3	0	3	0	0	0	0	0	0	0	2	25	0	1	9	0	0	0	0	3	4	0	0	4	0	0	0	0	2	2	12	1	0	2	0	0	0	0	0	2	75
07:45	4	1	2	3	0	1	0	0	0	0	0	31	2	0	8	0	0	0	0	0	6	0	3	2	0	0	0	0	0	1	11	2	1	2	0	0	0	0	0	0	80
08:00	3	1	4	0	0	1	0	0	0	1	4	29	0	2	13	0	0	0	0	1	7	0	1	0	0	1	0	0	0	1	0	14	4	1	3	0	0	0	0	1	92
08:15	**2**	**0**	**2**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**1**	**31**	**0**	**0**	**9**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**7**	**6**	**1**	**4**	**3**	**0**	**0**	**0**	**0**	**75**
08:30	**3**	**1**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**4**	**18**	**0**	**2**	**9**	**1**	**0**	**0**	**0**	**0**	**5**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**3**	**14**	**4**	**2**	**5**	**5**	**0**	**0**	**0**	**0**	**83**
08:45	**3**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**25**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**6**	**1**	**2**	**2**	**0**	**0**	**0**	**0**	**1**	**1**	**12**	**4**	**1**	**5**	**3**	**0**	**0**	**0**	**0**	**79**
09:00	**2**	**3**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**9**	**26**	**0**	**2**	**7**	**0**	**0**	**0**	**0**	**3**	**8**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**4**	**0**	**13**	**5**	**0**	**5**	**1**	**0**	**0**	**0**	**0**	**97**
09:15	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*
Period 2																																								
11:30	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*
11:45	1	0	2	0	0	2	0	0	0	0	0	29	0	0	10	2	0	0	0	0	6	0	2	1	0	0	0	0	1	3	19	3	0	14	1	0	0	0	0	96
12:00	0	0	1	0	0	1	0	0	0	0	1	26	2	2	4	0	0	0	0	0	4	0	0	0	0	0	0	0	0	1	27	4	2	15	2	0	0	0	0	92
12:15	**3**	**2**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**33**	**1**	**1**	**3**	**0**	**0**	**0**	**0**	**2**	**10**	**3**	**3**	**1**	**0**	**1**	**0**	**0**	**0**	**5**	**38**	**9**	**2**	**15**	**6**	**0**	**0**	**0**	**0**	**145**
12:30	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**16**	**5**	**2**	**7**	**0**	**0**	**0**	**0**	**1**	**3**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**19**	**6**	**1**	**5**	**5**	**0**	**0**	**0**	**0**	**78**
12:45	**1**	**0**	**2**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**4**	**23**	**4**	**2**	**3**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**2**	**1**	**0**	**1**	**0**	**0**	**0**	**2**	**32**	**9**	**1**	**3**	**4**	**0**	**0**	**0**	**0**	**102**
13:00	**0**	**3**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**4**	**20**	**3**	**2**	**11**	**0**	**0**	**0**	**0**	**1**	**20**	**3**	**9**	**4**	**0**	**4**	**0**	**0**	**0**	**1**	**0**	**30**	**16**	**0**	**7**	**2**	**0**	**0**	**0**	**5**	**149**
13:15	0	0	2	1	0	1	0	0	0	0	6	17	2	0	5	0	0	0	0	0	4	1	1	0	1	0	0	0	0	0	18	2	1	3	0	0	0	0	1	66
13:30	2	0	2	0	0	2	0	0	0	2	0	22	0	0	7	0	0	0	0	0	2	0	1	0	0	0	0	0	0	2	13	7	0	2	1	0	0	0	0	65
Period 3																																								
13:45	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*
15:00	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*
15:15	2	0	1	0	2	0	0	0	0	0	0	16	1	0	3	1	0	0	0	0	3	0	3	0	0	0	0	0	0	3	28	3	0	8	0	0	0	0	0	74
15:30	1	1	3	0	0	0	0	0	0	1	3	21	2	0	8	0	0	0	0	0	3	0	1	1	0	0	0	0	0	3	24	4	2	11	0	0	0	0	1	90
15:45	**2**	**3**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**5**	**25**	**2**	**1**	**4**	**2**	**0**	**0**	**0**	**2**	**4**	**1**	**2**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**39**	**21**	**2**	**11**	**2**	**0**	**0**	**0**	**5**	**138**
16:00	**1**	**2**	**2**	**0**	**0**	**3**	**0**	**0**	**0**	**4**	**2**	**27**	**2**	**0**	**8**	**0**	**0**	**0**	**0**	**1**	**20**	**5**	**7**	**5**	**0**	**2**	**0**	**0**	**0**	**1**	**1**	**36**	**6**	**0**	**11**	**2**	**0**	**0**	**0**	**4**	**152**
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17:00	3	0	0	0	0	1	0	0	0	0	4	30	4	0	8	0	0	0	0	0	13	2	3	1	1	0	0	0	0	0	5	28	3	1	9	4	0	0	0	2	122
17:15	2	2	4	0	0	0	0	0	0	0	0	23	0	0	1	0	0	0	0	0	9	2	0	2	0	2	0	0	0	1	8	37	10	0	12	1	0	0	0	1	117
17:30	2	1	7	0	0	1	0	0	0	0	1	31	3	1	5	1	0	0	0	0	6	0	3	1	2	1	0	0	0	1	1	37	6	2	11	0	0	0	0	0	124
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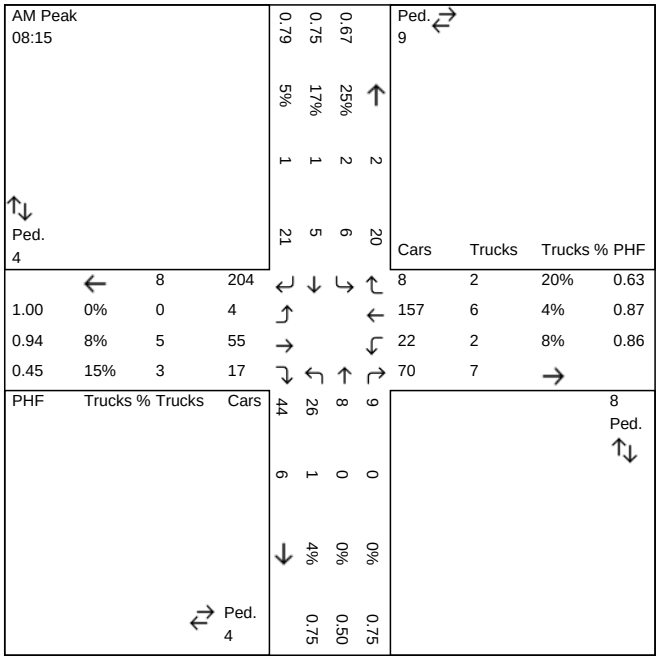
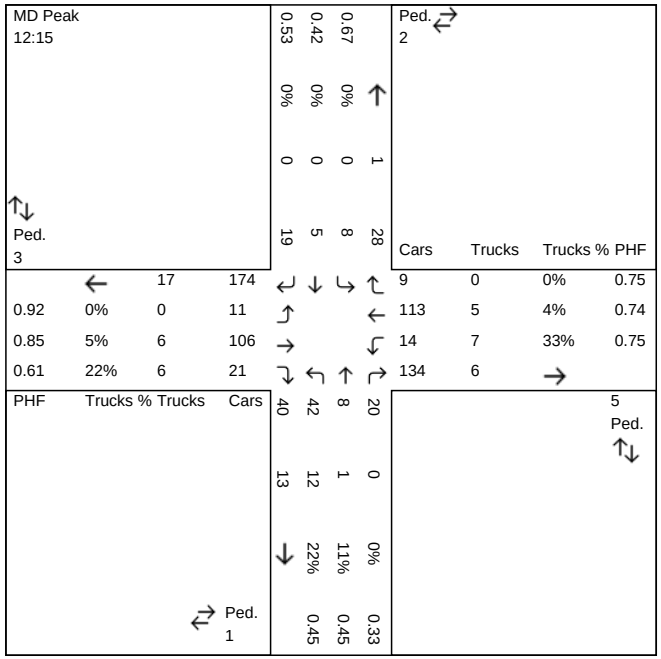
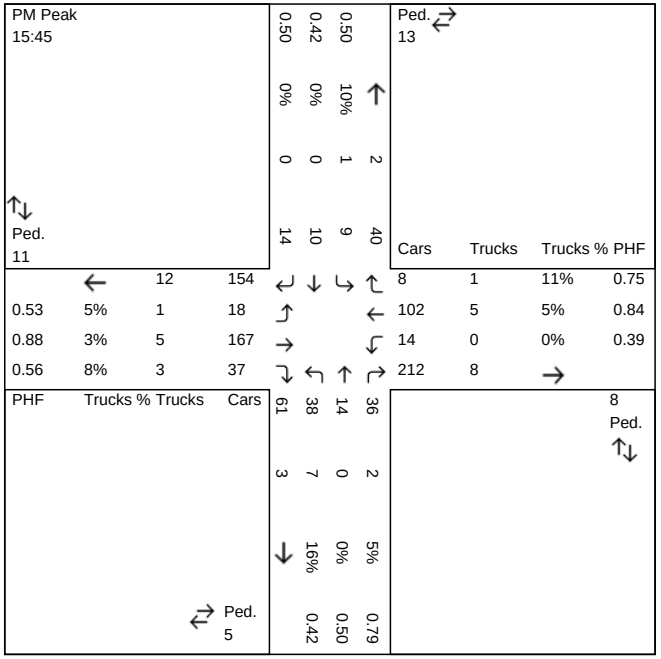
18:15	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*
18:30	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*

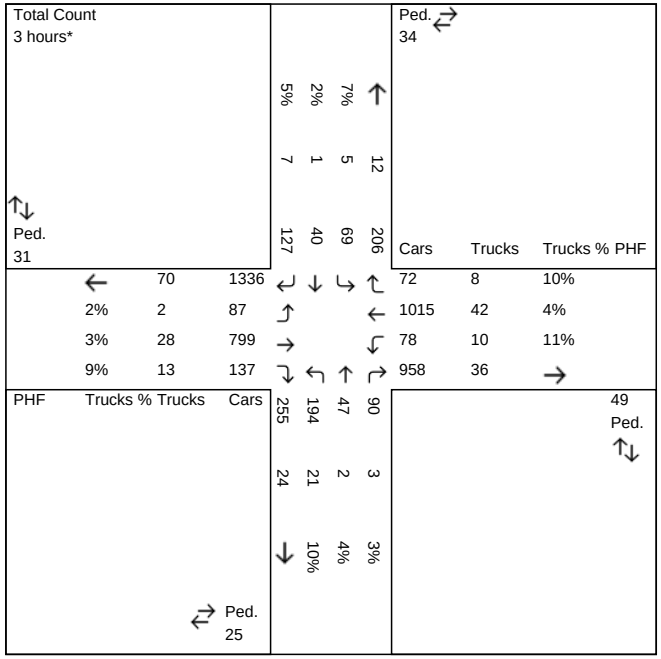
Brock St E (RHwy 47) @ Nelkydd Ln/Herrema Bv

TMC No: 0741300000 **Intersection ID:** 11772 **Count ID:** 35702018705 **Count Date:** 04/06/2021, Tue









Brock St E (RHwy 47) @ Nelkydd Ln/Herrema Bv

TMC No: 0741300000 **Intersection ID:** 11772 **Count ID:** 35702018705 **Count Date:** 04/06/2021, Tue

Time	NORTH APPROACH										EAST APPROACH										SOUTH APPROACH										WEST APPROACH										
	Cars			Trucks			Heavies			Ped	Cars			Trucks			Heavies			Ped	Cars			Trucks			Heavies			Ped	Cars			Trucks			Heavies			Ped	Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
Period 1																																								
06:00	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*
06:15	1	0	5	0	0	0	0	0	0	0	0	31	1	0	3	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	9	0	0	2	0	0	0	0	0	56
06:30	1	0	3	0	0	0	0	0	0	0	0	22	1	0	3	0	0	0	0	0	3	0	1	0	0	0	0	0	0	0	4	1	0	0	0	0	0	0	0	39
06:45	3	3	5	0	0	0	0	0	0	0	1	39	2	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	7	1	0	1	0	0	0	0	0	67
07:00	2	0	6	0	0	0	0	0	0	0	2	37	2	0	1	0	0	0	0	0	3	3	1	0	0	0	0	0	2	0	12	1	0	0	0	0	0	0	0	73
07:15	3	2	5	0	0	0	0	0	0	0	0	28	1	1	0	0	0	0	0	0	0	3	0	1	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	51
07:30	1	1	3	1	0	0	0	0	0	1	5	39	1	0	1	0	0	0	0	1	9	0	1	0	0	0	0	0	0	0	5	1	0	0	0	0	0	0	0	70
07:45	3	0	7	1	0	0	0	0	0	1	4	53	1	0	0	1	0	0	0	0	6	1	2	0	0	0	0	0	0	0	14	2	1	0	0	0	0	0	1	98
08:00	5	2	6	0	0	0	0	0	0	1	3	58	2	0	2	0	0	0	0	0	3	0	3	0	0	0	0	0	0	1	14	2	0	1	1	0	0	0	3	107
08:15	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**3**	**34**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**9**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**16**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**82**
08:30	**2**	**2**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**43**	**1**	**2**	**1**	**1**	**0**	**0**	**0**	**2**	**7**	**2**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**13**	**4**	**0**	**2**	**1**	**0**	**0**	**0**	**0**	**95**
08:45	**2**	**1**	**6**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**7**	**36**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**5**	**4**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**11**	**2**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**86**
09:00	**2**	**2**	**6**	**1**	**0**	**0**	**0**	**0**	**0**	**7**	**7**	**44**	**3**	**0**	**3**	**1**	**0**	**0**	**0**	**4**	**5**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**4**	**1**	**15**	**9**	**0**	**1**	**2**	**0**	**0**	**0**	**3**	**123**
09:15	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*
Period 2																																								
11:30	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*
11:45	1	2	1	0	0	0	0	0	0	0	2	34	1	0	2	0	0	0	0	0	3	0	1	0	0	0	0	0	0	0	2	25	2	0	1	0	0	0	0	77
12:00	4	1	2	0	0	0	0	0	0	0	0	31	1	0	2	1	0	0	0	9	3	0	1	0	0	0	0	0	0	7	4	12	3	0	1	0	0	0	0	82
12:15	**2**	**1**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**38**	**2**	**0**	**2**	**0**	**0**	**0**	**0**	**3**	**9**	**5**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**28**	**3**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**106**
12:30	**1**	**0**	**9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**24**	**2**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**26**	**3**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**87**
12:45	**2**	**1**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**21**	**2**	**3**	**1**	**0**	**0**	**0**	**0**	**2**	**5**	**2**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**23**	**10**	**0**	**2**	**1**	**0**	**0**	**0**	**0**	**86**
13:00	**3**	**3**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**6**	**30**	**3**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**18**	**1**	**15**	**12**	**1**	**0**	**0**	**0**	**0**	**1**	**3**	**29**	**5**	**0**	**4**	**1**	**0**	**0**	**0**	**3**	**145**
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13:30	1	2	2	0	0	0	0	0	0	0	1	21	2	0	1	0	0	0	0	4	6	1	0	0	0	0	0	0	0	0	4	33	6	0	3	0	0	0	1	88
Period 3																																								
13:45	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*
15:00	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*
15:15	4	0	5	0	0	0	0	0	0	0	0	32	0	0	1	0	0	0	0	1	8	2	3	0	0	0	0	0	1	1	34	1	0	0	0	0	0	0	0	93
15:30	4	0	3	0	0	0	0	0	0	0	1	29	3	0	3	0	0	0	0	0	3	7	0	1	0	0	0	0	0	0	4	35	4	0	0	0	0	0	1	98
15:45	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**9**	**24**	**2**	**0**	**2**	**1**	**0**	**0**	**0**	**2**	**4**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**2**	**3**	**33**	**18**	**0**	**1**	**0**	**0**	**0**	**0**	**6**	**126**
16:00	**3**	**1**	**7**	**1**	**0**	**0**	**0**	**0**	**0**	**6**	**2**	**30**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**6**	**20**	**7**	**9**	**7**	**0**	**2**	**0**	**0**	**0**	**3**	**8**	**49**	**8**	**1**	**0**	**1**	**0**	**0**	**4**	**178**
16:15	**1**	**2**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**17**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**6**	**3**	**9**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**39**	**5**	**0**	**1**	**1**	**0**	**0**	**0**	**1**	**97**
16:30	**5**	**1**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**31**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**8**	**4**	**12**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**46**	**6**	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**128**
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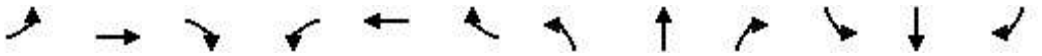
17:15	2	1	4	0	0	0	0	0	0	1	1	22	3	0	2	2	0	0	0	0	5	1	1	0	0	0	0	0	0	1	11	48	6	0	1	0	0	0	0	112
17:30	0	2	3	0	0	2	0	0	0	2	1	33	8	0	0	0	0	0	0	0	7	5	2	0	0	0	0	0	0	0	2	43	6	0	0	0	0	0	2	118
17:45	4	2	4	0	0	4	0	0	0	3	1	27	4	0	1	0	0	0	0	2	4	0	1	0	0	1	0	0	0	0	8	36	4	0	0	0	0	0	4	110
18:00	0	0	4	0	0	0	0	0	0	0	3	30	3	0	0	0	0	0	0	2	2	0	4	0	1	0	0	0	0	2	4	26	6	0	0	0	0	0	0	87
18:15	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*
18:30	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*

	NB	EB	SB	WB	Total
2019	88	308	0	330	**726**
2021	44	84	36	197	**361**
difference	44	224	-36	133	**365**
%	50%	73%	n/a	40%	**50%**
factor	1.50	1.73	n/a	1.40	**1.50**

	NB	EB	SB	WB	Total
2019	48	398	0	175	**621**
2021	97	231	34	130	**492**
difference	-49	167	-34	45	**129**
%	51%	42%	n/a	26%	**21%**
factor	1.51	1.42	n/a	1.26	**1.21**

Appendix D – Existing Traffic Level of Service Calculations



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	165	155	71	273	15	72	12	20	12	9	33
Future Volume (Veh/h)	6	165	155	71	273	15	72	12	20	12	9	33
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	179	168	77	297	16	78	13	22	13	10	36
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	313			347			693	660	179	680	820	305
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	313			347			693	660	179	680	820	305
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			94			75	96	97	96	97	95
cM capacity (veh/h)	1247			1212			314	357	864	327	288	735

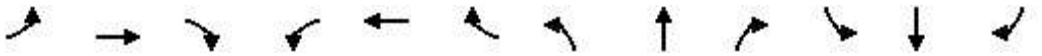
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1	SB 2
Volume Total	186	168	390	113	13	46
Volume Left	7	0	77	78	13	0
Volume Right	0	168	16	22	0	36
cSH	1247	1700	1212	364	327	550
Volume to Capacity	0.01	0.10	0.06	0.31	0.04	0.08
Queue Length 95th (m)	0.1	0.0	1.6	10.4	1.0	2.2
Control Delay (s)	0.3	0.0	2.1	19.3	16.4	12.1
Lane LOS	A		A	C	C	B
Approach Delay (s)	0.2		2.1	19.3	13.1	
Approach LOS				C	B	

Intersection Summary				
Average Delay	4.2			
Intersection Capacity Utilization	50.7%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	33	0	0	54
Future Volume (Veh/h)	0	0	33	0	0	54
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	36	0	0	59
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	95	36			36	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	95	36			36	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	905	1037			1575	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	36	59
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1575
Volume to Capacity	0.00	0.02	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	362	52	2	180	11	33	17	17	12	12	17
Future Volume (Veh/h)	23	362	52	2	180	11	33	17	17	12	12	17
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	393	57	2	196	12	36	18	18	13	13	18
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	208			450			674	655	393	676	706	202
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	208			450			674	655	393	676	706	202
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			100			90	95	97	96	96	98
cM capacity (veh/h)	1363			1110			345	378	656	339	353	839

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1	SB 2
Volume Total	418	57	210	72	13	31
Volume Left	25	0	2	36	13	0
Volume Right	0	57	12	18	0	18
cSH	1363	1700	1110	401	339	532
Volume to Capacity	0.02	0.03	0.00	0.18	0.04	0.06
Queue Length 95th (m)	0.4	0.0	0.0	5.2	1.0	1.5
Control Delay (s)	0.6	0.0	0.1	15.9	16.0	12.2
Lane LOS	A		A	C	C	B
Approach Delay (s)	0.6		0.1	15.9	13.3	
Approach LOS				C	B	

Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	50.7%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	51	0	0	41
Future Volume (Veh/h)	0	0	51	0	0	41
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	55	0	0	45
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	100	55			55	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	100	55			55	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	899	1012			1550	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	55	45
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1550
Volume to Capacity	0.00	0.03	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix E – Terms of Reference

From: Glyn Reedman <Glyn.Reedman@Durham.ca>
Sent: July-05-21 9:25 AM
To: Kristian Aviles
Cc: Jeff Almeida
Subject: RE: Transportation Impact Study Terms of Reference for Part of Lot 31, Conc. 7

Hi Kristian.

Our comments on your proposed TIS are as follows:

1. The study should comply with the Region's Traffic Impact Study Guidelines, including the requirements for Synchro analysis. Please let me know if you require these.

2. We agree with 2023 and 2028 horizon year assessments.

3. Given the inability to obtain accurate new traffic counts, using existing data with appropriate traffic growth is acceptable. The Region has 2019 counts at the intersection of Brock and Nelkydd that would be appropriate. The most current intersection turning movement counts on the Regional roads (ATR counts and AADT data) as noted above, can be downloaded from our web site through the interactive traffic counts map.

4. Based on available AADT on Brock Street between 2017-2019, a 2% annual growth would be appropriate. The Township of Uxbridge should identify which background developments to include in addition to this.

5. As noted in your scope, existing conditions should be noted by way of a site visit and any observations noted in the TIS.

6. The ITE Trip Generation Manual 10th Edition should be used for trip generation. Given the location no reduction should be provided for modal splits. Trip Distribution should use TTS data and be consistent with the 1st phase.

7. As noted in your scope, the critical issue is if or when the intersection of Nelkydd and Brock will require signalization.

8. As per the Region's TIS Guidelines, please include transit, active transportation and TDM discussions in the TIS. Recommendations should include infrastructure, network and program improvements to support non-auto travel.

Regards

Glyn Reedman | Project Coordinator
Works Department
The Regional Municipality of Durham
Glyn.Reedman@durham.ca | 905-668-7711 extension 3476 | durham.ca

From: Kristian Aviles <kristian@nextrans.ca>
Sent: Tuesday, June 29, 2021 5:09 PM
To: Jeff Almeida <Jeff.Almeida@Durham.ca>
Cc: Janus Mora <janus@nextrans.ca>
Subject: Transportation Impact Study Terms of Reference for Part of Lot 31, Conc. 7

Hi Jeff,

I hope all is well with you. We recently received the transportation related comments (attached) regarding our study dated December 4, 2020, for the site noted in the subject line.

Before addressing the comments regarding our study, we wanted to establish a Terms of Reference with the Region, for your review and approval, for the scope of work required. As such, we propose the following scope of work for our updated study:

1. Assess the traffic impact of the 2nd phase of the Evendale Development, specifically at the intersection of **Brock Street East and Nelkydd Lane / Herrema Boulevard**. As any newer traffic data collection would not be reflective of non-pandemic conditions, we proposed to use the 2017 counts with an applied growth rate to bring these counts to the existing year of 2021;
2. Conduct a site visit to confirm the existing road network configuration;
3. The assessment years are proposed to be: 2021 (existing), 2023 (opening year) and 2028 (horizon year);
4. Conduct a signal warrant analysis for the intersection of Brock Street East and Herrema Boulevard / Nelkydd Lane;
5. Removal of sections 7.3 and 7.4 from the revised study, as well as Appendix I; and,
6. Revised TDM strategies section will be provided that will account for additional active transportation measures.

Please advise if the above noted scope of work is acceptable.

Thank you,

Kristian Aviles, B.Eng.
Transportation Analyst

o: 905-503-2563 ext. 206
c: 647-928-1222
e: kristian@nextrans.ca
w: www.nextrans.ca

NexTrans Consulting Engineers
A Division of NextEng Consulting Group Inc.
520 Industrial Parkway South, Suite 201
Aurora ON L4G 6W8

COVID UPDATE: Please be advised that we continue to service our clients to the fullest extent possible, albeit in a modified office environment, as such a reply may be slightly delayed. Thank you and keep well!

Appendix F – Background Development Site Traffic

Figure 4-1 - Site Generated Traffic Volumes

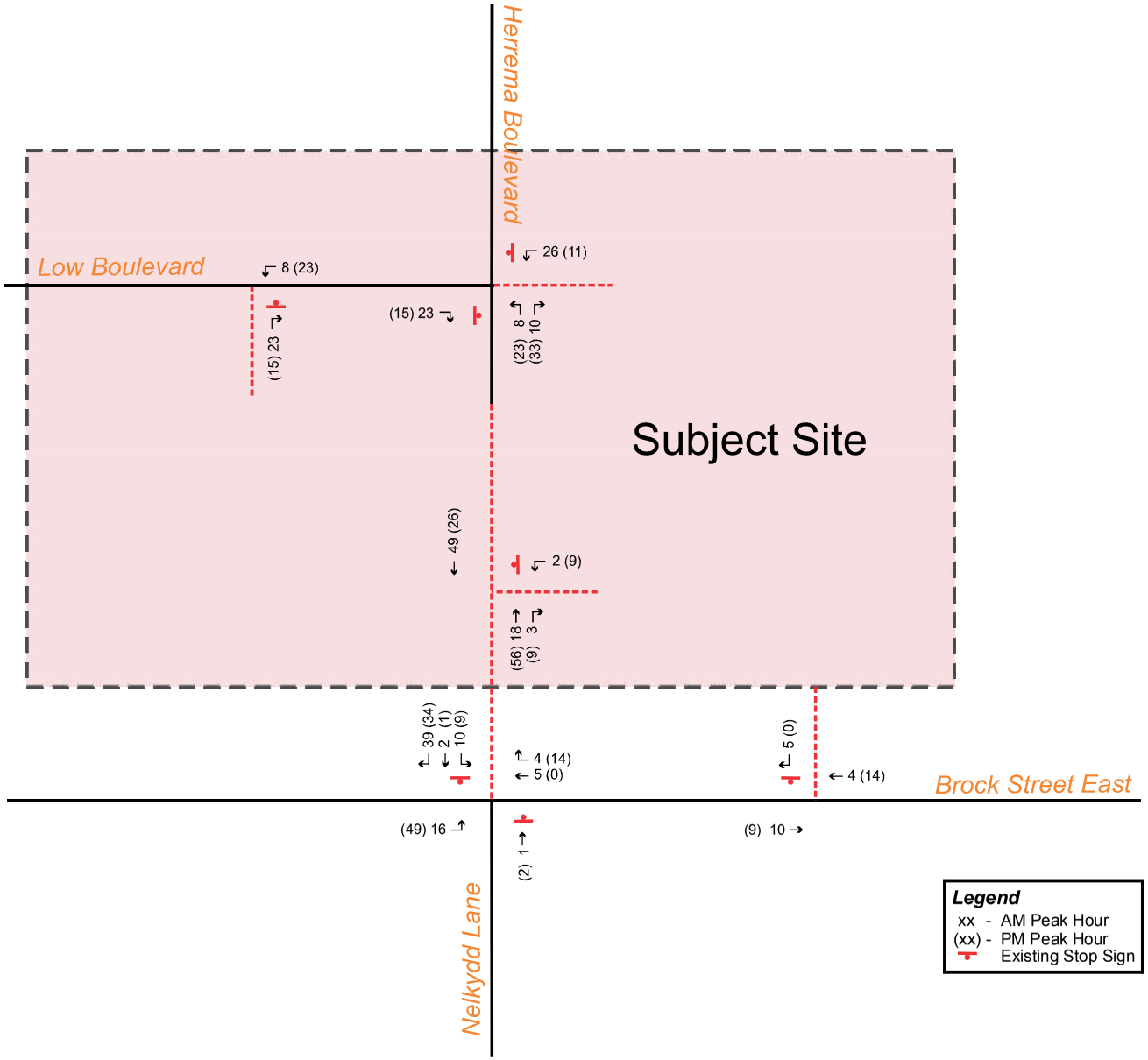
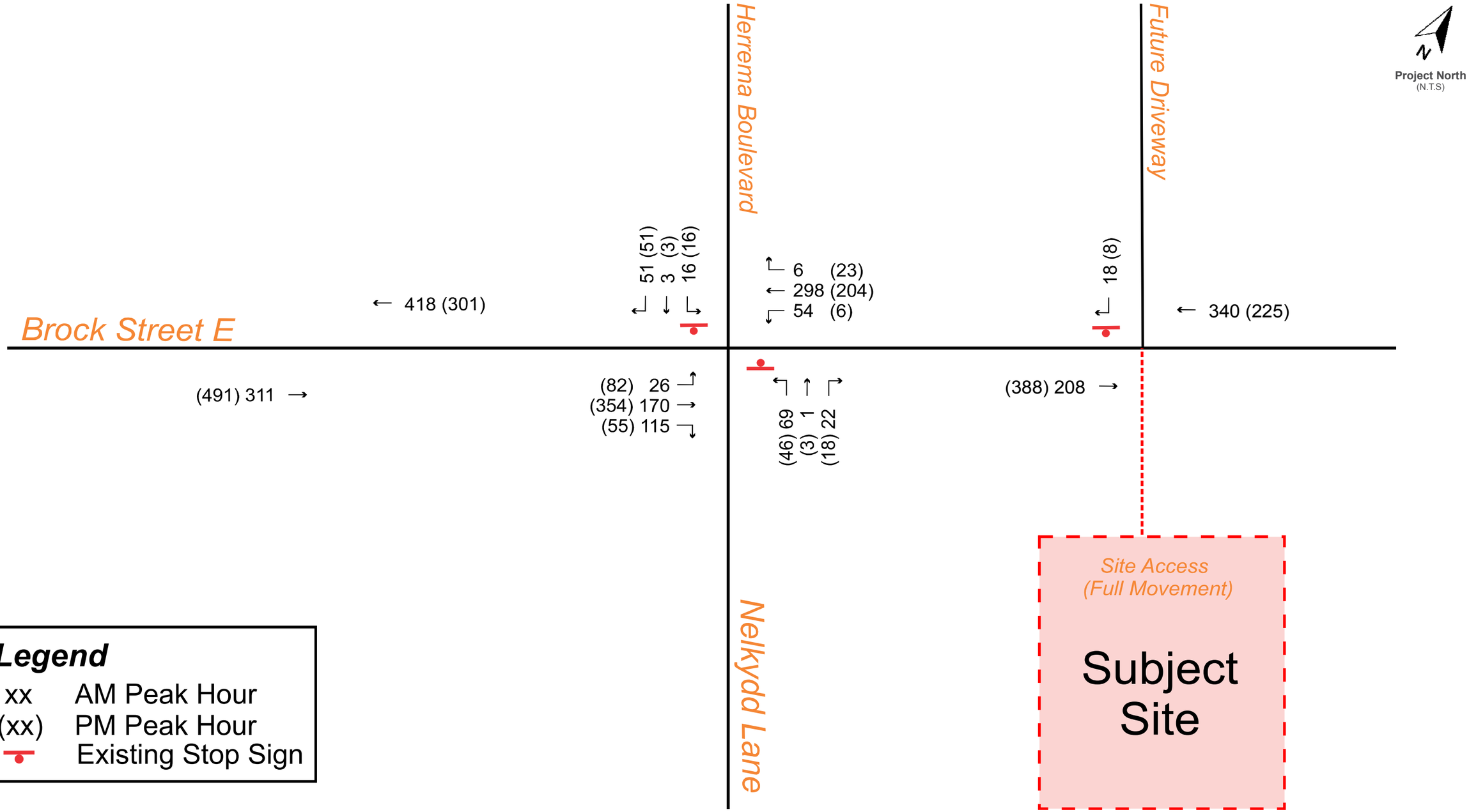
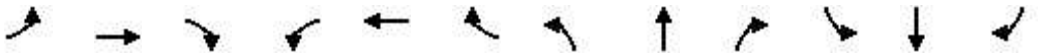


Figure 3-2 – Future (2026) Background Traffic Volumes



Appendix G – Future (2023) Background level of Service Calculations



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	183	161	74	320	20	75	14	21	23	11	73
Future Volume (Veh/h)	22	183	161	74	320	20	75	14	21	23	11	73
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	199	175	80	348	22	82	15	23	25	12	79
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	370			374			851	777	199	796	941	359
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	370			374			851	777	199	796	941	359
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			93			63	95	97	91	95	88
cM capacity (veh/h)	1189			1184			223	300	842	266	241	685

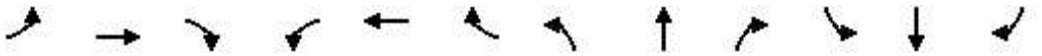
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1	SB 2
Volume Total	223	175	450	120	25	91
Volume Left	24	0	80	82	25	0
Volume Right	0	175	22	23	0	79
cSH	1189	1700	1184	269	266	551
Volume to Capacity	0.02	0.10	0.07	0.45	0.09	0.17
Queue Length 95th (m)	0.5	0.0	1.7	17.3	2.5	4.7
Control Delay (s)	1.0	0.0	2.1	28.7	19.9	12.8
Lane LOS	A		A	D	C	B
Approach Delay (s)	0.6		2.1	28.7	14.3	
Approach LOS				D	B	

Intersection Summary				
Average Delay	5.8			
Intersection Capacity Utilization	55.8%	ICU Level of Service		B
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	0	52	3	0	105
Future Volume (Veh/h)	2	0	52	3	0	105
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	0	57	3	0	114
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	172	58			60	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	172	58			60	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	818	1007			1544	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	2	60	114
Volume Left	2	0	0
Volume Right	0	3	0
cSH	818	1700	1544
Volume to Capacity	0.00	0.04	0.00
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	9.4	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.4	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	15.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	405	54	2	203	25	35	20	17	22	14	52
Future Volume (Veh/h)	73	405	54	2	203	25	35	20	17	22	14	52
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	79	440	59	2	221	27	38	22	18	24	15	57
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	248			499			901	850	440	866	896	234
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	248			499			901	850	440	866	896	234
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			100			83	92	97	90	94	93
cM capacity (veh/h)	1318			1065			219	279	617	238	263	805

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1	SB 2
Volume Total	519	59	250	78	24	72
Volume Left	79	0	2	38	24	0
Volume Right	0	59	27	18	0	57
cSH	1318	1700	1065	277	238	563
Volume to Capacity	0.06	0.03	0.00	0.28	0.10	0.13
Queue Length 95th (m)	1.5	0.0	0.0	9.0	2.7	3.5
Control Delay (s)	1.7	0.0	0.1	23.0	21.8	12.3
Lane LOS	A		A	C	C	B
Approach Delay (s)	1.6		0.1	23.0	14.7	
Approach LOS				C	B	

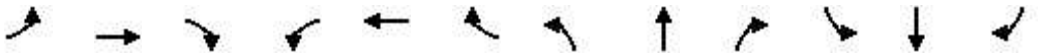
Intersection Summary				
Average Delay	4.1			
Intersection Capacity Utilization	58.4%	ICU Level of Service		B
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	9	0	109	9	0	69
Future Volume (Veh/h)	9	0	109	9	0	69
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	0	118	10	0	75
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	198	123			128	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	198	123			128	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	791	928			1458	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	10	128	75
Volume Left	10	0	0
Volume Right	0	10	0
cSH	791	1700	1458
Volume to Capacity	0.01	0.08	0.00
Queue Length 95th (m)	0.3	0.0	0.0
Control Delay (s)	9.6	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.6	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	16.3%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix H – Future (2028) Background level of Service Calculations



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	201	178	81	349	21	82	15	23	24	12	77
Future Volume (Veh/h)	23	201	178	81	349	21	82	15	23	24	12	77
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	218	193	88	379	23	89	16	25	26	13	84
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	402			411			925	846	218	868	1028	390
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	402			411			925	846	218	868	1028	390
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			92			54	94	97	89	94	87
cM capacity (veh/h)	1157			1148			192	270	822	234	212	658

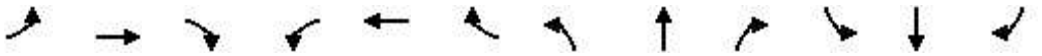
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1	SB 2
Volume Total	243	193	490	130	26	97
Volume Left	25	0	88	89	26	0
Volume Right	0	193	23	25	0	84
cSH	1157	1700	1148	235	234	513
Volume to Capacity	0.02	0.11	0.08	0.55	0.11	0.19
Queue Length 95th (m)	0.5	0.0	2.0	24.1	3.0	5.5
Control Delay (s)	1.0	0.0	2.2	37.7	22.3	13.6
Lane LOS	A		A	E	C	B
Approach Delay (s)	0.6		2.2	37.7	15.5	
Approach LOS				E	C	

Intersection Summary				
Average Delay	6.9			
Intersection Capacity Utilization	59.4%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	0	56	3	0	111
Future Volume (Veh/h)	2	0	56	3	0	111
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	0	61	3	0	121
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	184	62			64	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	184	62			64	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	806	1002			1538	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	2	64	121
Volume Left	2	0	0
Volume Right	0	3	0
cSH	806	1700	1538
Volume to Capacity	0.00	0.04	0.00
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	9.5	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.5	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	15.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	444	60	2	223	26	38	21	19	23	15	53
Future Volume (Veh/h)	75	444	60	2	223	26	38	21	19	23	15	53
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	82	483	65	2	242	28	41	23	21	25	16	58
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	270			548			973	921	483	940	972	256
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	270			548			973	921	483	940	972	256
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			100			79	91	96	88	93	93
cM capacity (veh/h)	1293			1021			193	253	584	208	236	783

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1	SB 2
Volume Total	565	65	272	85	25	74
Volume Left	82	0	2	41	25	0
Volume Right	0	65	28	21	0	58
cSH	1293	1700	1021	251	208	521
Volume to Capacity	0.06	0.04	0.00	0.34	0.12	0.14
Queue Length 95th (m)	1.6	0.0	0.0	11.5	3.2	3.9
Control Delay (s)	1.8	0.0	0.1	26.6	24.7	13.0
Lane LOS	A		A	D	C	B
Approach Delay (s)	1.6		0.1	26.6	16.0	
Approach LOS				D	C	

Intersection Summary				
Average Delay	4.5			
Intersection Capacity Utilization	62.0%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	9	0	115	9	0	73
Future Volume (Veh/h)	9	0	115	9	0	73
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	0	125	10	0	79
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	209	130			135	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	209	130			135	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	779	920			1449	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	10	135	79
Volume Left	10	0	0
Volume Right	0	10	0
cSH	779	1700	1449
Volume to Capacity	0.01	0.08	0.00
Queue Length 95th (m)	0.3	0.0	0.0
Control Delay (s)	9.7	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.7	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	16.6%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix I – TTS Trip Distribution Data

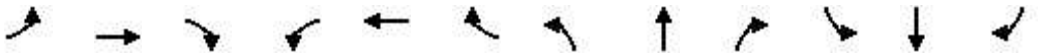
TTS AM

Column1	Column2	Column3	Column4	Column5	Column6	Column7	Column8	Column9	Column10	Column11	Column12	Column13	Column14	Column15	Column16	Column17	Column18	Column19
Wed Aug 22 2018 15:50:13 GMT-0400 (Eastern Daylight Time) - Run Time: 2451ms																		
Cross Tabulation Query Form - Trip - 2016 v1.1																		
Row: 2006 GTA zone of origin - gta06_orig																		
Column: Planning district of destination - pd_dest																		
Filters:																		
(2006 GTA zone of origin - gta06_orig In 1318																		
and																		
Start time of trip - start_time In 700-959																		
and																		
Primary travel mode of trip - mode_prime In D	M		T	)														
Trip 2016																		
Table:																		
	PD 1 of Toronto	PD 6 of Toronto	PD 12 of Toronto	PD 16 of Toronto	Brock	Uxbridge	Scugog	Ajax	Whitby	Oshawa	Clarington	East Gwillimbury	Richmond Hill	Whitchurch-Stouffville	Markham	Vaughan	Peterborough	Hastings
1318	80	13	18	85	20	890	111	44	161	13	21	9	9	150	146	32	10	6

TTS PM

Column1	Column2	Column3	Column4	Column5	Column6	Column7	Column8	Column9	Column10	Column11	Column12	Column13	Column14	Column15	Column16	Column17	Column18	Column19	Column20	Column21	Column22	Column23
Wed Aug 22 2018 15:52:44 GMT-0400 (Eastern Daylight Time) - Run Time: 2011ms																						
Cross Tabulation Query Form - Trip - 2016 v1.1																						
Row: 2006 GTA zone of origin - gta06_orig																						
Column: Planning district of destination - od_dest																						
Filters:																						
(2006 GTA zone of origin - gta06_orig In 1318																						
and																						
Start time of trip - start_time In 1600-1859																						
and																						
Primary travel mode of trip - mode_prime In D	M		T		)																	
Trip 2016																						
Table:																						
	PD 5 of Toronto	PD 12 of Toronto	PD 14 of Toronto	PD 15 of Toronto	Brock	Usbridge	Scugog	Pickering	Ajax	Whitby	Oshawa	Georgina	East Gwillimbury	Newmarket	Aurora	Richmond Hill	Whitchurch-Stouffville	Markham	Vaughan	Bradford-West Gwillimbury	Kawartha Lakes	Peterborough
1318	6	16	36	12	189	1404	385	9	47	38	70	36	60	41	17	26	43	60	16	27	116	51

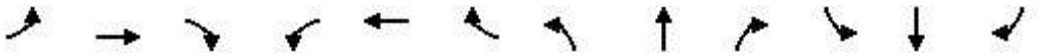
Appendix J – Future (2023) Total Level of Service Calculations



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	183	161	74	320	21	75	14	21	25	11	86
Future Volume (Veh/h)	27	183	161	74	320	21	75	14	21	25	11	86
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	199	175	80	348	23	82	15	23	27	12	93
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	371			374			876	788	199	807	952	360
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	371			374			876	788	199	807	952	360
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			93			61	95	97	90	95	86
cM capacity (veh/h)	1188			1184			209	294	842	261	236	685

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1	SB 2
Volume Total	228	175	451	120	27	105
Volume Left	29	0	80	82	27	0
Volume Right	0	175	23	23	0	93
cSH	1188	1700	1184	254	261	563
Volume to Capacity	0.02	0.10	0.07	0.47	0.10	0.19
Queue Length 95th (m)	0.6	0.0	1.7	18.8	2.7	5.4
Control Delay (s)	1.2	0.0	2.1	31.2	20.4	12.9
Lane LOS	A		A	D	C	B
Approach Delay (s)	0.7		2.1	31.2	14.4	
Approach LOS				D	B	

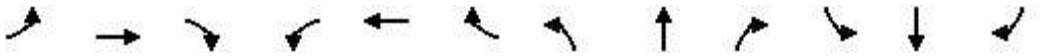
Intersection Summary				
Average Delay	6.2			
Intersection Capacity Utilization	56.2%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	16	2	0	0	6	52	3	0	105	0
Future Volume (Veh/h)	0	0	16	2	0	0	6	52	3	0	105	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	17	2	0	0	7	57	3	0	114	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	186	188	114	204	186	58	114			60		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	186	188	114	204	186	58	114			60		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	98	100	100	100	100			100		
cM capacity (veh/h)	771	703	939	738	705	1007	1475			1544		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	17	2	67	114
Volume Left	0	2	7	0
Volume Right	17	0	3	0
cSH	939	738	1475	1544
Volume to Capacity	0.02	0.00	0.00	0.00
Queue Length 95th (m)	0.4	0.1	0.1	0.0
Control Delay (s)	8.9	9.9	0.8	0.0
Lane LOS	A	A	A	
Approach Delay (s)	8.9	9.9	0.8	0.0
Approach LOS	A	A		

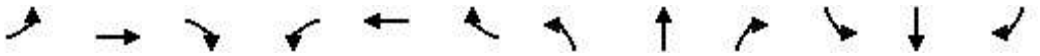
Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	18.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	405	54	2	203	31	35	20	17	26	14	60
Future Volume (Veh/h)	85	405	54	2	203	31	35	20	17	26	14	60
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	92	440	59	2	221	34	38	22	18	28	15	65
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	255			499			938	883	440	895	925	238
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	255			499			938	883	440	895	925	238
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			100			81	92	97	88	94	92
cM capacity (veh/h)	1310			1065			202	264	617	225	250	801

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1	SB 2
Volume Total	532	59	257	78	28	80
Volume Left	92	0	2	38	28	0
Volume Right	0	59	34	18	0	65
cSH	1310	1700	1065	260	225	566
Volume to Capacity	0.07	0.03	0.00	0.30	0.12	0.14
Queue Length 95th (m)	1.8	0.0	0.0	9.8	3.4	3.9
Control Delay (s)	2.0	0.0	0.1	24.7	23.3	12.4
Lane LOS	A		A	C	C	B
Approach Delay (s)	1.8		0.1	24.7	15.2	
Approach LOS				C	C	

Intersection Summary				
Average Delay	4.5			
Intersection Capacity Utilization	59.4%	ICU Level of Service		B
Analysis Period (min)	15			

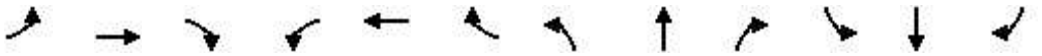


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	12	9	0	0	18	109	9	0	69	0
Future Volume (Veh/h)	0	0	12	9	0	0	18	109	9	0	69	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	13	10	0	0	20	118	10	0	75	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	238	243	75	251	238	123	75			128		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	238	243	75	251	238	123	75			128		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	99	100	100	99			100		
cM capacity (veh/h)	709	650	986	686	654	928	1524			1458		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	13	10	148	75
Volume Left	0	10	20	0
Volume Right	13	0	10	0
cSH	986	686	1524	1458
Volume to Capacity	0.01	0.01	0.01	0.00
Queue Length 95th (m)	0.3	0.4	0.3	0.0
Control Delay (s)	8.7	10.3	1.1	0.0
Lane LOS	A	B	A	
Approach Delay (s)	8.7	10.3	1.1	0.0
Approach LOS	A	B		

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	27.8%	ICU Level of Service	A	
Analysis Period (min)	15			

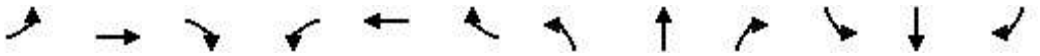
Appendix K – Future (2028) Total Level of Service Calculations



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	201	178	81	349	22	82	15	23	27	12	90
Future Volume (Veh/h)	28	201	178	81	349	22	82	15	23	27	12	90
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	30	218	193	88	379	24	89	16	25	29	13	98
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	403			411			950	857	218	878	1038	391
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	403			411			950	857	218	878	1038	391
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			92			50	94	97	87	94	85
cM capacity (veh/h)	1156			1148			180	265	822	229	208	658

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1	SB 2
Volume Total	248	193	491	130	29	111
Volume Left	30	0	88	89	29	0
Volume Right	0	193	24	25	0	98
cSH	1156	1700	1148	222	229	524
Volume to Capacity	0.03	0.11	0.08	0.59	0.13	0.21
Queue Length 95th (m)	0.6	0.0	2.0	26.4	3.4	6.3
Control Delay (s)	1.2	0.0	2.2	41.9	23.0	13.7
Lane LOS	A		A	E	C	B
Approach Delay (s)	0.7		2.2	41.9	15.6	
Approach LOS				E	C	

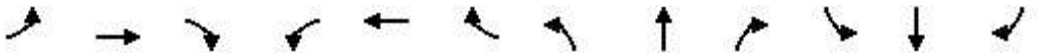
Intersection Summary				
Average Delay	7.5			
Intersection Capacity Utilization	59.7%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	16	2	0	0	6	56	3	0	111	0
Future Volume (Veh/h)	0	0	16	2	0	0	6	56	3	0	111	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	17	2	0	0	7	61	3	0	121	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	198	199	121	214	198	62	121			64		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	198	199	121	214	198	62	121			64		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	98	100	100	100	100			100		
cM capacity (veh/h)	759	693	930	726	695	1002	1467			1538		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	17	2	71	121
Volume Left	0	2	7	0
Volume Right	17	0	3	0
cSH	930	726	1467	1538
Volume to Capacity	0.02	0.00	0.00	0.00
Queue Length 95th (m)	0.4	0.1	0.1	0.0
Control Delay (s)	8.9	10.0	0.8	0.0
Lane LOS	A	A	A	
Approach Delay (s)	8.9	10.0	0.8	0.0
Approach LOS	A	A		

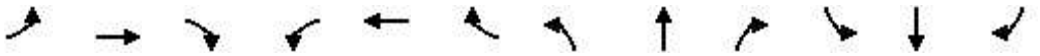
Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	18.2%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	444	60	2	223	33	38	21	19	27	15	61
Future Volume (Veh/h)	87	444	60	2	223	33	38	21	19	27	15	61
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	95	483	65	2	242	36	41	23	21	29	16	66
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	278			548			1011	955	483	970	1002	260
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	278			548			1011	955	483	970	1002	260
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			100			77	90	96	85	93	92
cM capacity (veh/h)	1285			1021			178	239	584	196	224	779

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1	SB 2
Volume Total	578	65	280	85	29	82
Volume Left	95	0	2	41	29	0
Volume Right	0	65	36	21	0	66
cSH	1285	1700	1021	234	196	525
Volume to Capacity	0.07	0.04	0.00	0.36	0.15	0.16
Queue Length 95th (m)	1.9	0.0	0.0	12.6	4.1	4.4
Control Delay (s)	2.0	0.0	0.1	28.9	26.5	13.1
Lane LOS	A		A	D	D	B
Approach Delay (s)	1.8		0.1	28.9	16.6	
Approach LOS				D	C	

Intersection Summary				
Average Delay	4.9			
Intersection Capacity Utilization	63.1%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	12	9	0	0	18	115	9	0	73	0
Future Volume (Veh/h)	0	0	12	9	0	0	18	115	9	0	73	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	13	10	0	0	20	125	10	0	79	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	249	254	79	262	249	130	79			135		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	249	254	79	262	249	130	79			135		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	99	100	100	99			100		
cM capacity (veh/h)	697	641	981	675	645	920	1519			1449		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	13	10	155	79
Volume Left	0	10	20	0
Volume Right	13	0	10	0
cSH	981	675	1519	1449
Volume to Capacity	0.01	0.01	0.01	0.00
Queue Length 95th (m)	0.3	0.4	0.3	0.0
Control Delay (s)	8.7	10.4	1.0	0.0
Lane LOS	A	B	A	
Approach Delay (s)	8.7	10.4	1.0	0.0
Approach LOS	A	B		

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	28.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Appendix L – Signal Warrant Analysis

Signal Warrant Calculation

Major Street: Brock Street East

Minor Street: Herrema Blvd / Nelkydd Ln

Comment FT (2028) Traffic Conditions

VOLUME	AM	PM	FACTOR *	
1A - All	1,108	1,030	n/a	535
1B - Minor	249	181	25%	108
2A - Major	859	849	25%	427
2B - Crossi	499	552	25%	263

* This factor relates average of the "peak eight hours" to the average of the "am and pm peak hours"

Number of Approaches: 1 [ ] 2 [x]

Tee Intersection Configuration: Yes [ ] No [x]

Flow Condition: Free Flow (Rural) [ ]
Restricted Flow (Urban) [X]

OVERALL WARRANT

150% Satisfied:	Yes [ ]	No [X]	Warrant for new intersection with forecast traffic
120% Satisfied:	Yes [ ]	No [X]	Warrant for existing intersection with forecast traffic
100% Satisfied:	Yes [ ]	No [X]	Warrant for existing intersection with existing traffic *
COMBO 80% Satisfied:	Yes [ ]	No [X]	Warrant for existing intersection with existing traffic
80% Satisfied:	Yes [ ]	No [X]	

* Consider full underground provisions if 100% for forecast traffic

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WARRANT 1 - MINIMUM VEHICULAR VOLUME

APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW X	
ALL APPROACHES	480	720	600	900	535
	% FULFILLED				59%
APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW X	
MINOR STREET APPROACHES	120	170	120	170	108
	% FULFILLED				64%

150% Satisfied:	Yes [ ]	No [X]
120% Satisfied:	Yes [ ]	No [X]
100% Satisfied:	Yes [ ]	No [X]
80% Satisfied:	Yes [ ]	No [X]

WARRANT 2 - DELAY TO CROSS TRAFFIC

APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW X	
MAJOR STREET APPROACHES	480	720	600	900	427
	% FULFILLED				47%
APPROACH LANES	1		2 OR MORE		AVERAGE HOUR PERIOD
FLOW CONDITION	FREE FLOW	REST. FLOW	FREE FLOW	REST. FLOW X	
TRAFFIC CROSSING MAJOR STREET	50	75	120	170	263
	% FULFILLED				155%

150% Satisfied:	Yes [ ]	No [X]
120% Satisfied:	Yes [ ]	No [X]
100% Satisfied:	Yes [ ]	No [X]
80% Satisfied:	Yes [ ]	No [X]

1A - MINIMUM VEHICULAR VOLUME: Total vehicle volume on all approaches for average day

1B - MINIMUM VEHICULAR VOLUME: Total vehicle volume on minor streets

2A - DELAY TO CROSS TRAFFIC: Total vehicle volume on major street for average day

2B - DELAY TO CROSS TRAFFIC: Total vehicle and pedestrian volume crossing major street; comprising: (1) lefts from both minor streets, (2) heaviest through from minor street, (3) 50% of heavier left turn from major street when following criteria met: (a) left turn volume >120 and (b) left turn volume plus opposing volume > 720, (4) pedestrians crossing the major street.