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Transportation Impact Study

PROPOSED RESIDENTIAL DEVELOPMENT

159 Confederation Street, Town of Halton Hills

November 22, 2024
Project No: NT-23-196

Consulting Engineers
A Division of NextEng Consulting Group Inc.

November 22, 2024

Eden Oak
1443 Hurontario Street
Mississauge, On L5G 3H5

Attention: Romas Kartavicius

Re: Transportation Impact Study
Proposed Residential Development
159 Confederation Street, Town of Halton Hills
Our Project No. NT-23-196

Nextrans Consulting Engineers (a Division of NextEng Consulting Group Inc.) is pleased to present the enclosed Transportation Impact Study in support of the Official Plan Amendment and Zoning By-law Amendment Application(s) for the above noted property.

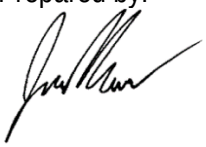
The subject property is located on the east side of Confederation Street west of Glen Crescent Drive, municipally known as 159 Confederation Street, in the Town of Halton Hills. The development proposal is to construct 81 townhouse units and one (1) single-detached unit. Vehicular access is proposed through a new street intersecting with Confederation Street.

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 Eden Oak (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 on the east side of Confederation Street west of Glen Crescent Drive, municipally known as 159 Confederation Street, in the Town of Halton Hills.

Development Proposal

The subject site is currently vacant. The development proposal is to construct 81 townhouse units and one (1) single-detached unit. Vehicular access is proposed through a new street intersecting with Confederation Street.

Capacity Analysis

The proposed development is anticipated to generate 42 new two-way automobile trips (32 inbound and 10 outbound) during the AM peak hour and 48 two-way vehicle trips (15 inbound and 33 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 area intersections are expected to operate with excellent Levels of Service under existing and future conditions.

The proposed development introduces a relatively small number of trips to the road network, which experiences no operational issues under existing conditions. Therefore, the proposed development is expected to have a negligible impact and can be adequately accommodated by the surrounding transportation infrastructure.

Access/Parking Review

In accordance with Zoning By-law 2010-0050, all proposed dwelling units are required to provide a minimum of two (2) parking spaces. All proposed dwelling units provide two (2) interior parking spaces and individual driveways which can accommodate two (2) spaces. Additionally, the proposed development will provide 22 off-street visitor parking spaces on site. The proposed parking supply satisfies the Zoning By-law requirements and provides a surplus of visitor parking.

The AutoTURN analysis demonstrates that a passenger vehicle (P TAC-2017), a heavy single-unit truck (HSU TAC-2017), and a Fire Truck can access the site and maneuver internally without conflict.

TDM measures are recommended to manage the encourage alternative modes of transportation and reduce the number of single occupant vehicle trips generated by the proposed development, also reducing parking demand, allowing the proposed development to support a parking reduction.

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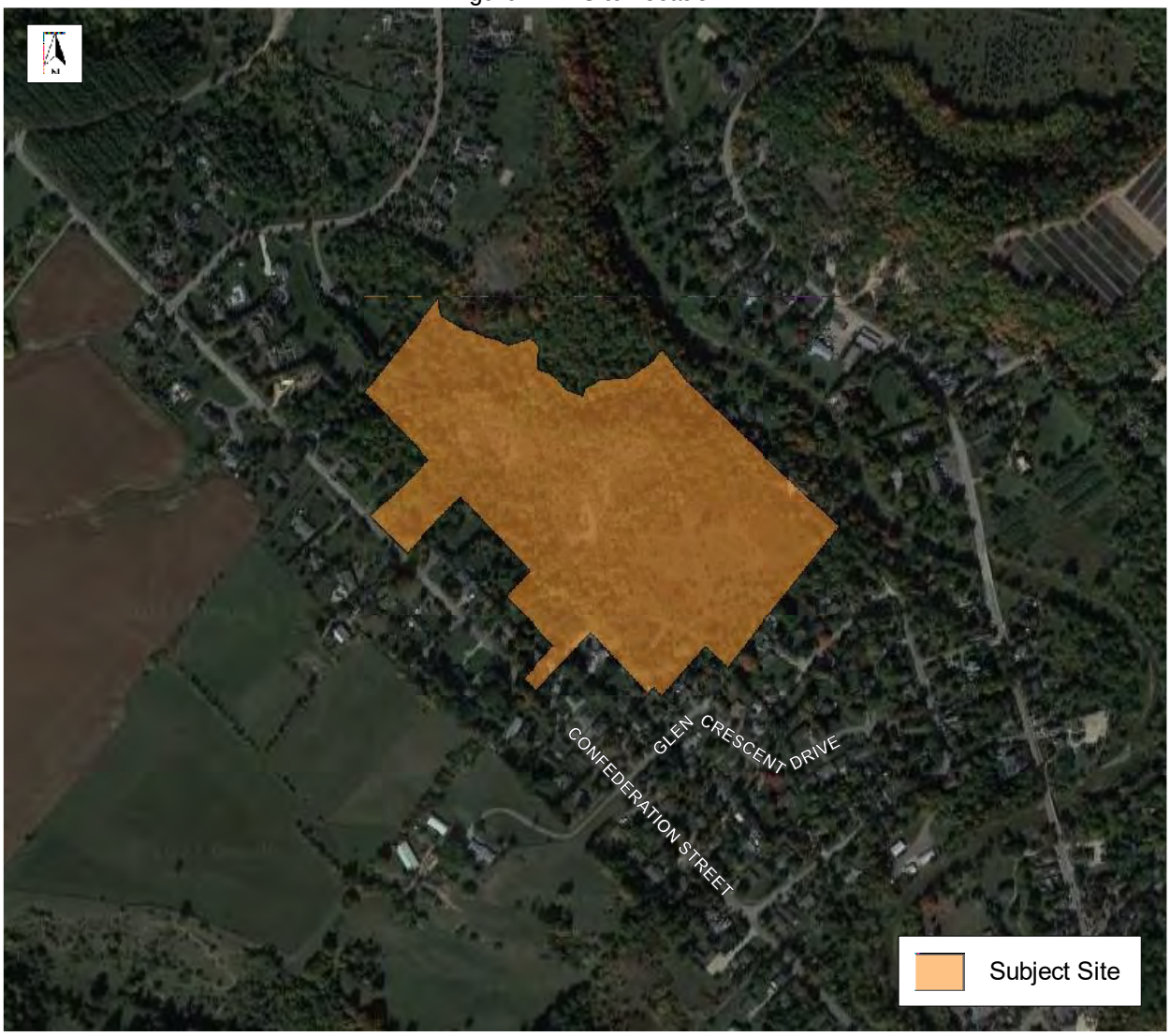
1.0 INTRODUCTION

Nextrans Consulting Engineers (A Division of NextEng Consulting Group Inc.) was retained through Eden Oak (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 on the east side of Confederation Street west of Glen Crescent Drive, municipally known as 159 Confederation Street, in the Town of Halton Hills.

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

Figure 1-1 – Site Location



The subject site is currently vacant. The development proposal is to construct 81 townhouse units and one (1) single-detached unit. Vehicular access is proposed through a new street intersecting with Confederation Street.

The proposed Concept Plan is shown in figure 1-2 and provided in full detail in Appendix A. Proposed development statistics are summarized in Table 1.1.

Figure 1-2 – Proposed Concept Plan

Figure 1.1 – Proposed Site Statistics

Use	No of Units
Townhouse Dwelling Unit	81
Single-Detached Dwelling Units	1

2.0 EXISTING TRAFFIC CONDITIONS

2.1. Existing Road Network

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

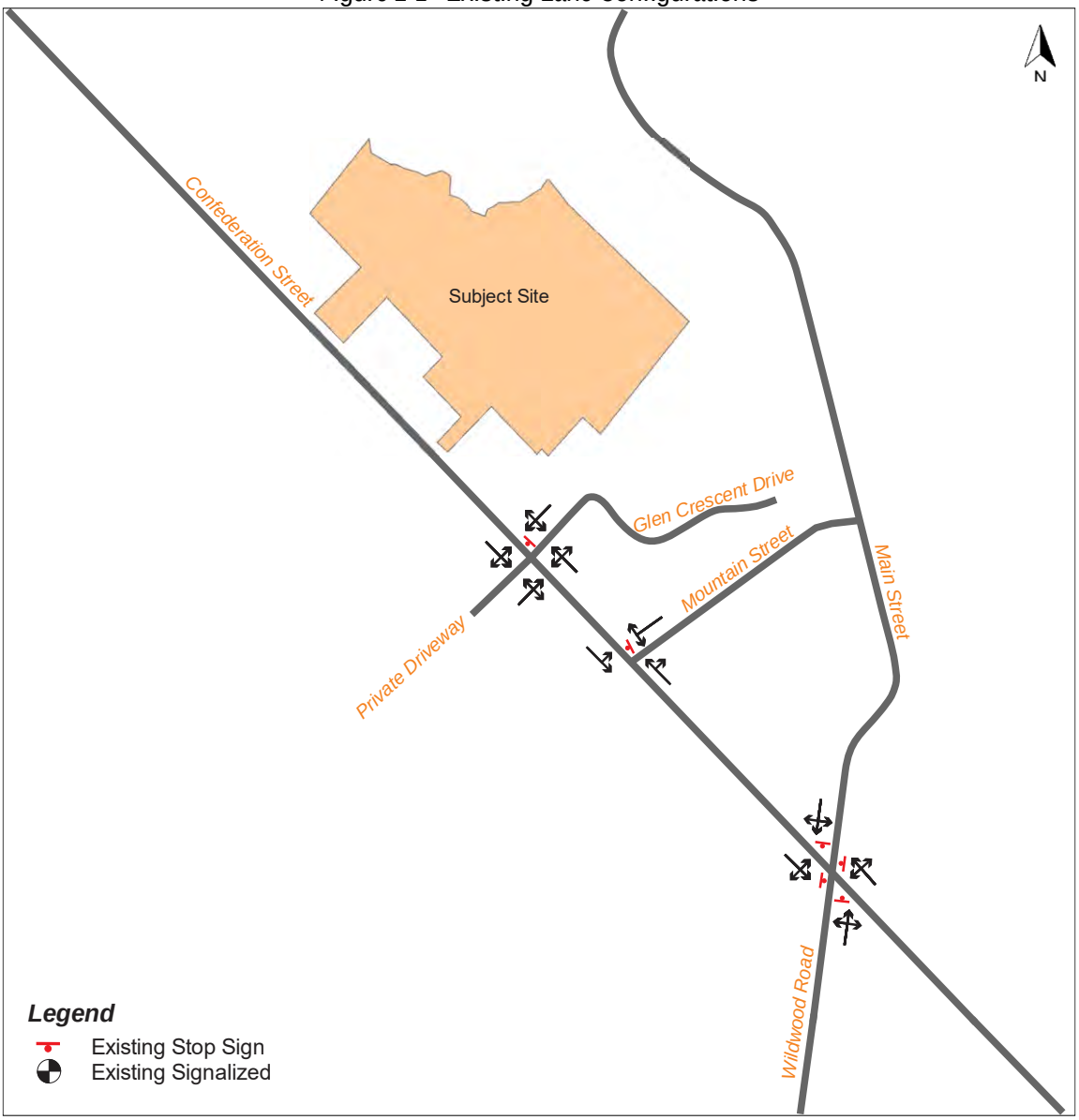
- Confederation Street: A north-south local road under the jurisdiction of the Town. According to the Town of Halton Hills Official Plan (the "Official Plan"), North of Main Street / Wildwood Road, Confederation Street is classified as a local road and south of Main Street / Wildwood Road, it is classified as a minor arterial.

Confederation Street has a two (2)-lane cross-section (one (1) lane per travel direction). There is a posted speed limit of 50 km/h near the subject site.

- Glen Cresecent Drive: A local road maintained by the Town, which travels generally in the east-west direction. Glen Crescent Drive has a two (2)-lane cross-section (one (1) lane per travel direction). There is an unposted speed limit of 50 km/h.
- Mountain Street: A local road maintained by the Town, which travels in the east-west direction. Glen Crescent Drive has a two (2)-lane cross-section (one (1) lane per travel direction). There is an unposted speed limit of 50 km/h.
- Main Street / Wildwood Road: An east-west road under the jurisdiction of the Town, which is classified as a collector, according to the Official Plan. Main Street and Wildwood Road have two (2)-lane cross-sections (one (1) lane per travel direction). There is a speed limit of 50 km/h.

Existing road network lane configurations are illustrated in Figure 2-1.

Figure 2-1 –Existing Lane Configurations



2.2. Existing Active Transportation Network

Sidewalks

Currently, public sidewalks are available on both sides of Main Street east of Confederation Street.

Cycling

There are currently no dedicated or separated cycling facilities in the subject area. However, Wildwood Road forms a part of the "Leathertown Spin" cycling route, which utilizes shared roadways.

2.3. Existing Traffic Volumes

To capture adjacent peak hour traffic volumes under existing conditions, new traffic counts were collected for all study area intersections for weekday AM and PM peak period. Traffic counts are provided in Appendix B.

Traffic data collection is summarized in Table 2.1.

Table 2.1 – Traffic Data Collection Summary

Intersection	Source	Survey Date and Times
Confederation Street and Glen Crescent Drive	Spectrum Traffic Inc.	Thursday, January 25, 2024 7:00 AM – 10:00 AM 4:00 PM – 7:00 PM
Confederation Street and Mountain Street		
Confederation Street and Wildwood Road / Main Street		

2.4. Existing Traffic Assessment

2.4.1. Capacity Analysis – Existing Traffic conditions

2022 existing traffic volumes are illustrated in Figure 2-2. Capacity analysis was conducted using model in Synchro 10, in accordance with the methodology outlined in the Highway Capacity Manual (HCM 2000 and HCM 2010 for All-Way Stop-Control) published by the Transportation Research Board. The detailed results are provided in Appendix C and summarized in Table 2.1.

Table 2.1 – Capacity Analysis Summary – Existing Traffic Conditions

Intersection	Movement	AM Peak Hour				PM Peak Hour			
		v/c	Delay (s)	LOS	95th Queue (m)	v/c	Delay (s)	LOS	Q95th Queue (m)
Confederation Street & Glen Crescent Drive	EBLTR	0.00	0.0	A	0.0	0.00	0.0	A	0.0
	WBLTR	0.01	9.2	A	0.2	0.01	9.3	A	0.3
	SBLTR	--	--	--	--	0.00	0.1	A	0.0
Confederation Street & Mountain Street	WBLR	0.04	9.1	A	0.9	0.01	8.9	A	0.3
	SBL	--	--	--	--	0.00	0.5	A	0.1
Confederation Street & Wildwood Road / Main Street	NBLTR	0.24	9.4	A	--	0.291	9.9	A	--
	EBLTR	0.338	10.6	B	--	0.2	9.4	A	--
	WBLTR	0.303	10.2	B	--	0.401	11.2	B	--
	SBLTR	0.097	9.1	A	--	0.1	9.4	A	--

Under existing traffic conditions, all study area intersections operate with excellent Levels of Service (LOS during the AM and PM peak hours. No volume-to-capacity ratios (v/c) approach 1.00 and delays and vehicle queue lengths are negligible.

3.0 FUTURE BACKGROUND CONDITIONS

3.1. Future Corridor Growth

Future conditions were assessed for year 2029, a five (5) year horizon from the baseline year (2024). Corridor traffic growth was forecasted using a conservative growth rate of 2% per annum on Confederation Street, Wildwood Road, and Main Street.

3.2. Capacity Analysis – Future Background 2029

The 2029 future background traffic volumes are illustrated in Figure 3-1. The capacity analysis results are provided in Appendix D and summarized in Table 3.1

Table 3.1 – Capacity Analysis Summary –2029 Future Background

Intersection	Movement	AM Peak Hour				PM Peak Hour			
		v/c	Delay (s)	LOS	95th Queue (m)	v/c	Delay (s)	LOS	Q95th Queue (m)
Confederation Street & Glen Crescent Drive	EBLTR	0.00	0.0	A	0.0	0.00	0.0	A	0.0
	WBLTR	0.01	9.3	A	0.2	0.01	9.4	A	0.3
	SBLTR	--	--	--	--	0.00	0.1	A	0.0
Confederation Street & Mountain Street	WBLR	0.04	9.2	A	0.9	0.01	8.9	A	0.3
	SBL	--	--	--	--	0.00	0.4	A	0.1
Confederation Street & Wildwood Road / Main Street	NBLTR	0.291	9.4	A	--	0.333	10.7	A	--
	EBLTR	0.2	10.6	B	--	0.228	9.9	A	--
	WBLTR	0.401	10.2	B	--	0.455	12.3	B	--
	SBLTR	0.1	9.1	A	--	0.116	9.8	A	--

Under future background conditions, all study area intersections are expected to continue to operate with excellent Levels of Service (LOS during the AM and PM peak hours. No volume-to-capacity ratios (v/c) approach 1.00 and delays and vehicle queue lengths are negligible.

4.0 SITE TRAFFIC

4.1. Trip Generation

Trip rates and site generated trips were determined using the *Trip Generation Manual, 11th Edition* published by the Institute of Transportation Engineers (ITE). The gross new trips and gross trip rates were calculated using the data for ITE Land Use Codes (LUC) 215 "Single-family Attached Housing" and 201 "single-Family Detached Housing", based on the proposed number of dwelling units.

The trip generation summary is shown in Table 4.2.

Table 4.2 – Site Traffic Trip Generation (ITE)

ITE Land Use	Parameter	Morning Peak Hour			Afternoon Peak Hour		
		In	Out	Total	In	Out	Total
Single-Family Attached Housing LUC 215	New Trips	12	27	39	26	20	46
	Trip Rate	0.15	0.33	0.48	0.32	0.25	0.57
Single-Family Detached Housing LUC 201	New Trips	0	1	1	1	0	1
	Trip Rate	0.00	1.13	1.13	1.00	0.31	1.31
Total		12	27	40	27	20	47

The proposed development is anticipated to generate 40 new automobile trips (12 inbound and 27 outbound) during the AM peak hour and 47 new automobile trips (27 inbound and 20 outbound) during the PM peak hour.

4.2. Trip Distribution

The distribution of site-generated traffic was estimated using data extracted from the 2016 TTS assumptions based on existing road configuration and routes that travellers would be likely to take when accessing the subject site. Trip distribution is summarized in Table 4.3 and TTS data extraction is provided in Appendix E.

Table 4.3 – Site Traffic Trip Distribution

Corridor	Direction	AM		PM	
		In	Out	In	Out
Confederation Street	NB	63%	0%	60%	8%
	SB	1%	67%	4%	58%
Wildwood Road / Main Street	EB	20%	0%	23%	0%
	WB	0%	19%	0%	16%
Mountain Street	EB	0%	14%	0%	19%
	WB	16%	0%	13%	0%

The site-generated traffic volumes are illustrated in Figure 4-1.

5.0 FUTURE TOTAL ANALYSIS

The forecasted 2029 future total traffic volumes under proposed conditions were determined as the summation of the distributed site-generated traffic and future background traffic volumes. Future total traffic volumes are illustrated in Figure 5-1. Capacity analysis is summarized in Table 5.1. and detailed results are provided in Appendix F.

Table 5.1 – Capacity Analysis Summary – 2027 Future Total

Intersection	Movement	AM Peak Hour				PM Peak Hour			
		v/c	Delay (s)	LOS	95th Queue (m)	v/c	Delay (s)	LOS	Q95th Queue (m)
Confederation Street & Glen Crescent Drive	EBLTR	0.00	0.0	A	0.0	0.00	0.0	A	0.0
	WBLTR	0.01	9.7	A	0.2	0.02	9.7	A	0.4
	SBLTR	--	--	--	--	0.00	0.1	A	0.0
Confederation Street & Mountain Street	WBLR	0.04	9.5	A	1.1	0.02	9.1	A	0.4
	SBL	0.00	0.4	A	0.1	0.01	0.8	A	0.1
Confederation Street & Wildwood Road / Main Street	NBLTR	0.296	10.3	B	--	0.366	11.2	B	--
	EBLTR	0.401	11.9	B	--	0.246	10.2	B	--
	WBLTR	0.355	11.3	B	--	0.468	12.7	B	--

	SBLTR	0.162	10.0	A	--	0.145	10.1	B	--
Confederation Street & Site Access	WBLR	0.03	9.0	A	0.8	0.03	9.2	A	0.6
	SBLT	--	--	--	--	0.00	0.1	A	0.0

With the introduction of the site generated traffic, all study area intersections are expected to continue to operate with excellent Levels of Service (LOS during the AM and PM peak hours. No volume-to-capacity ratios (v/c) approach 1.00 and delays and vehicle queue lengths are negligible.

The proposed site access is expected to operate at excellent levels of service during the AM and PM peak hour, with minimal delays and queueing.

The proposed development introduces a relatively small number of trips to the road network, which experiences no operational issues under existing conditions. Therefore, the proposed development is expected to have a negligible impact and can be adequately accommodated by the surrounding transportation infrastructure.

6.0 PARKING ASSESSMENT

6.1. Vehicle Parking Requirements

The subject lands are subject to the provisions of the Town of Halton Hills Zoning By-law 2010-0050. The vehicular parking requirements in accordance with the By-law are detailed in Table 6.1.

Table 6.1 – Vehicle Parking Requirements

Use	No. of Units	Minimum Parking Rate	Parking spaces required	Parking spaces provided
Street Townhouse	1	2 spaces per dwelling unit	2	2
Single-Detached Dwelling Unit	81	2 spaces per dwelling unit	162	162
Visitor	81	No minimum visitor requirement	0	22

In accordance with Zoning By-law 2010-0050, all proposed dwelling units are required to provide a minimum of two (2) parking spaces. All proposed dwelling units provide two (2) interior parking spaces and individual driveways which can accommodate two (2) spaces. Additionally, the proposed development will provide 22 off-street visitor parking spaces on site. The proposed parking supply satisfies the Zoning By-law requirements and provides a surplus of visitor parking.

6.2. Street Parking

It is recommended that street parking not be permitted throughout portions of the internal road network. The Town parking regulations prohibit parking in the boulevard within 1.0 m of a residential driveway. Additionally, on street parking may obstruct traffic and access routes, especially when near intersections. As such, according to the Town parking regulations, the space available for legal on-street parking in the proposed development is limited. To accommodate visitor parking demand that would otherwise park on the street, 22 off-street visitor parking spaces are

provided, in addition to the two (2) driveway spaces provided for each dwelling unit, which are shown in the Concept Plan. Available on street parking spaces are shown in Figure 6-1.

7.0 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), a heavy single-unit truck (HSU TAC-2017), and a Fire Truck can access the site and maneuver internally without conflict. The AutoTURN diagrams are provided in Figure 7-1, Figure 7-2, and Figure 7-3.

In accordance with the Halton Region Development Design Guidelines for Source Separation of Solid Waste, diagrams demonstrating Halton Region rear packer, recycling, and white goods trucks are provided in Figure 7-6, Figure 7-7, and Figure 7-8.

8.0 Road Network Geometric Design

The configuration of the proposed new streets within the development were assessed in accordance with the guidelines of the Transportation Association of Canada 2017 Geometric Design Guide for Canadian Roads (the “TAC Manual”) and County Guidelines. The design criteria are as follows:

Intersection spacing:

For the proposed internal road network, the intersection spacing and angles of intersection (skew angle) of the new streets must designed to ensure effective operation and level of service. According to Section 9.4.2.3 of the TAC Manual, for intersections of local roads, the recommended spacing for four-legged intersections and three-legged intersections are 60 m and 40 m, respectively. In the Site Plan, the shortest intersection spacing distance provided is approximately 30 m (the intersections between Block 9 and Block 11 and Block 9 and Block 1). Although this is below the TAC recommendation, this is not expected to present issues. All traffic within the site would be restricted to resident and visitor trips to the units in the site, so there would be minimal local through traffic and potential for queueing. Additionally, the intersections are spaced far enough that there would be no risk of vehicle conflicts when performing turning maneuvers at either intersection.

Intersection Angle:

According to the TAC Manual, the design domain for skew angle is 70° to 90°. All internal roadway intersections intersect at 90° angles.

Sight Triangles:

According to the Town of Halton Hills Zoning By-law2010-0050, the minimum sight triangle requirement for the intersections of local streets is 4.5 m, measured from the intersection of the street lines. On the Concept Plan, the minimum sight triangle requirement is satisfied for all corner lots and at the proposed site access.

Intersection Curb Radius:

Curb radius requirements at intersections vary depend on site conditions, such as road classifications and the types of vehicles using the roads. The proposed the internal road network is intended to accommodate only residential traffic

to and from the site. Curb radii of at least 9.0 m are provided for intersections within the internal road network, which were verified from a functionality standpoint through vehicle turning analysis.

Corner Clearance

The TAC manual defines corner clearance as the distance between the near edge of a roadway intersection and the near edge of a driveway throat. According to section 8.7.8 of the TAC Manual, the minimum corner clearances are 2.0 m for residential driveways. The corner clearances between all proposed residential driveways and adjacent intersections comply with this standard.

8.1. Sight Distance

The sight distance requirements for the proposed site access were assessed in accordance with the Geometric Design Guide for Canadian Roads to determine if the site access location and configuration provides adequate sight distances for stopping and departure.

8.1.1. Stopping Sight Distance

For the distance assessment, a design speed of 50 km/hr (unposted speed plus 10 km/hr) under stop control was utilized. Sight distance requirements were considered for passenger vehicles approaching the existing access on Confederation Street. The criterion applied for vehicles approaching the intersection is stopping sight distance. Under the stopping sight distance assessment, the target height applied is 0.38 m for vehicle taillights, and for intersection movements a top of car height of 1.3 m is applied. A driver eye height of 1.05 m is applied for all scenarios.

A road grade of 0.7% on the northbound approach and a grade of -3.5% on the southbound approach have been considered.

In accordance with the Geometric Design Guide for Canadian Roads by the Transportation Association of Canada (TAC 2017) section 2.5.3, the required stopping distance, adjusted for effect of grade, is determined using the following equation:

$$d_b = V^2 / 254[(a/9.81) +/- G)]$$

Where:
d_b = Braking distance (m);
V = design speed (km/h);
a = Deceleration rate (m/s^2) (Assumed as 3.4 m/s^2, as per TAC 2017 Section 2.5.2.2)
G = the percent grade divided by 100

Then:

$$\text{Stopping Sight Distance} = 0.278tV + d_b$$

Where:

t = perception / reaction time = 2.5 s (TAC 2017, Section 2.2.5.5)

Average G for northbound approach = -0.029
Average G for southbound approach = +0.043

Minimum sight distance for northbound approach = $0.278 \times 2.5 \times 50 + 50^2 / 254 ((3.4/9.81) – 0.029)$
= 82.51 m say 85 m

Minimum sight distance for southbound approach = 0.278 x 2.5 x 60 + 60^2 / 254 ((3.4/9.81) - 0.035)
= 87.19 m say 90 m

Sight distances approaching the proposed site access have been determined through an on-site visit. The stopping sight distances at the existing site access are summarized in Table 8.1.

Table 8.1 – Stopping Sight Distance Assessment for the Proposed Driveway

Confederation Street and Site Access	Required	Observed
Northbound Approach	85 m	200+ m
Southbound Approach	90 m	200+ m

As summarized in Table 8.1, the required stopping sight distances for the northbound and southbound approaches are 85 m and 90 m, respectively. The observed sight distances exceed 200 m in the northbound and southbound directions. There is currently a driveway situated at the proposed site access location, which experiences no issues regarding sightlines. There is sufficient departure sight distance provided for both approaches of the proposed driveway.

8.1.2. Departure Sight Distance

To assesses scenarios where vehicles are departing from the location of the proposed driveway, the departure sight distance was assessed under Case B1 – Left Turn from the Minor Road, in accordance with Section 9.9.2.3 of the *Geometric Design Guide for Canadian Roads (TAC 2017)*. The departure sight distance was assumed to be under stop-controlled conditions.

As stipulated in of the Geometric Design Guide for Canadian Roads, the intersection sight distance along the major road is determined using the following equation:

$ISD = 0.278\ V_{major}\ t_g$

Where:
ISD = Intersection sight distance (length of the leg of sight triangle along the major road) (m);
V_{major} = design speed of the major road (km/h); and,
T_g = time gap for minor road vehicle to enter the major road (s)

Case B1 – Minimum intersection sight distance for vehicles turning left from the proposed driveway onto Sideroad 20:

ISD = 0.278 x 60 x 7.5
= 125.1 m say 130 m

As previously mentioned, actual departure sight distances at the proposed site access have been determined through an on-site visit. The departure sight distances at the proposed site access are illustrated in Figure 8-2. The departure sight distances at the proposed site access are summarized in Table 8.2.

Table 8.2 – Departure Sight Distance Assessment for Left Turning Vehicle from the Proposed Driveway

Confederation Street and Site Access	Departure Sight Distance	
	Required	Observed
Northbound Approach	130 m	200+ m
Southbound Approach	130 m	200+ m

As summarized in Table 8.2, the required departure sight distance for both the northbound and southbound approaches is 130 meters. The observed sight distances exceed 200 m in the northbound and southbound directions. As previously stated, there is currently a driveway situated at the proposed site access location, which experiences no issues. There is sufficient departure sight distance provided for both approaches of the proposed driveway.

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 can be achieved through the distribution of information by means of awareness campaigns events, information packages for new residents, and through trip planning tools such as the SmartCommute.ca App, and other hard and soft measures.

9.1. Transportation Mode Split

To gain an understanding of the travel characteristics of the subject area, trip data extracted 2016 Transportation Tomorrow Survey (TTS) was reviewed to determine the transportation mode split for home-based trips made by residents in the subject area (TAZ 4164, 41595). The transportation mode split between automotive and alternative modes of transportation, such as transit, walking and cycling is summarized in Table 4.1. TTS Data is provided in Appendix G.

Table 9.1 – Transportation Modal Split (2016 TTS)

Mode Split	Auto Mode of Travel		Non-Auto Mode of Travel		
	Driver	Passenger	Transit	Cycling	Walking
AM	77%	14%	2%	1%	6%
AM Total	91%		9%		
PM	75%	17%	3%	0%	5%
PM Total	92%		8%		

9.2. Active Transportation

The proposed development should provide an adequate number of bicycle parking spaces to encourage and allow employees to take advantage of the dedicated cycling facilities available in the area, as well as future facilities that are planned by the Town and Halton Region (the “Region”).

For new residential developments, it is important to active transportation facilities with walking and cycling connections to public facilities. The following should be considered in the site design:

Walkability:

Walkability reflects overall walking conditions in an area. It considers the quality of pedestrian facilities, roadway conditions, land use patterns, community support, security and comfort for walking.

Generally, walkability can be evaluated at various scales:

- Site scale – affected by the quality of pathways, building accessways and related facilities;

- Street or neighborhood level – affected by the existence of sidewalks and crosswalks, and roadway conditions (road widths, traffic volumes and speeds); and,
- Community level – affected by land use accessibility, such as the relative location of common destinations and the quality of connections between them.

Cycling:

There are numerous ways to improve bicycle transportation, including the following:

- Improving paths and bike lanes;
- Correcting specific roadway hazards (potholes, cracks, narrow lanes, etc.);
- Improving road, road shoulder and path management and maintenance;
- Improving bicycling parking facilities;
- Develop a more connected street network and clustered development;
- Establish public bike systems that provide convenient rental bicycles for short utilitarian trips;
- Safety education, law enforcement and encouragement programs; and,
- Integration with transit

Pedestrian pathway is provided throughout the entire internal road network which provides access to all dwelling units to Confederation Street. Additionally, the Concept Plan considers possible future connections to the trails to the north and east of the site. New residents should be provided with information packages detailing active transportation routes in the area and trip planning tools such as the SmartCommute.ca App.

Through implementing TDM measures, the number of automobile trips can be expected to be reduced by at least 9%.

10.0 CONCLUSION

The findings and conclusions of the analysis are as follows:

- The development proposal is to construct 81 townhouse units and one (1) single-detached unit. Vehicular access is proposed through a new street intersecting with Confederation Street.
- The proposed development is anticipated to generate 49 new two-way automobile trips (38 inbound and 11 outbound) during the AM peak hour and 57 two-way vehicle trips (18 inbound and 39 outbound) during the PM peak hour.
- The proposed development introduces a relatively small number of trips to the road network, which experiences no operational issues under existing conditions. Therefore, the proposed development is expected to have a negligible impact and can be adequately accommodated by the surrounding transportation infrastructure.
- In accordance with Zoning By-law 2010-0050, all proposed dwelling units are required to provide a minimum of two (2) parking spaces. All proposed dwelling units provide two (2) interior parking spaces and individual driveways which can accommodate two (2) spaces. Additionally, the proposed development will provide 22 off-street visitor parking spaces on site. The proposed parking supply satisfies the Zoning By-law requirements and provides a surplus of visitor parking.
- Street parking should not be permitted throughout the site as vehicle parking is not permitted within the fire route. To accommodate parking demand that would otherwise park on the street, 22 off-street visitor parking spaces will be provided, in addition to the two (2) driveway spaces provided for each dwelling unit.

- The AutoTURN analysis demonstrates that a passenger vehicle (P TAC-2017), a heavy single-unit truck (HSU TAC-2017), and a Fire Truck can access the site and maneuver internally without conflict. The proposed site access locations provide adequate sight distances for stopping and departure.
- TDM measures are recommended to encourage alternative modes of transportation and reduce the number of single occupant vehicle trips generated by the proposed development as well as to reduce parking demand, allowing the proposed development to support a parking reduction.

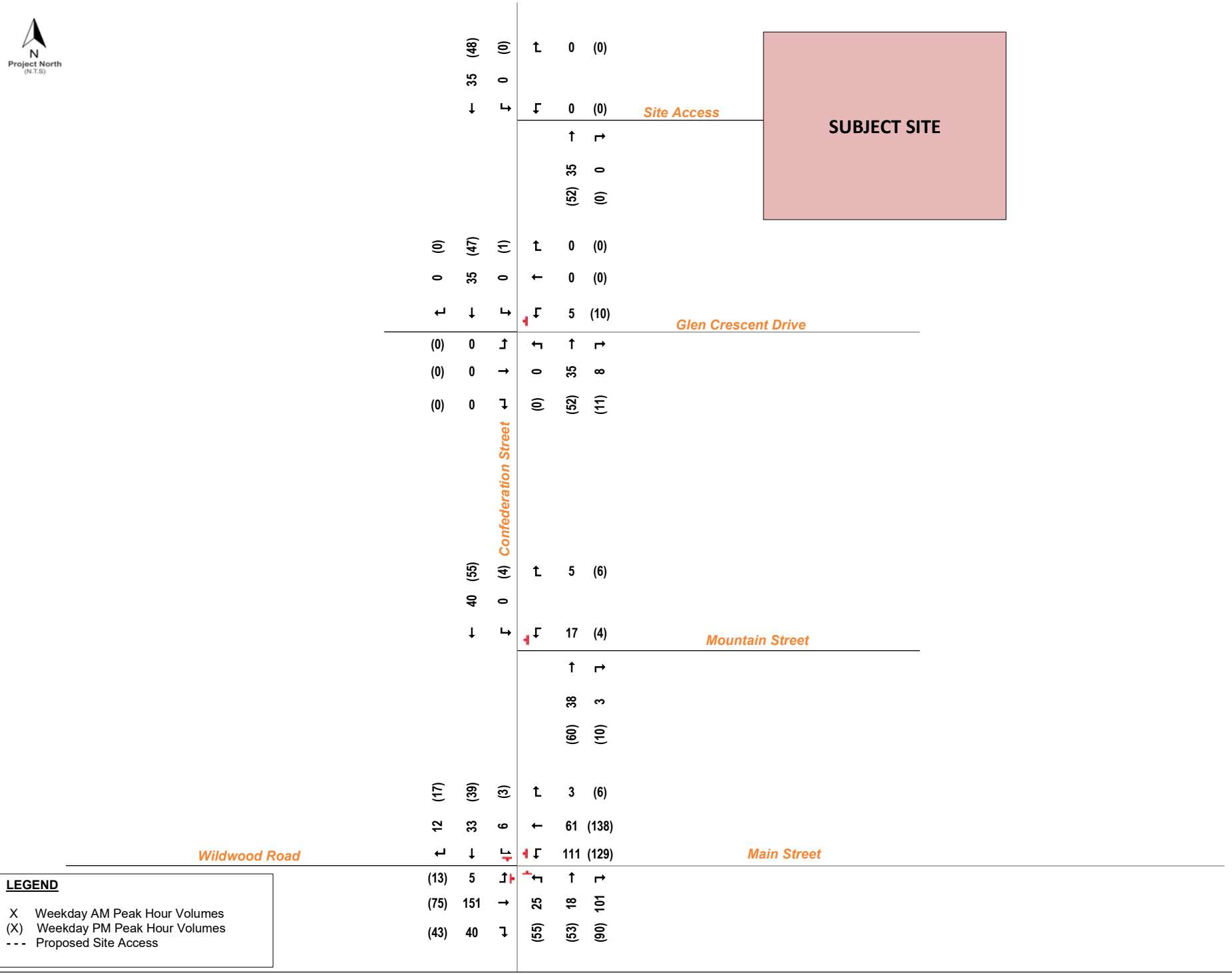


Figure 2-2 - Existing Traffic Volumes

159 Confederation Street
Town of Halton Hills
Project No. NT-23-196
May 2024

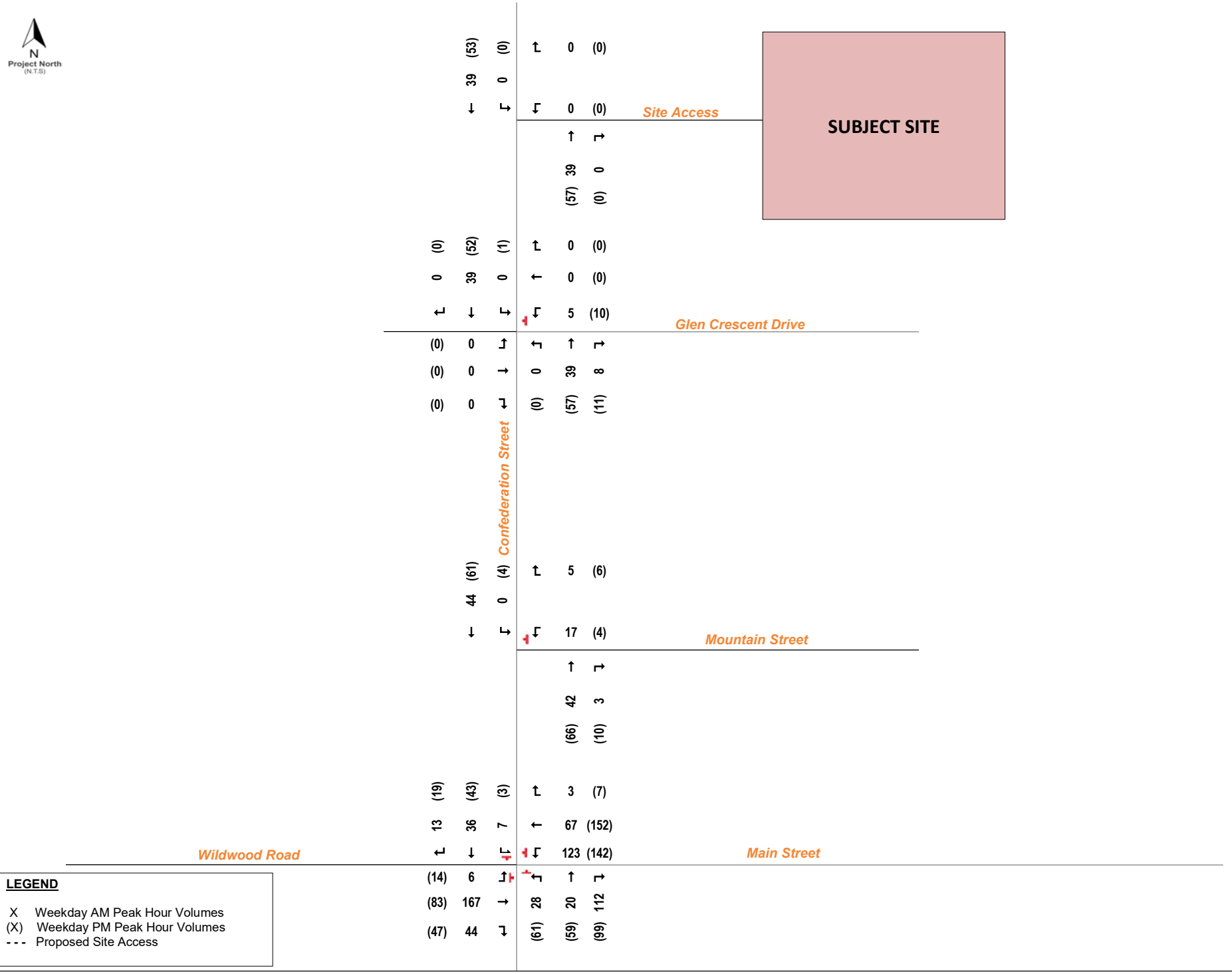


Figure 3-1 - 2029 Future Background Traffic Volumes

159 Confederation Street
Town of Halton Hills
Project No. NT-23-196
May 2024

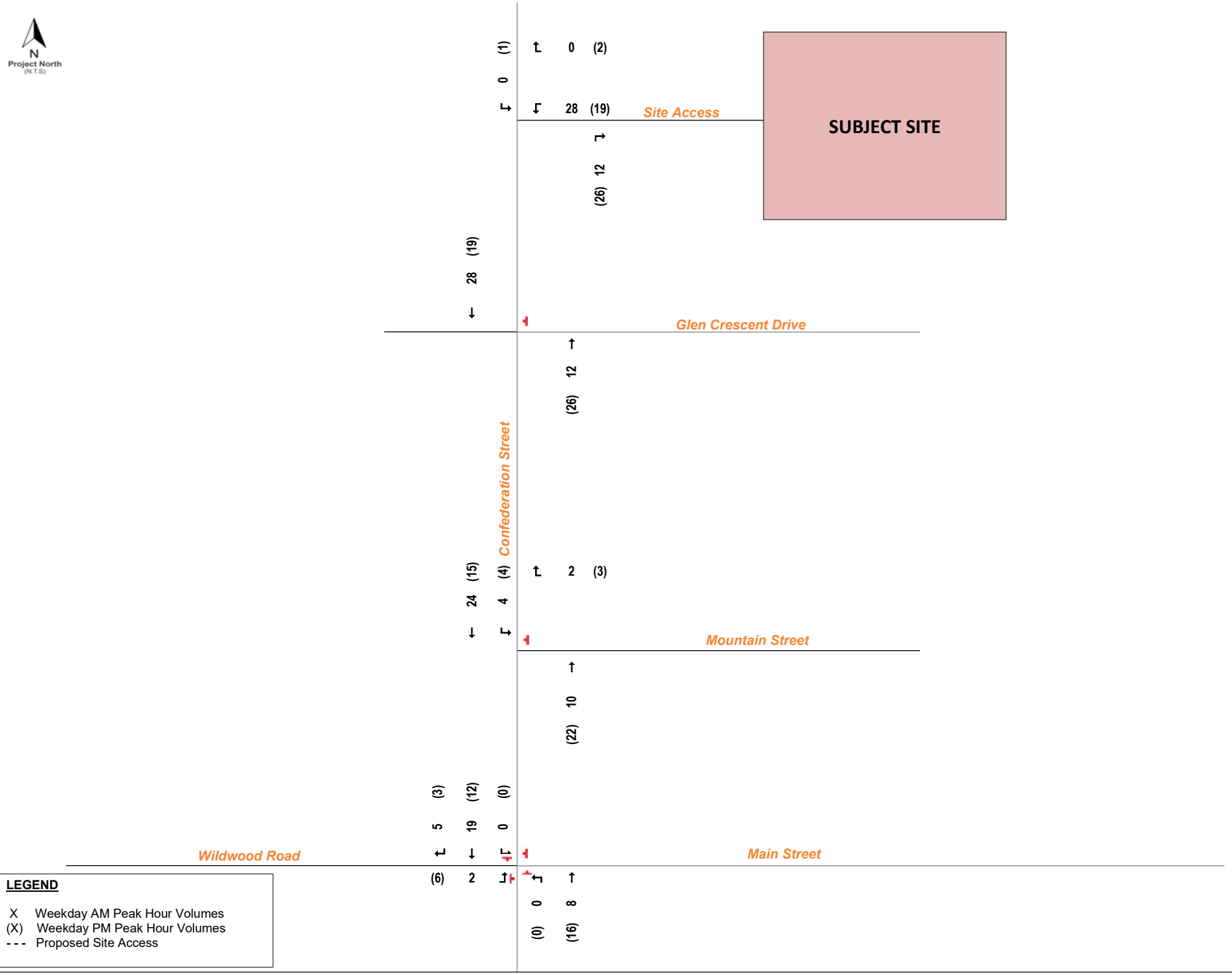


Figure 4-1 - Site Generated Traffic Volumes

159 Confederation Street
Town of Halton Hills
Project No. NT-23-196
May 2024

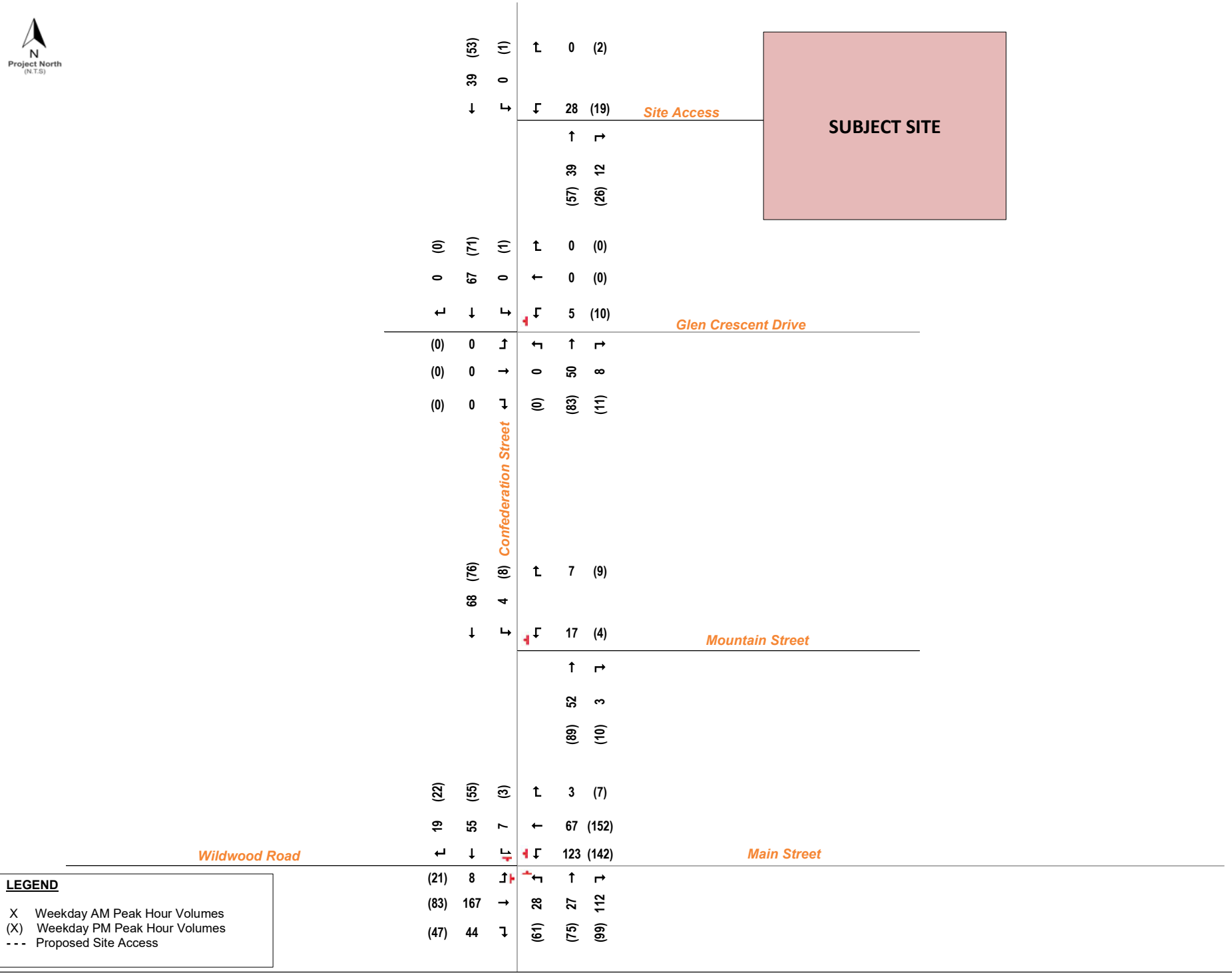


Figure 5-1 - 2029 Future Total Traffic Volumes

159 Confederation Street
Town of Halton Hills
Project No. NT-23-196
May 2024

KEY PLAN

REVISONS

NO	REVISION	DATE	BY

STAMP

nextrans
CONSULTING ENGINEERS
Suite 201, 520 Industrial Parkway South
Aurora ON L4G 6W8
Tel: 905-503-2563
Web: www.nextrans.ca

PROJECT NAME:
Residential Development
159 Confederation Street
Town of Halton Hills

DRAWING TITLE:
On Street Parking Plan

DESIGN BY: K.A.	DATE: June 4, 2024
CHECKED BY: R.P.	PROJECT NO. NT-23-196
DRAWN BY: K.A.	
SCALE: NTS	DRAWING NO. Figure 6-1

CONCEPT 3
TOTAL UNITS - 82
SINGLE DETACHED - 1
25FT TOWNS - 81
SFT RANGE
INT. UNIT - 2190 - 2350 SFT
END. UNIT - 2240 - 2450 SFT

25-SEPT-2023

PARK
U/G SWM TANK

PARK

SINGLE DETACHED LOT

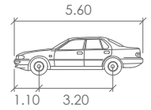
CONFEDERATION STREET
(ORIGINAL ROAD ALLOWANCE BETWEEN CONCESSION 9 AND 10, ESQUESING)

GLENCRESCENT DRIVE
(DEDICATED BY REGISTERED PLAN 510)

GLEN CRESCENT DR

KEY PLAN

Design Vehicle



P

	meters
Width	: 2.00
Track	: 2.00
Lock to Lock Time	: 6.0
Steering Angle	: 35.9

NTS

REVISONS

NO	REVISION	DATE	BY

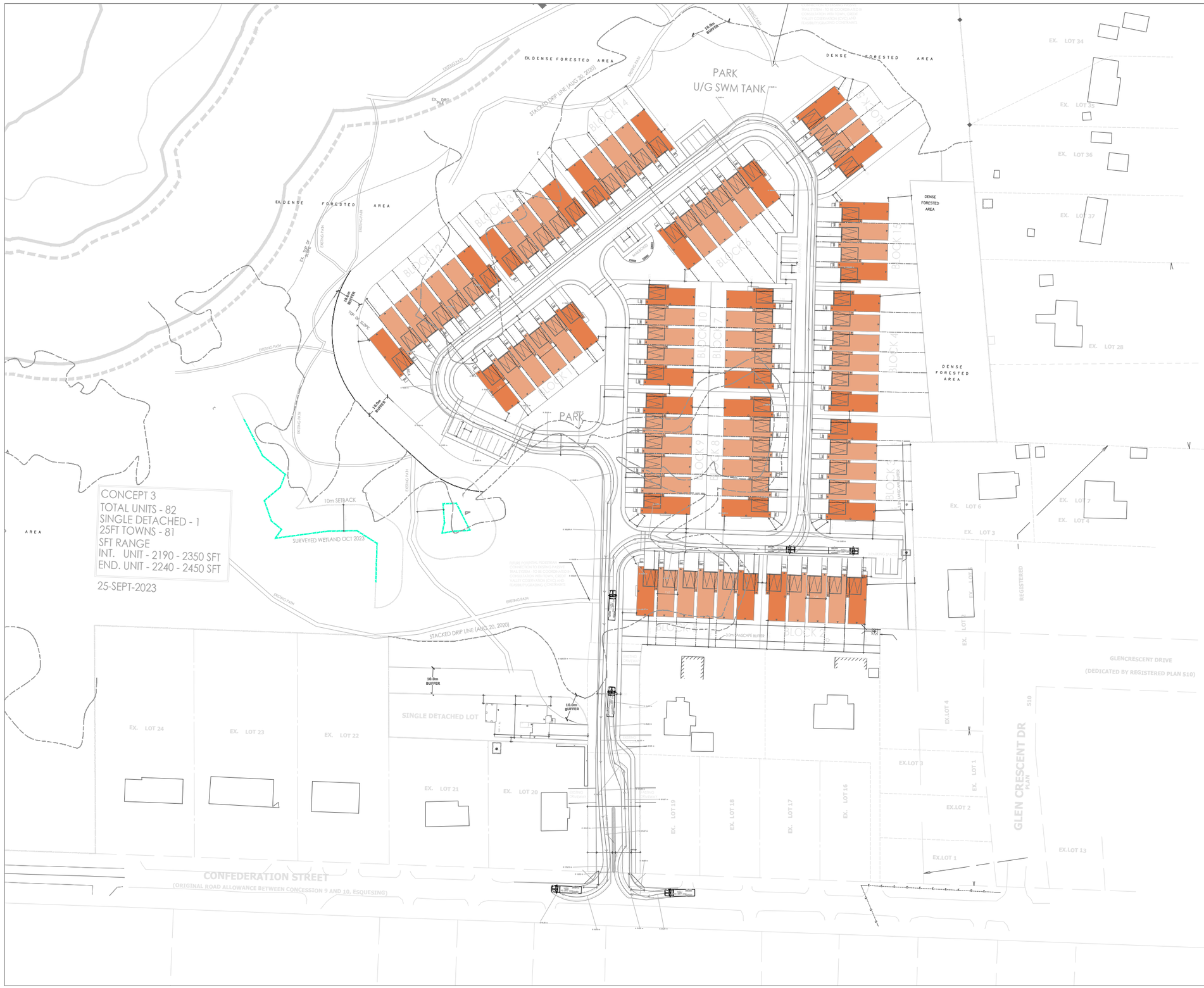
STAMP

nexTrans
CONSULTING ENGINEERS
Suite 201, 520 Industrial Parkway South
Aurora ON L4G 6W8
Tel: 905-503-2563
Web: www.nextrans.ca

PROJECT NAME:
Residential Development
159 Confederation Street
Town of Halton Hills

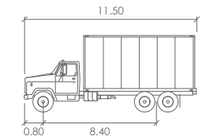
DRAWING TITLE:
AutoTURN Analysis
P TAC-2017

DESIGN BY: K.A.	DATE: June 4, 2024
CHECKED BY: R.P.	PROJECT NO. NT-23-196
DRAWN BY: K.A.	
SCALE: NTS	DRAWING NO. Figure 7-1



KEY PLAN

Design Vehicle



HSU

	meters
Width	: 2.60
Track	: 2.60
Lock to Lock Time	: 6.0
Steering Angle	: 40.0

NTS

REVISONS

NO	REVISION	DATE	BY

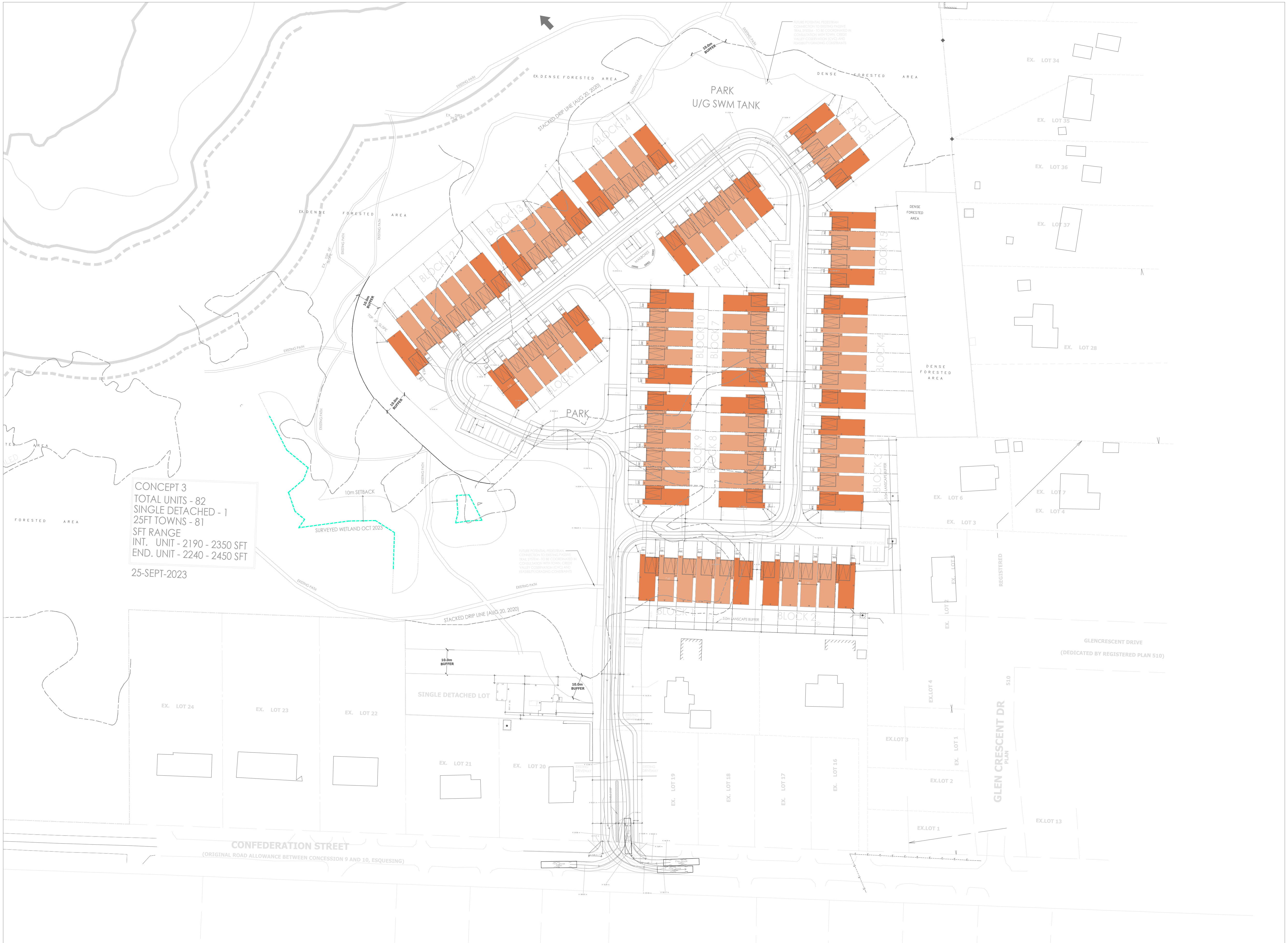
STAMP

nexTrans
CONSULTING ENGINEERS
Suite 201, 520 Industrial Parkway South
Aurora ON L4G 6W8
Tel: 905-503-2563
Web: www.nextrans.ca

PROJECT NAME:
Residential Development
159 Confederation Street
Town of Halton Hills

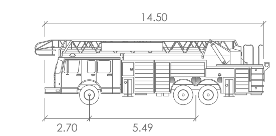
DRAWING TITLE:
AutoTURN Analysis
HSU TAC-2017

DESIGN BY: K.A.	DATE: June 4, 2024
CHECKED BY: R.P.	PROJECT NO. NT-23-196
DRAWN BY: K.A.	
SCALE: NTS	DRAWING NO. Figure 7-2


PARK
U/G SWM TANK
BLOCK 14
BLOCK 13
BLOCK 12
BLOCK 11
BLOCK 10
BLOCK 9
BLOCK 8
BLOCK 7
BLOCK 6
BLOCK 5
BLOCK 4
BLOCK 3
BLOCK 2
BLOCK 1
PARK
CONCEPT 3
TOTAL UNITS - 82
SINGLE DETACHED - 1
25FT TOWNS - 81
SFT RANGE
INT. UNIT - 2190 - 2350 SFT
END. UNIT - 2240 - 2450 SFT
25-SEPT-2023
SURVEYED WETLAND OCT 2023
10m SETBACK
STACKED DRIP LINE (AUG 20, 2020)
SINGLE DETACHED LOT
EX. LOT 24
EX. LOT 23
EX. LOT 22
EX. LOT 21
EX. LOT 20
CONFEDERATION STREET
GLEN CRESCENT DR
GLENCRESCENT DRIVE
EX. LOT 34
EX. LOT 35
EX. LOT 36
EX. LOT 37
EX. LOT 28
EX. LOT 6
EX. LOT 3
EX. LOT 7
EX. LOT 4

KEY PLAN

Design Vehicle



NTS

REVISIONS

NO	REVISION	DATE	BY

STAMP

nexTrans CONSULTING ENGINEERS
Suite 201, 520 Industrial Parkway South
Aurora ON L4G 6W8
Tel: 905-503-2563
Web: www.nextrans.ca

PROJECT NAME:
Residential Development
159 Confederation Street
Town of Halton Hills

DRAWING TITLE:
AutoTURN Analysis
Fire Truck

DESIGN BY:	K.A.	DATE:	June 4, 2024
CHECKED BY:	R.P.	PROJECT NO.	NT-23-196
DRAWN BY:	K.A.		
SCALE:	NTS	DRAWING NO.	Figure 7-3

KEY PLAN

REVISONS

NO	REVISION	DATE	BY

STAMP

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CONSULTING ENGINEERS
Suite 201, 520 Industrial Parkway South
Aurora ON L4G 6W8
Tel: 905-503-2563
Web: www.nextrans.ca

PROJECT NAME:
Residential Development
159 Confederation Street
Town of Halton Hills

DRAWING TITLE:
Pavement Marking and Signage Plan

DESIGN BY: K.A.	DATE: June 4, 2024
CHECKED BY: R.P.	PROJECT NO. NT-23-196
DRAWN BY: K.A.	
SCALE: NTS	DRAWING NO. Figure 7-4

KEY PLAN

LEGEND

- Proposed Sidewalk
- Proposed Crosswalk
- Existing Trail

REVISONS

NO	REVISION	DATE	BY

STAMP

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Aurora ON L4G 6W8
Tel: 905-503-2563
Web: www.nextrans.ca

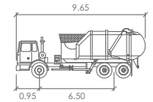
PROJECT NAME:
Residential Development
159 Confederation Street
Town of Halton Hills

DRAWING TITLE:
Active Transportation Circulation Plan

DESIGN BY: K.A.	DATE: June 4, 2024
CHECKED BY: R.P.	PROJECT NO. NT-23-196
DRAWN BY: K.A.	
SCALE: NTS	DRAWING NO. Figure 7-5

KEY PLAN

Design Vehicle



Halton Region Recycling Truck

	meters
Width	: 2.44
Track	: 2.77
Lock to Lock Time	: 6.0
Steering Angle	: 30.0

NTS

REVISONS

NO	REVISION	DATE	BY

STAMP

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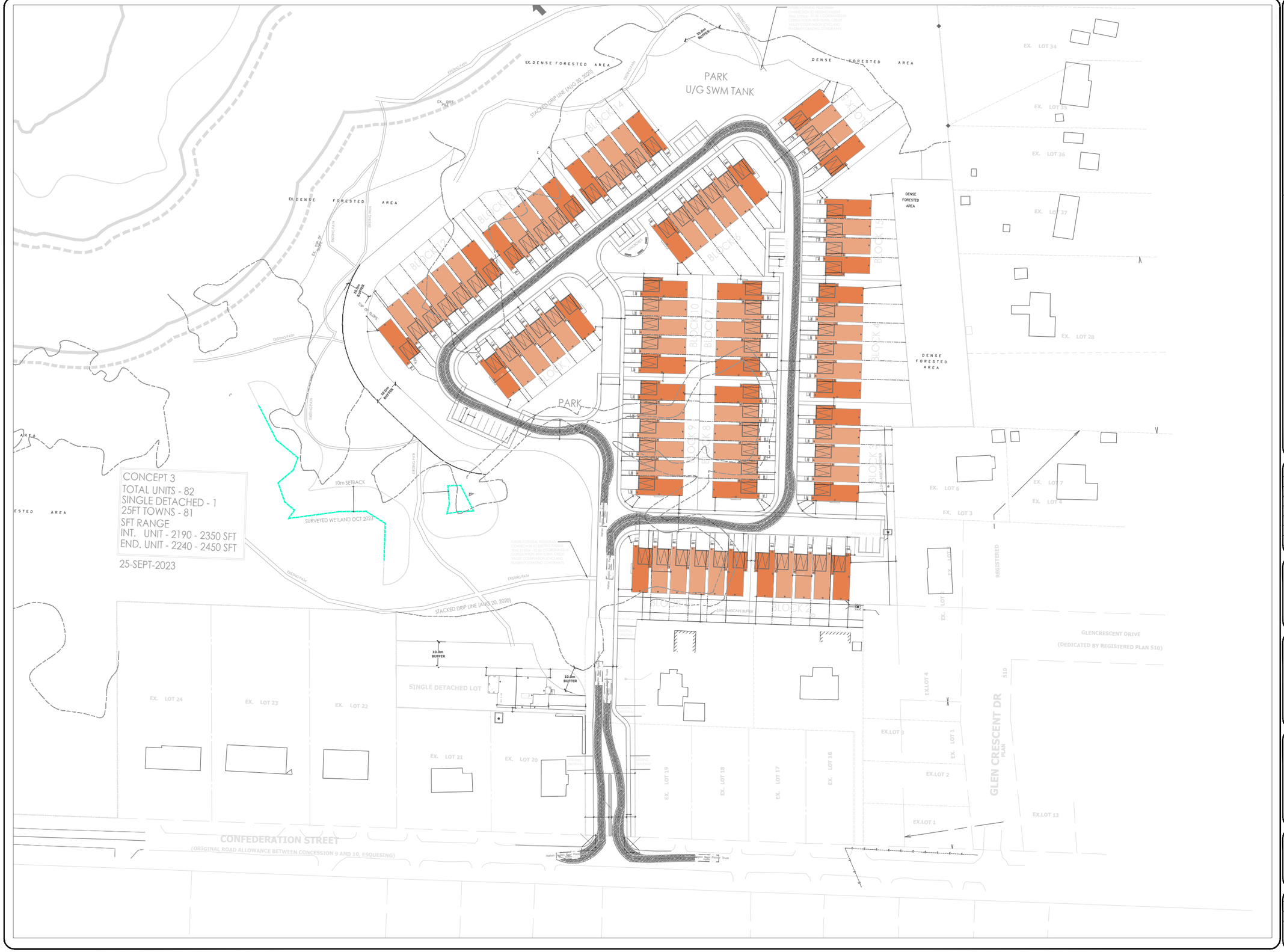
CONSULTING ENGINEERS
Suite 201, 520 Industrial Parkway South
Aurora ON L4G 6W8
Tel: 905-503-2563
Web: www.nextrans.ca

PROJECT NAME:
Residential Development
159 Confederation Street
Town of Halton Hills

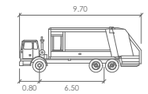
DRAWING TITLE:
AutoTURN Analysis
Halton Region Recycling Truck

DESIGN BY: K.A.	DATE: June 4, 2024
CHECKED BY: R.P.	PROJECT NO. NT-23-196
DRAWN BY: K.A.	
SCALE: NTS	DRAWING NO. Figure 7-6



KEY PLAN

Design Vehicle



Halton Region Rear Packer Truck

meters

Width	: 2.70
Track	: 2.77
Lock to Lock Time	: 6.0
Steering Angle	: 30.0

NTS

REVISONS

NO	REVISION	DATE	BY

STAMP

nextrans
CONSULTING ENGINEERS
Suite 201, 520 Industrial Parkway South
Aurora ON L4G 6W8
Tel: 905-503-2563
Web: www.nextrans.ca

PROJECT NAME:

Residential Development

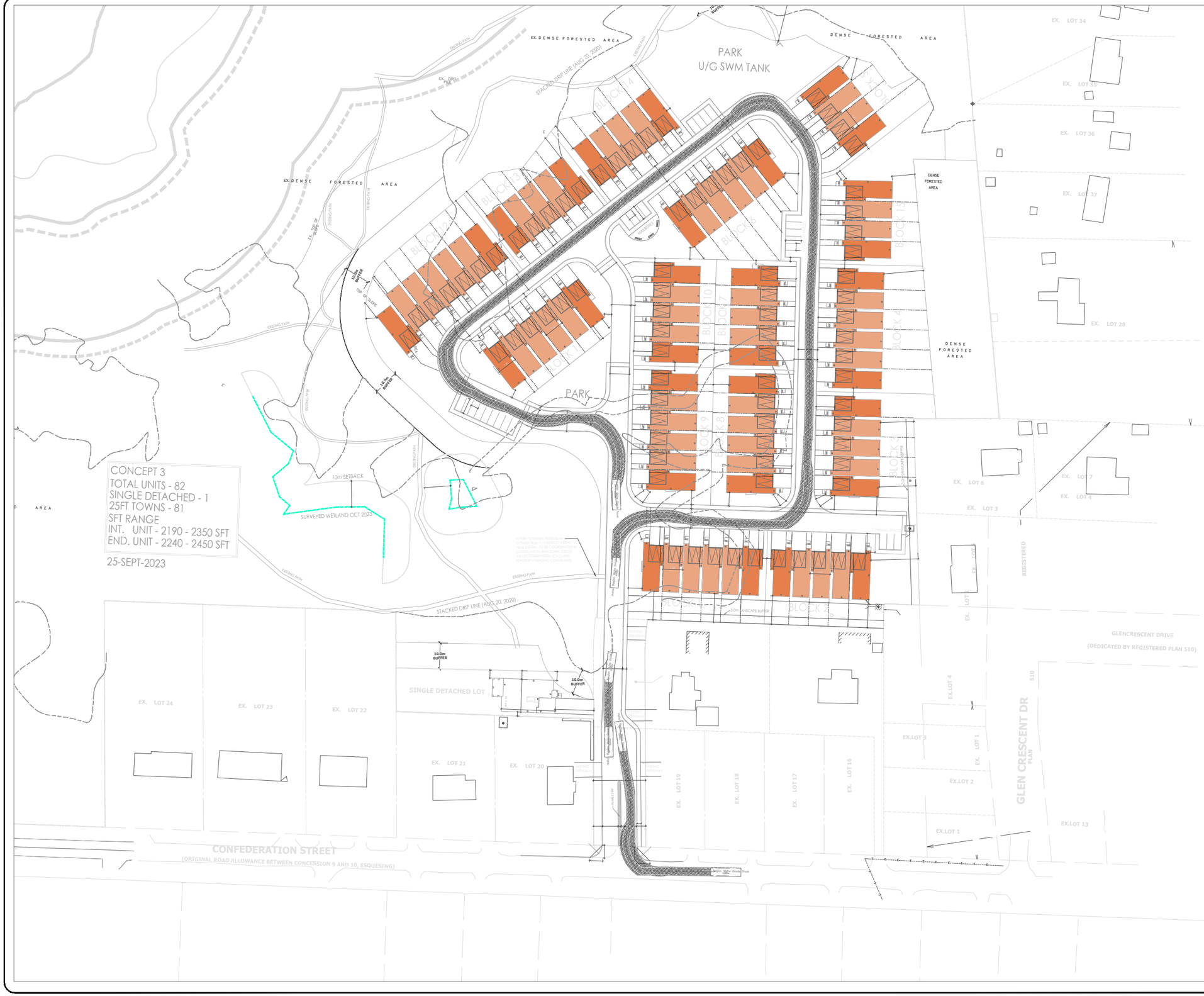
159 Confederation Street

Town of Halton Hills

DRAWING TITLE:

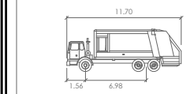
AutoTURN Analysis
Halton Region Rear
Packer Truck

DESIGN BY: K.A.	DATE: June 4, 2024
CHECKED BY: R.P.	PROJECT NO. NT-23-196
DRAWN BY: K.A.	
SCALE: NTS	DRAWING NO. Figure 7-7



KEY PLAN

Design Vehicle



Halton Region White Goods Truck

	meters
Width	: 3.20
Track	: 2.77
Lock to Lock Time	: 6.0
Steering Angle	: 32.5

NTS

REVISONS

NO	REVISION	DATE	BY

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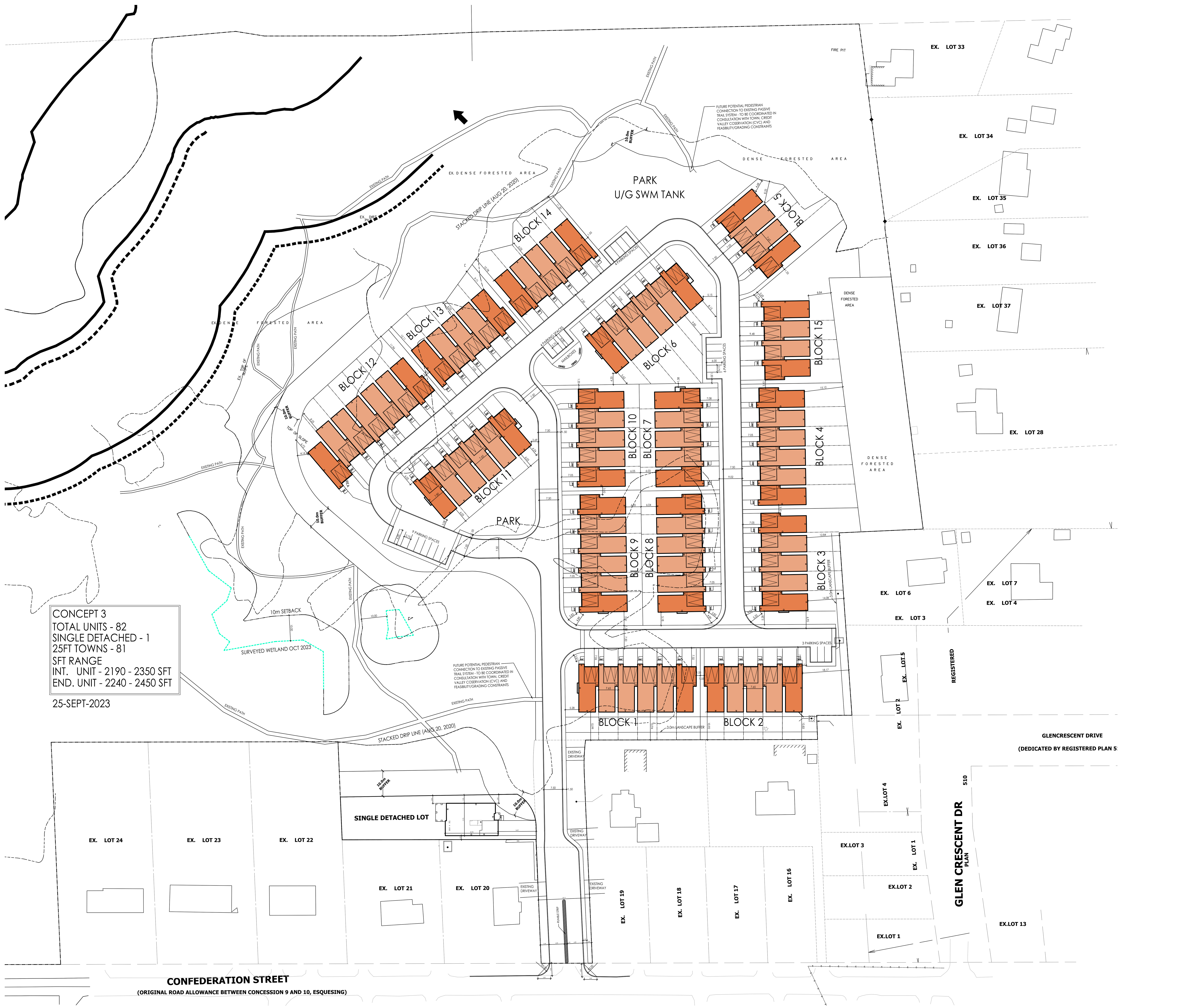
Aurora ON L4G 6W8
Tel: 905-503-2563
Web: www.nextrans.ca

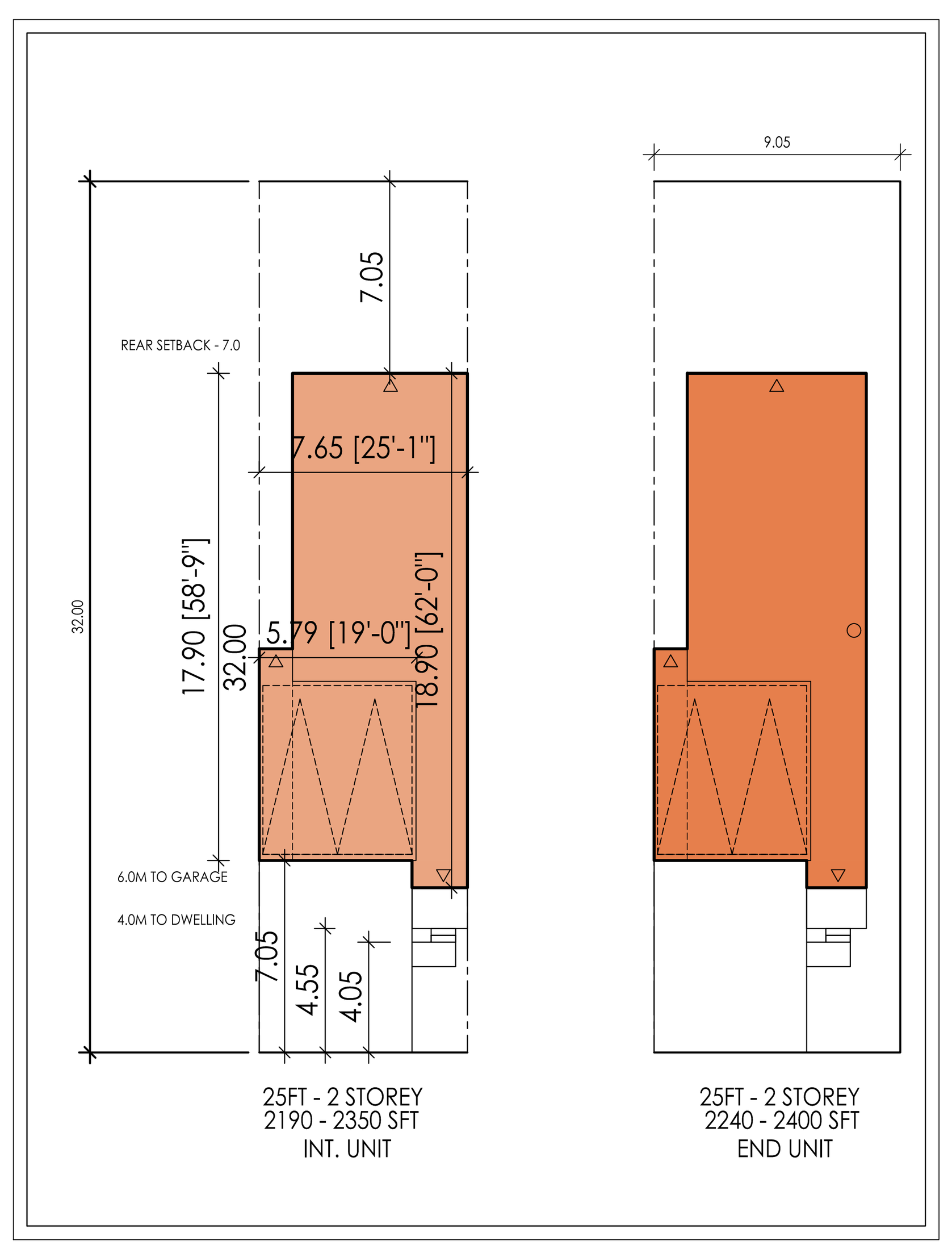
PROJECT NAME:
Residential Development
159 Confederation Street
Town of Halton Hills

DRAWING TITLE:
AutoTURN Analysis
Halton Region White Goods Truck

DESIGN BY: K.A.	DATE: June 4, 2024
CHECKED BY: R.P.	PROJECT NO. NT-23-196
DRAWN BY: K.A.	
SCALE: NTS	DRAWING NO. Figure 7-8

Appendix A – Proposed Concept Plan





THESE DRAWINGS ARE NOT TO BE SCALED:

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR PRIOR TO COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES MUST BE REPORTED DIRECTLY TO SRN ARCHITECTS INC.

PROJECT CONSULTANTS:

LEGEND

FSE	FINISHED SECOND FLOOR ELEVATION
FFE	FINISHED FLOOR ELEVATION
TFW	TOP OF FOUNDATION WALL
TBS	TOP OF BASEMENT SLAB
USF	UNDER SIDE FOOTING
USFR	UNDER SIDE FOOTING @ REAR
USFG	UNDER SIDE FOOTING @ GARAGE
R	NUMBER OF RISERS TO GRADE
WOD	WALKOUT DECK
LOB	LOOKOUT BASEMENT
WOB	WALK OUT BASEMENT
WUB	WALK UP BASEMENT
REV	REVERSE PLAN
STD	STANDARD PLAN
	DOOR
	WINDOW
	BELL PEDESTAL
	CABLE PEDESTAL
	CATCH BASIN
	DBL. CATCH BASIN
	ENGINEERED FILL
	HYDRO CONNECTION
	FIRE HYDRANT
SL	STREET LIGHT
	MAIL BOX
	TRANSFORMER
	SEWER CONNECTIONS (2 LOTS)
	SEWER CONNECTIONS (1 LOT)
AC	AIR CONDITIONING
	DOWN SPOUT TO SPLASH PAD
	SWALE DIRECTION
SP	SUMP PUMP
	WATER CONNECTION
	WATER VALVE CHAMBER
	HYDRANT AND VALVE
	HYDRO METER
	GAS METER
	DOWN LIGHT
	14' POLE LIGTHING
	12' POLE LIGTHING
	BOLLARD LIGHTING
Ra-1	STOP SIGN
Rb-51	NO PARKING
	NO PARKING IN LANEWAY
FR	FIRE ROUTE
	3HRS PARKING (RIGHT)
	3HRS PARKING (LEFT)
x100.00	PROPOSED SPOT GRADE
x100.00	EXISTING SPOT GRADE
	EXISTING TREE (TO BE REMOVED)
	EXISTING TREE (TO BE RETAINED)
##	MUNICIPAL ADDRESS
	RETAINING WALL TW -TOP OF WALL BW -BOTTOM OF WALL
	SNOW STORAGE AREAS
X	CHAINLINK FENCE
XX	PRIVACY FENCE
XXX	SOUND BARRIER
	FOOTING TO BE EXTENDED TO 1.22 (MIN) BELOW GRADE
FR	FIRE FIGHTER TRAVEL PATH
REVCHK	REVERSE CHECK FOUNDATION

ISSUED OR REVISION COMMENTS

NO.	DESCRIPTION	DATE	DWN	CHK
1	ISSUED FOR REVIEW	25-SEPT-2023	MTL	MTL
1	ISSUED FOR REVIEW	27-SEPT-2023	AG	
3	ISSUED FOR COORDINATION	16-NOV-2023	RP	
4	ISSUED FOR COORDINATION	30-DEC-2023	RP	
5	ISSUED FOR COORDINATION	06-FEB-2024	MSA	
6	ISSUED FOR COORDINATION	13-FEB-2024	MSA	

RN DESIGN
WWW.RNDESIGN.COM
T:905-738-3177
WWW.THEPLUSGROUP.CA

CLIENT
EDEN OAK

PROJECT/LOCATION
BAYFIELD
GEORGETOWN

DRAWING
CONCEPT PLAN

DATE 27-SEP-2023	SCALE 1:750
DRAWN BY RP	CHECKED BY RN
PROJECT NUMBER 23020	DRAWING NUMBER CONCEPT 3

Appendix B – Traffic Data

Spectrum

Turning Movement Count
Location Name: CONFEDERATION ST & GLEN CRESCENT DR
Date: Thu, Jan 25, 2024 Deployment Lead: David Chu

NexTrans
SUITE 204 15260 YONGE ST
AURORA ONTARIO, L4G 1N4
CANADA

Turning Movement Count (1 . CONFEDERATION ST & GLEN CRESCENT DR)

Start Time	Southbound CONFEDERATION ST						Westbound GLEN CRESCENT DR						Northbound CONFEDERATION ST						Eastbound GLEN CRESCENT DR						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
07:00:00	0	5	0	0	0	5	0	0	1	0	0	1	0	2	0	0	0	2	0	0	0	0	0	0	8	
07:15:00	0	6	0	0	0	6	0	0	2	0	0	2	0	3	0	0	0	3	0	0	0	0	0	0	11	
07:30:00	0	8	0	0	0	8	0	0	3	0	0	3	3	3	0	0	0	6	0	0	0	0	0	0	17	
07:45:00	0	15	0	0	0	15	0	0	2	0	0	2	2	4	0	0	0	6	0	0	0	0	0	0	23	59
08:00:00	0	15	1	0	0	16	0	0	0	0	0	0	2	6	0	0	0	8	0	0	0	0	0	0	24	75
08:15:00	0	7	0	0	0	7	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	11	75
08:30:00	0	12	0	0	0	12	0	0	0	0	0	0	1	5	0	0	0	6	0	0	0	0	1	0	18	76
08:45:00	0	8	0	0	0	8	0	0	1	0	0	1	0	8	0	0	0	8	0	0	0	0	0	0	17	70
09:00:00	0	11	0	0	0	11	0	0	3	0	0	3	3	15	0	0	0	18	0	0	0	0	0	0	32	78
09:15:00	0	4	0	0	0	4	0	0	1	0	0	1	4	7	0	0	0	11	0	0	0	0	0	0	16	83
09:30:00	0	6	0	0	0	6	0	0	2	0	0	2	1	5	0	0	0	6	0	0	0	0	0	0	14	79
09:45:00	0	9	0	0	0	9	0	0	3	0	0	3	0	5	0	0	0	5	0	0	0	0	0	0	17	79
BREAK																										
16:00:00	0	14	0	0	0	14	0	0	4	0	0	4	3	14	0	0	0	17	0	0	0	0	0	0	35	
16:15:00	0	12	0	0	0	12	0	0	2	0	0	2	4	12	0	0	0	16	0	0	0	0	0	0	30	
16:30:00	0	11	0	0	1	11	0	0	3	0	0	3	2	11	0	0	0	13	0	0	0	0	4	0	27	
16:45:00	0	10	1	0	0	11	0	0	1	0	1	1	2	15	0	0	0	17	0	0	0	0	0	0	29	121
17:00:00	0	7	0	0	0	7	2	0	2	0	0	4	2	7	0	0	0	9	0	0	0	0	0	0	20	106
17:15:00	0	5	0	0	0	5	1	0	1	0	0	2	5	9	0	0	0	14	0	0	0	0	0	0	21	97
17:30:00	0	3	0	0	0	3	0	0	2	0	0	2	2	13	0	0	0	15	0	0	0	0	0	0	20	90
17:45:00	0	8	0	0	0	8	0	0	0	0	0	0	0	10	0	0	0	10	0	0	0	0	0	0	18	79
18:00:00	0	3	0	0	0	3	1	0	0	0	0	1	1	6	0	0	0	7	0	0	0	0	0	0	11	70
18:15:00	0	5	0	0	0	5	0	0	2	0	0	2	2	4	0	0	0	6	0	0	0	0	0	0	13	62
18:30:00	0	8	0	0	0	8	0	0	0	0	0	0	0	10	0	0	0	10	0	0	0	0	0	0	18	60
18:45:00	0	9	0	0	0	9	0	0	2	0	0	2	1	8	0	0	0	9	0	0	0	0	0	0	20	62
Grand Total	0	201	2	0	1	203	4	0	37	0	1	41	40	186	0	0	0	226	0	0	0	0	5	0	**470**	-
Approach%	0%	99%	1%	0%		-	9.8%	0%	90.2%	0%		-	17.7%	82.3%	0%	0%		-	0%	0%	0%	0%		-	**-**	-
Totals %	0%	42.8%	0.4%	0%		43.2%	0.9%	0%	7.9%	0%		8.7%	8.5%	39.6%	0%	0%		48.1%	0%	0%	0%	0%		0%	**-**	-
Heavy	0	11	0	0		-	0	0	0	0		-	0	9	0	0		-	0	0	0	0		-	**-**	-
Heavy %	0%	5.5%	0%	0%		-	0%	0%	0%	0%		-	0%	4.8%	0%	0%		-	0%	0%	0%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

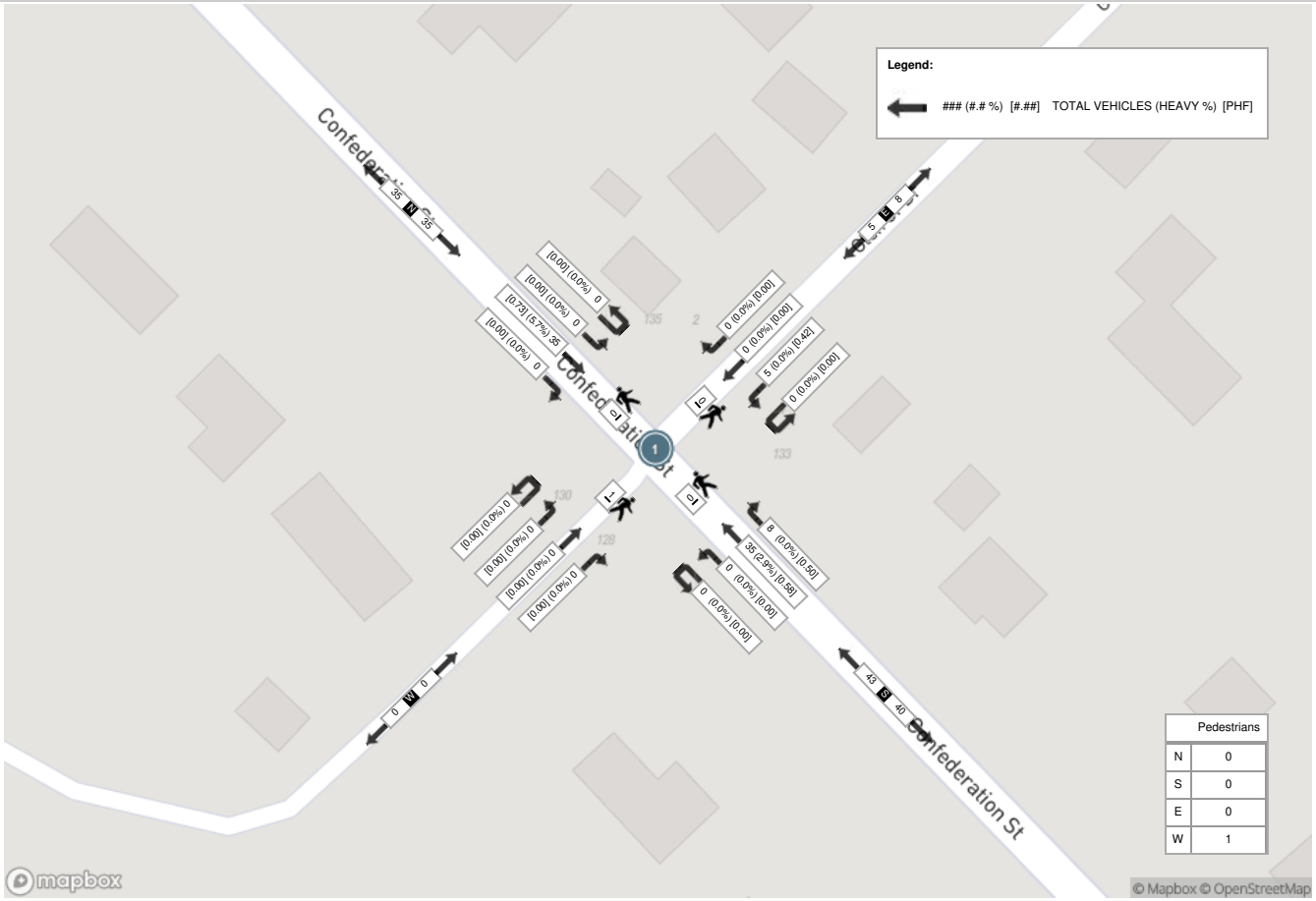
Peak Hour: 08:30 AM - 09:30 AM **Weather:**

Start Time	Southbound CONFEDERATION ST						Westbound GLEN CRESCENT DR						Northbound CONFEDERATION ST						Eastbound GLEN CRESCENT DR						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
08:30:00	0	12	0	0	0	12	0	0	0	0	0	0	1	5	0	0	0	6	0	0	0	0	1	0	18
08:45:00	0	8	0	0	0	8	0	0	1	0	0	1	0	8	0	0	0	8	0	0	0	0	0	0	17
09:00:00	0	11	0	0	0	11	0	0	3	0	0	3	3	15	0	0	0	18	0	0	0	0	0	0	32
09:15:00	0	4	0	0	0	4	0	0	1	0	0	1	4	7	0	0	0	11	0	0	0	0	0	0	16
Grand Total	0	35	0	0	0	35	0	0	5	0	0	5	8	35	0	0	0	43	0	0	0	0	1	0	**83**
Approach%	0%	100%	0%	0%		-	0%	0%	100%	0%		-	18.6%	81.4%	0%	0%		-	0%	0%	0%	0%		-	**-**
Totals %	0%	42.2%	0%	0%		42.2%	0%	0%	6%	0%		6%	9.6%	42.2%	0%	0%		51.8%	0%	0%	0%	0%		0%	**-**
PHF	0	0.73	0	0		0.73	0	0	0.42	0		0.42	0.5	0.58	0	0		0.6	0	0	0	0		0	**-**
Heavy	0	2	0	0		2	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	**-**
Heavy %	0%	5.7%	0%	0%		5.7%	0%	0%	0%	0%		0%	0%	2.9%	0%	0%		2.3%	0%	0%	0%	0%		0%	**-**
Lights	0	32	0	0		32	0	0	5	0		5	8	34	0	0		42	0	0	0	0		0	**-**
Lights %	0%	91.4%	0%	0%		91.4%	0%	0%	100%	0%		100%	100%	97.1%	0%	0%		97.7%	0%	0%	0%	0%		0%	**-**
Single-Unit Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Buses	0	2	0	0		2	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	**-**
Buses %	0%	5.7%	0%	0%		5.7%	0%	0%	0%	0%		0%	0%	2.9%	0%	0%		2.3%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	0%	2.9%	0%	0%		2.9%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	100%		**-**

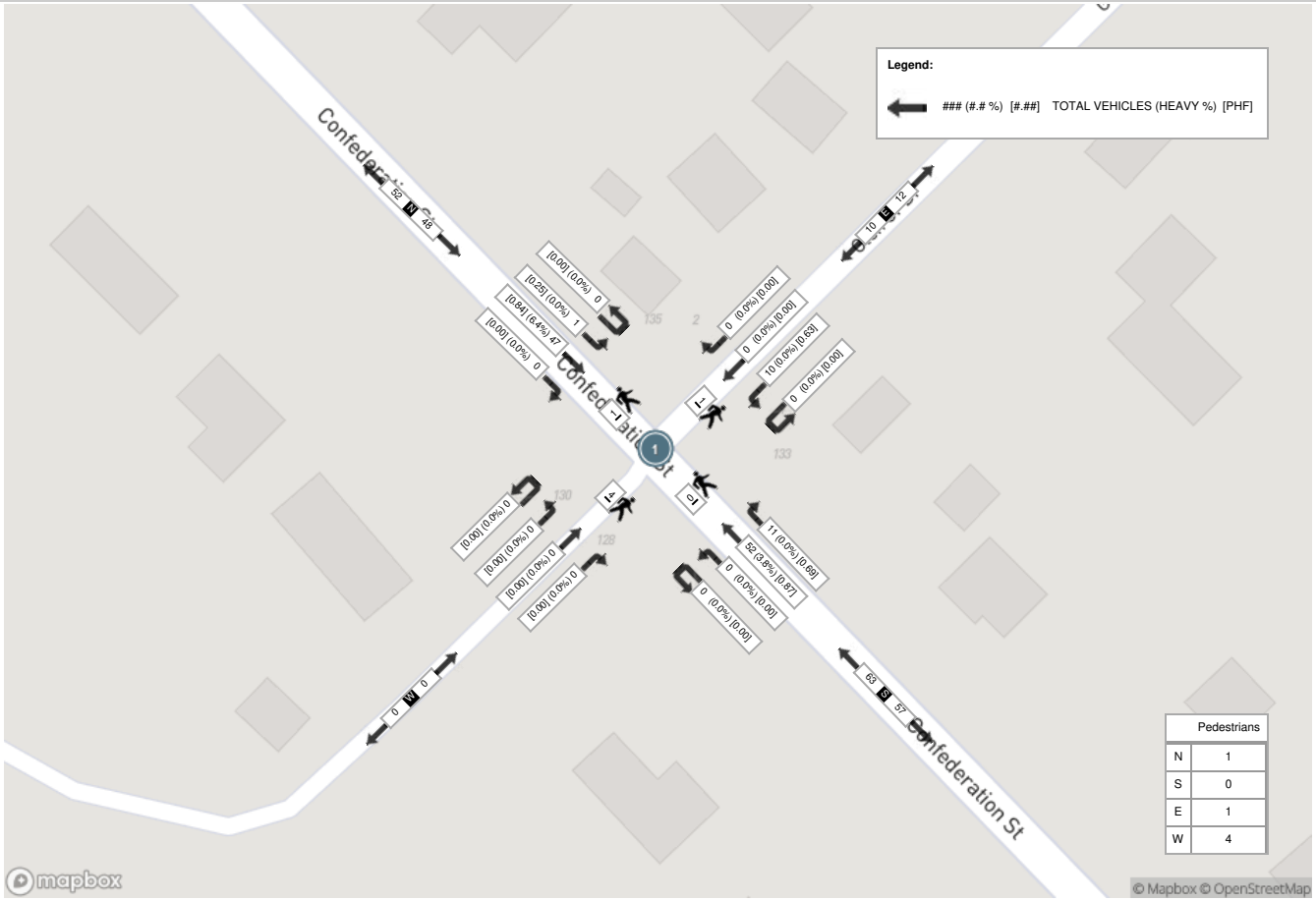
Peak Hour: 04:00 PM - 05:00 PM Weather: Overcast Clouds (2.34 °C)

Start Time	Southbound CONFEDERATION ST						Westbound GLEN CRESCENT DR						Northbound CONFEDERATION ST						Eastbound GLEN CRESCENT DR						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:00:00	0	14	0	0	0	14	0	0	4	0	0	4	3	14	0	0	0	17	0	0	0	0	0	0	35
16:15:00	0	12	0	0	0	12	0	0	2	0	0	2	4	12	0	0	0	16	0	0	0	0	0	0	30
16:30:00	0	11	0	0	1	11	0	0	3	0	0	3	2	11	0	0	0	13	0	0	0	0	4	0	27
16:45:00	0	10	1	0	0	11	0	0	1	0	1	1	2	15	0	0	0	17	0	0	0	0	0	0	29
Grand Total	0	47	1	0	1	48	0	0	10	0	1	10	11	52	0	0	0	63	0	0	0	0	4	0	**121**
Approach%	0%	97.9%	2.1%	0%		-	0%	0%	100%	0%		-	17.5%	82.5%	0%	0%		-	0%	0%	0%	0%		-	**-**
Totals %	0%	38.8%	0.8%	0%		39.7%	0%	0%	8.3%	0%		8.3%	9.1%	43%	0%	0%		52.1%	0%	0%	0%	0%		0%	**-**
PHF	0	0.84	0.25	0		0.86	0	0	0.63	0		0.63	0.69	0.87	0	0		0.93	0	0	0	0		0	**-**
Heavy	0	3	0	0		3	0	0	0	0		0	0	2	0	0		2	0	0	0	0		0	**-**
Heavy %	0%	6.4%	0%	0%		6.3%	0%	0%	0%	0%		0%	0%	3.8%	0%	0%		3.2%	0%	0%	0%	0%		0%	**-**
Lights	0	44	1	0		45	0	0	10	0		10	11	50	0	0		61	0	0	0	0		0	**-**
Lights %	0%	93.6%	100%	0%		93.8%	0%	0%	100%	0%		100%	100%	96.2%	0%	0%		96.8%	0%	0%	0%	0%		0%	**-**
Single-Unit Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Buses	0	3	0	0		3	0	0	0	0		0	0	2	0	0		2	0	0	0	0		0	**-**
Buses %	0%	6.4%	0%	0%		6.3%	0%	0%	0%	0%		0%	0%	3.8%	0%	0%		3.2%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	4	-	**-**
Pedestrians%	-	-	-	-	16.7%		-	-	-	-	16.7%		-	-	-	-	0%		-	-	-	-	66.7%		**-**

Peak Hour: 08:30 AM - 09:30 AM Weather:



Peak Hour: 04:00 PM - 05:00 PM **Weather: Overcast Clouds (2.34 °C)**



NexTrans
SUITE 204 15260 YONGE ST
AURORA ONTARIO, L4G 1N4
CANADA

Turning Movement Count (3 . CONFEDERATION ST & MAIN ST / WILDWOOD RD)

Start Time	Southbound CONFEDERATION ST						Westbound MAIN ST						Northbound CONFEDERATION ST						Eastbound WILDWOOD RD						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
07:00:00	1	3	0	0	0	4	1	6	12	0	0	19	10	1	4	0	0	15	2	21	0	0	0	23	61	
07:15:00	1	11	3	0	0	15	0	11	5	0	0	16	21	5	8	0	0	34	5	43	0	0	0	48	113	
07:30:00	2	7	2	0	1	11	0	10	13	0	0	23	13	6	6	0	0	25	6	42	2	0	0	50	109	
07:45:00	6	11	0	0	1	17	0	15	21	0	0	36	28	3	11	0	0	42	11	44	1	0	1	56	151	434
08:00:00	2	11	3	0	3	16	3	16	42	0	0	61	41	5	4	0	0	50	11	35	1	0	3	47	174	547
08:15:00	2	4	1	0	2	7	0	20	35	0	0	55	19	4	4	1	0	28	12	30	1	0	2	43	133	567
08:30:00	2	12	5	0	0	19	2	11	18	0	0	31	13	4	6	0	2	23	14	16	1	0	0	31	104	562
08:45:00	1	10	1	0	0	12	1	18	25	0	0	44	19	7	5	0	0	31	11	19	1	0	0	31	118	529
09:00:00	5	12	2	0	2	19	1	13	20	0	0	34	18	15	10	0	0	43	21	21	3	0	2	45	141	496
09:15:00	0	10	0	0	3	10	0	11	15	0	1	26	16	9	8	0	1	33	8	12	2	0	3	22	91	454
09:30:00	1	7	0	0	1	8	0	11	14	0	0	25	12	6	6	0	0	24	6	16	0	0	1	22	79	429
09:45:00	4	14	1	0	0	19	2	9	8	0	0	19	18	3	7	0	0	28	11	18	4	0	0	33	99	410
BREAK																										
16:00:00	6	12	1	0	2	19	4	35	40	0	0	79	22	12	14	0	0	48	10	20	2	0	2	32	178	
16:15:00	6	8	2	0	4	16	1	40	30	0	0	71	26	14	14	0	0	54	11	21	4	0	1	36	177	
16:30:00	2	11	0	0	0	13	0	40	26	0	0	66	22	12	14	0	0	48	12	15	2	0	3	29	156	
16:45:00	3	8	0	0	3	11	1	23	33	0	0	57	20	15	13	0	0	48	10	19	5	0	3	34	150	661
17:00:00	2	8	0	0	3	10	1	21	30	0	0	52	21	11	18	0	0	50	9	12	3	0	3	24	136	619
17:15:00	0	9	0	0	1	9	1	16	24	0	0	41	28	9	17	0	0	54	11	22	4	0	1	37	141	583
17:30:00	2	4	0	0	4	6	2	35	19	0	0	56	25	10	11	0	0	46	7	20	4	0	4	31	139	566
17:45:00	4	6	2	0	0	12	1	19	26	1	0	47	15	12	14	0	0	41	9	20	3	0	0	32	132	548
18:00:00	1	4	0	0	0	5	0	17	23	0	0	40	13	7	13	0	0	33	6	13	2	0	0	21	99	511
18:15:00	1	5	0	0	3	6	0	12	21	0	0	33	18	9	8	0	0	35	5	12	0	0	0	17	91	461
18:30:00	1	12	1	0	2	14	0	12	15	0	0	27	24	11	6	0	0	41	5	22	2	0	2	29	111	433
18:45:00	2	10	0	0	2	12	1	16	8	0	0	25	20	6	9	0	0	35	8	14	3	0	2	25	97	398
Grand Total	57	209	24	0	37	290	22	437	523	1	1	983	482	196	230	1	3	909	221	527	50	0	33	798	**2980**	-
Approach%	19.7%	72.1%	8.3%	0%		-	2.2%	44.5%	53.2%	0.1%		-	53%	21.6%	25.3%	0.1%		-	27.7%	66%	6.3%	0%		-	**-**	-
Totals %	1.9%	7%	0.8%	0%		9.7%	0.7%	14.7%	17.6%	0%		33%	16.2%	6.6%	7.7%	0%		30.5%	7.4%	17.7%	1.7%	0%		26.8%	**-**	-
Heavy	4	3	4	0		-	3	9	9	0		-	10	4	4	0		-	5	6	4	0		-	**-**	-
Heavy %	7%	1.4%	16.7%	0%		-	13.6%	2.1%	1.7%	0%		-	2.1%	2%	1.7%	0%		-	2.3%	1.1%	8%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: CONFEDERATION ST & MAIN ST / WILDWOOD RD
Date: Thu, Jan 25, 2024 Deployment Lead: David Chu

NexTrans
SUITE 204 15260 YONGE ST
AURORA ONTARIO, L4G 1N4
CANADA

Peak Hour: 07:30 AM - 08:30 AM Weather:

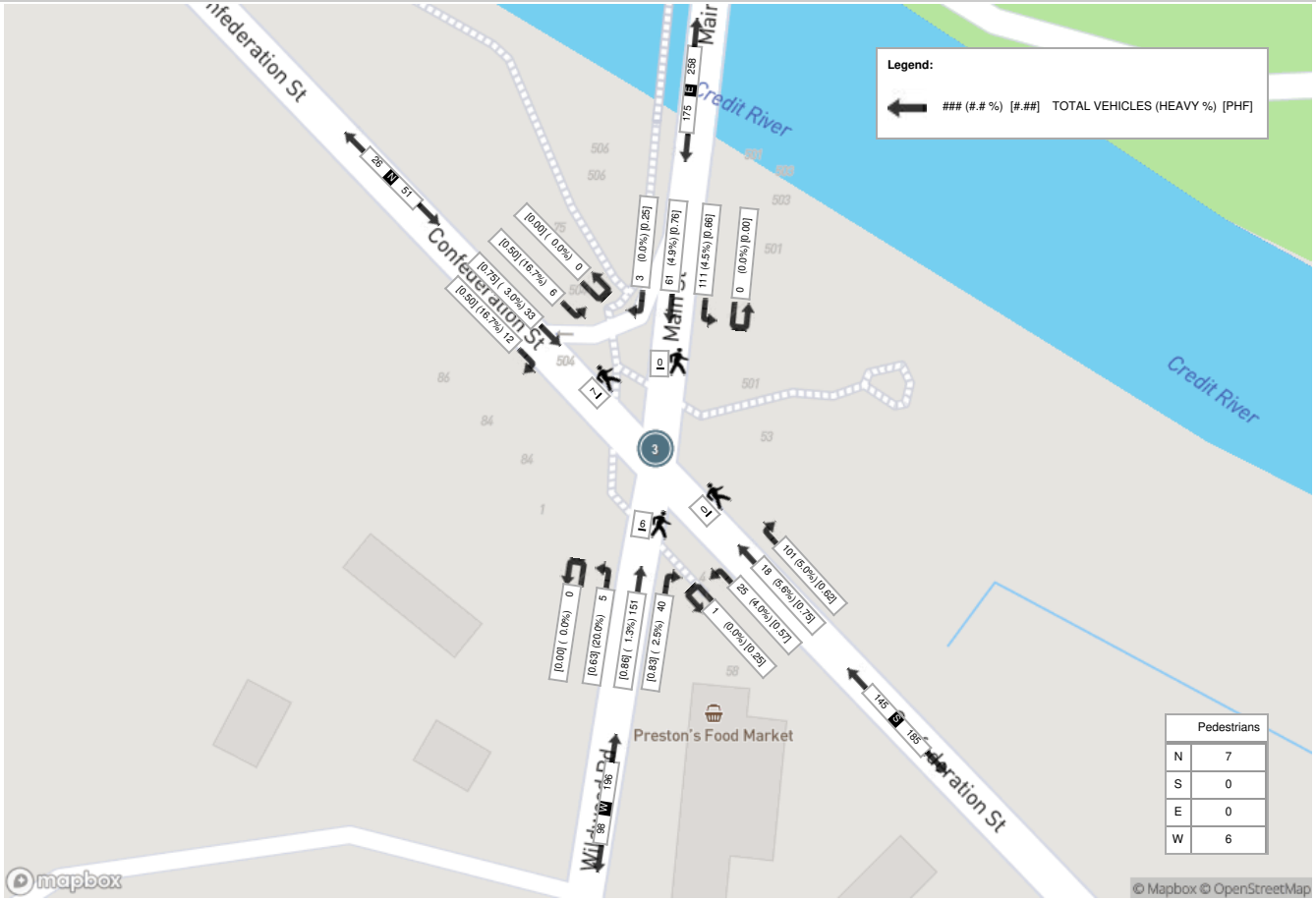
Start Time	Southbound CONFEDERATION ST						Westbound MAIN ST						Northbound CONFEDERATION ST						Eastbound WILDWOOD RD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
07:30:00	2	7	2	0	1	11	0	10	13	0	0	23	13	6	6	0	0	25	6	42	2	0	0	50	109
07:45:00	6	11	0	0	1	17	0	15	21	0	0	36	28	3	11	0	0	42	11	44	1	0	1	56	151
08:00:00	2	11	3	0	3	16	3	16	42	0	0	61	41	5	4	0	0	50	11	35	1	0	3	47	174
08:15:00	2	4	1	0	2	7	0	20	35	0	0	55	19	4	4	1	0	28	12	30	1	0	2	43	133
Grand Total	12	33	6	0	7	51	3	61	111	0	0	175	101	18	25	1	0	145	40	151	5	0	6	196	**567**
Approach%	23.5%	64.7%	11.8%	0%		-	1.7%	34.9%	63.4%	0%		-	69.7%	12.4%	17.2%	0.7%		-	20.4%	77%	2.6%	0%		-	**-**
Totals %	2.1%	5.8%	1.1%	0%		9%	0.5%	10.8%	19.6%	0%		30.9%	17.8%	3.2%	4.4%	0.2%		25.6%	7.1%	26.6%	0.9%	0%		34.6%	**-**
PHF	0.5	0.75	0.5	0		0.75	0.25	0.76	0.66	0		0.72	0.62	0.75	0.57	0.25		0.73	0.83	0.86	0.63	0		0.88	**-**
Heavy	2	1	1	0		4	0	3	5	0		8	5	1	1	0		7	1	2	1	0		4	**-**
Heavy %	16.7%	3%	16.7%	0%		7.8%	0%	4.9%	4.5%	0%		4.6%	5%	5.6%	4%	0%		4.8%	2.5%	1.3%	20%	0%		2%	**-**
Lights	10	32	5	0		47	3	58	106	0		167	96	17	24	1		138	39	149	4	0		192	**-**
Lights %	83.3%	97%	83.3%	0%		92.2%	100%	95.1%	95.5%	0%		95.4%	95%	94.4%	96%	100%		95.2%	97.5%	98.7%	80%	0%		98%	**-**
Single-Unit Trucks	0	0	0	0		0	0	0	1	0		1	0	0	0	0		0	0	0	0	0		0	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	0%	0.9%	0%		0.6%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Buses	2	1	1	0		4	0	3	4	0		7	5	1	1	0		7	1	2	1	0		4	**-**
Buses %	16.7%	3%	16.7%	0%		7.8%	0%	4.9%	3.6%	0%		4%	5%	5.6%	4%	0%		4.8%	2.5%	1.3%	20%	0%		2%	**-**
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	7	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	6	-	**-**
Pedestrians%	-	-	-	-	53.8%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	46.2%		**-**

Peak Hour: 04:00 PM - 05:00 PM Weather: Overcast Clouds (2.34 °C)

Start Time	Southbound CONFEDERATION ST						Westbound MAIN ST						Northbound CONFEDERATION ST						Eastbound WILDWOOD RD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:00:00	6	12	1	0	2	19	4	35	40	0	0	79	22	12	14	0	0	48	10	20	2	0	2	32	178
16:15:00	6	8	2	0	4	16	1	40	30	0	0	71	26	14	14	0	0	54	11	21	4	0	1	36	177
16:30:00	2	11	0	0	0	13	0	40	26	0	0	66	22	12	14	0	0	48	12	15	2	0	3	29	156
16:45:00	3	8	0	0	3	11	1	23	33	0	0	57	20	15	13	0	0	48	10	19	5	0	3	34	150
Grand Total	17	39	3	0	9	59	6	138	129	0	0	273	90	53	55	0	0	198	43	75	13	0	9	131	**661**
Approach%	28.8%	66.1%	5.1%	0%		-	2.2%	50.5%	47.3%	0%		-	45.5%	26.8%	27.8%	0%		-	32.8%	57.3%	9.9%	0%		-	**-**
Totals %	2.6%	5.9%	0.5%	0%		8.9%	0.9%	20.9%	19.5%	0%		41.3%	13.6%	8%	8.3%	0%		30%	6.5%	11.3%	2%	0%		19.8%	**-**
PHF	0.71	0.81	0.38	0		0.78	0.38	0.86	0.81	0		0.86	0.87	0.88	0.98	0		0.92	0.9	0.89	0.65	0		0.91	**-**
Heavy	2	0	1	0		3	1	2	1	0		4	2	0	1	0		3	1	2	2	0		5	**-**
Heavy %	11.8%	0%	33.3%	0%		5.1%	16.7%	1.4%	0.8%	0%		1.5%	2.2%	0%	1.8%	0%		1.5%	2.3%	2.7%	15.4%	0%		3.8%	**-**
Lights	15	39	2	0		56	5	136	128	0		269	88	53	54	0		195	42	72	11	0		125	**-**
Lights %	88.2%	100%	66.7%	0%		94.9%	83.3%	98.6%	99.2%	0%		98.5%	97.8%	100%	98.2%	0%		98.5%	97.7%	96%	84.6%	0%		95.4%	**-**
Single-Unit Trucks	0	0	0	0		0	0	2	1	0		3	1	0	0	0		1	0	0	0	0		0	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	1.4%	0.8%	0%		1.1%	1.1%	0%	0%	0%		0.5%	0%	0%	0%	0%		0%	**-**
Buses	2	0	1	0		3	1	0	0	0		1	1	0	1	0		2	1	2	2	0		5	**-**
Buses %	11.8%	0%	33.3%	0%		5.1%	16.7%	0%	0%	0%		0.4%	1.1%	0%	1.8%	0%		1%	2.3%	2.7%	15.4%	0%		3.8%	**-**
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	1.3%	0%	0%		0.8%	**-**
Pedestrians	-	-	-	-	9	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	9	-	**-**
Pedestrians%	-	-	-	-	50%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	50%		**-**

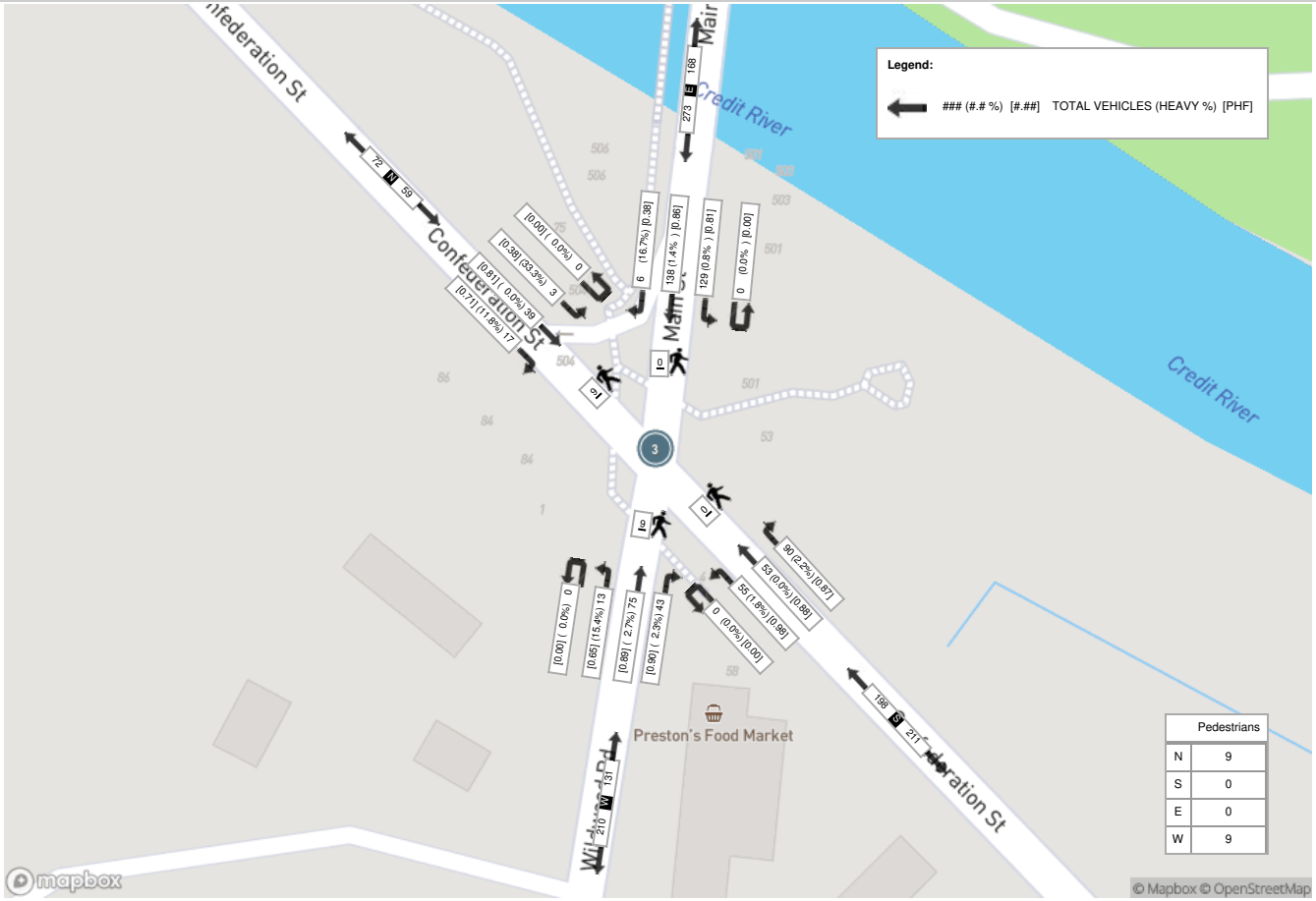
NexTrans
SUITE 204 15260 YONGE ST
AURORA ONTARIO, L4G 1N4
CANADA

Peak Hour: 07:30 AM - 08:30 AM **Weather:**



NexTrans
SUITE 204 15260 YONGE ST
AURORA ONTARIO, L4G 1N4
CANADA

Peak Hour: 04:00 PM - 05:00 PM **Weather: Overcast Clouds (2.34 °C)**



Turning Movement Count (2 . CONFEDERATION ST & MOUNTAIN ST)

Start Time	Southbound CONFEDERATION ST					Westbound MOUNTAIN ST					Northbound CONFEDERATION ST					Int. Total (15 min)	Int. Total (1 hr)
	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	UTurn S:S	Peds S:	Approach Total		
07:00:00	6	0	0	0	6	0	0	0	0	0	0	2	0	0	2	8	
07:15:00	7	3	0	0	10	0	4	0	0	4	0	4	0	0	4	18	
07:30:00	11	1	0	1	12	0	1	0	0	1	1	7	0	0	8	21	
07:45:00	15	2	0	0	17	2	1	0	0	3	0	4	0	0	4	24	71
08:00:00	14	1	0	0	15	0	1	0	0	1	3	8	0	0	11	27	90
08:15:00	4	3	0	0	7	1	2	0	0	3	2	3	0	0	5	15	87
08:30:00	13	0	0	1	13	0	4	0	0	4	0	6	0	0	6	23	89
08:45:00	9	0	0	0	9	1	4	0	0	5	0	7	0	0	7	21	86
09:00:00	14	0	0	0	14	2	5	0	0	7	1	17	0	0	18	39	98
09:15:00	4	0	0	0	4	2	4	0	0	6	2	8	0	0	10	20	103
09:30:00	9	0	0	0	9	0	2	0	0	2	0	6	0	0	6	17	97
09:45:00	15	1	0	1	16	0	2	0	0	2	2	6	0	0	8	26	102
BREAK																	
16:00:00	15	1	0	0	16	2	2	0	0	4	2	16	0	0	18	38	
16:15:00	16	0	0	1	16	0	0	0	0	0	3	16	0	0	19	35	
16:30:00	13	2	0	0	15	2	2	0	0	4	0	12	0	0	12	31	
16:45:00	11	1	0	0	12	2	0	0	0	2	5	16	0	0	21	35	139
17:00:00	9	0	0	0	9	0	2	1	2	3	2	12	0	0	14	26	127
17:15:00	6	0	0	0	6	0	1	0	2	1	1	12	0	0	13	20	112
17:30:00	4	1	0	0	5	0	2	0	0	2	0	17	0	0	17	24	105
17:45:00	8	1	0	0	9	0	1	0	0	1	4	11	0	0	15	25	95
18:00:00	4	0	0	0	4	2	1	0	0	3	2	6	0	0	8	15	84
18:15:00	5	1	0	0	6	0	1	0	0	1	1	7	0	0	8	15	79
18:30:00	8	0	1	0	9	0	4	0	0	4	3	9	0	0	12	25	80
18:45:00	11	0	0	0	11	0	2	0	0	2	1	10	0	2	11	24	79
Grand Total	231	18	1	4	250	16	48	1	4	65	35	222	0	2	257	**572**	-
Approach%	92.4%	7.2%	0.4%		-	24.6%	73.8%	1.5%		-	13.6%	86.4%	0%		-	**-**	-
Totals %	40.4%	3.1%	0.2%		43.7%	2.8%	8.4%	0.2%		11.4%	6.1%	38.8%	0%		44.9%	**-**	-
Heavy	11	0	0		-	0	0	0		-	1	9	0		-	**-**	-
Heavy %	4.8%	0%	0%		-	0%	0%	0%		-	2.9%	4.1%	0%		-	**-**	-
Bicycles	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-
Bicycle %	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-

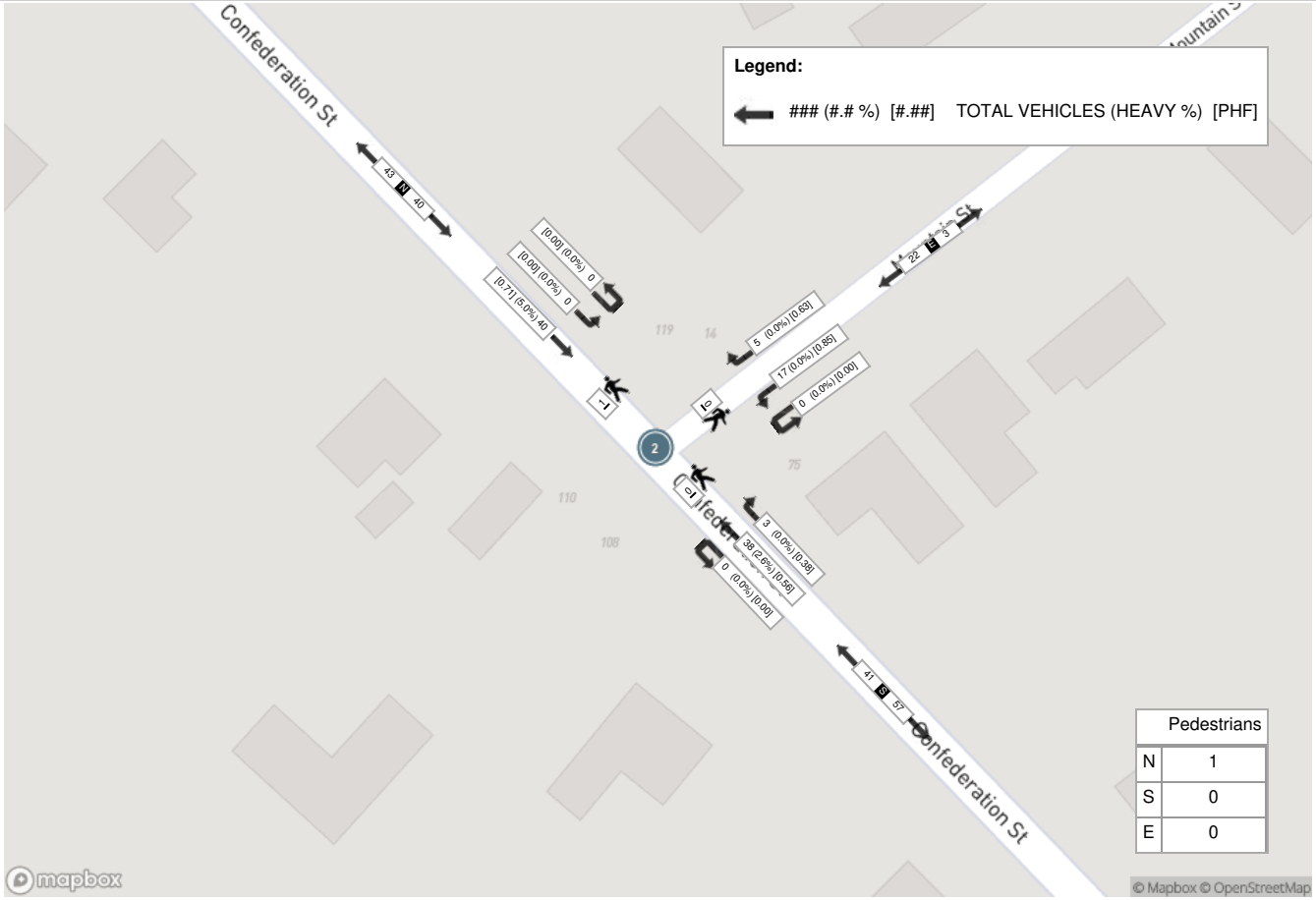
Peak Hour: 08:30 AM - 09:30 AM Weather:

Start Time	Southbound CONFEDERATION ST					Westbound MOUNTAIN ST					Northbound CONFEDERATION ST					Int. Total (15 min)
	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	
08:30:00	13	0	0	1	13	0	4	0	0	4	0	6	0	0	6	23
08:45:00	9	0	0	0	9	1	4	0	0	5	0	7	0	0	7	21
09:00:00	14	0	0	0	14	2	5	0	0	7	1	17	0	0	18	39
09:15:00	4	0	0	0	4	2	4	0	0	6	2	8	0	0	10	20
Grand Total	40	0	0	1	40	5	17	0	0	22	3	38	0	0	41	**103**
Approach%	100%	0%	0%		-	22.7%	77.3%	0%		-	7.3%	92.7%	0%		-	**-**
Totals %	38.8%	0%	0%		38.8%	4.9%	16.5%	0%		21.4%	2.9%	36.9%	0%		39.8%	**-**
PHF	0.71	0	0		0.71	0.63	0.85	0		0.79	0.38	0.56	0		0.57	**-**
Heavy	2	0	0		2	0	0	0		0	0	1	0		1	**-**
Heavy %	5%	0%	0%		5%	0%	0%	0%		0%	0%	2.6%	0%		2.4%	**-**
Lights	37	0	0		37	5	17	0		22	3	37	0		40	**-**
Lights %	92.5%	0%	0%		92.5%	100%	100%	0%		100%	100%	97.4%	0%		97.6%	**-**
Single-Unit Trucks	0	0	0		0	0	0	0		0	0	0	0		0	**-**
Single-Unit Trucks %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	**-**
Buses	2	0	0		2	0	0	0		0	0	1	0		1	**-**
Buses %	5%	0%	0%		5%	0%	0%	0%		0%	0%	2.6%	0%		2.4%	**-**
Bicycles on Road	1	0	0		1	0	0	0		0	0	0	0		0	**-**
Bicycles on Road %	2.5%	0%	0%		2.5%	0%	0%	0%		0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	100%		-	-	-	0%		-	-	-	0%		**-**

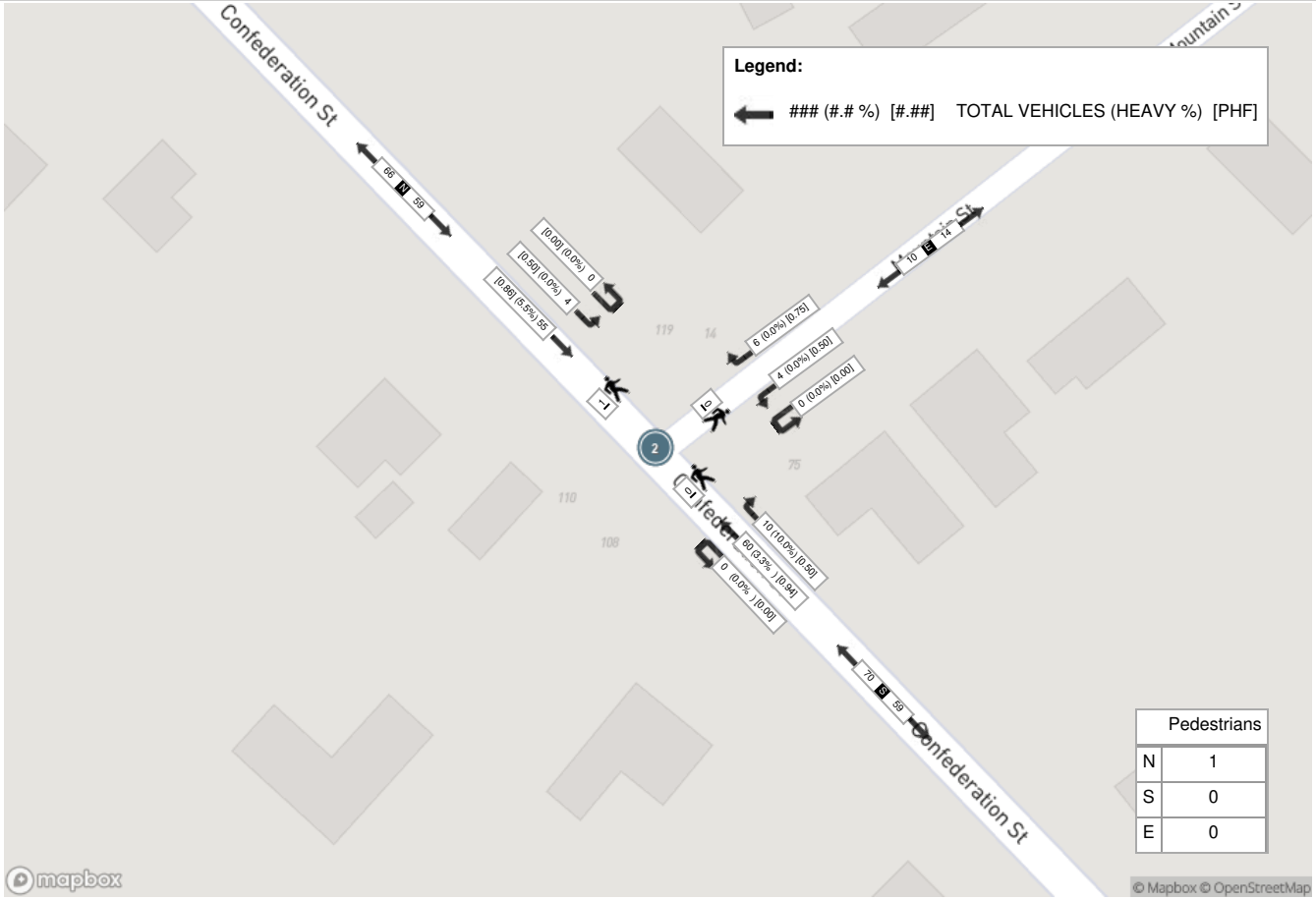
Peak Hour: 04:00 PM - 05:00 PM Weather: Overcast Clouds (2.34 °C)

Start Time	Southbound CONFEDERATION ST					Westbound MOUNTAIN ST					Northbound CONFEDERATION ST					Int. Total (15 min)
	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	
16:00:00	15	1	0	0	16	2	2	0	0	4	2	16	0	0	18	38
16:15:00	16	0	0	1	16	0	0	0	0	0	3	16	0	0	19	35
16:30:00	13	2	0	0	15	2	2	0	0	4	0	12	0	0	12	31
16:45:00	11	1	0	0	12	2	0	0	0	2	5	16	0	0	21	35
Grand Total	55	4	0	1	59	6	4	0	0	10	10	60	0	0	70	**139**
Approach%	93.2%	6.8%	0%		-	60%	40%	0%		-	14.3%	85.7%	0%		-	**-**
Totals %	39.6%	2.9%	0%		42.4%	4.3%	2.9%	0%		7.2%	7.2%	43.2%	0%		50.4%	**-**
PHF	0.86	0.5	0		0.92	0.75	0.5	0		0.63	0.5	0.94	0		0.83	**-**
Heavy	3	0	0		3	0	0	0		0	1	2	0		3	**-**
Heavy %	5.5%	0%	0%		5.1%	0%	0%	0%		0%	10%	3.3%	0%		4.3%	**-**
Lights	52	4	0		56	6	4	0		10	9	58	0		67	**-**
Lights %	94.5%	100%	0%		94.9%	100%	100%	0%		100%	90%	96.7%	0%		95.7%	**-**
Single-Unit Trucks	0	0	0		0	0	0	0		0	0	0	0		0	**-**
Single-Unit Trucks %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	**-**
Buses	3	0	0		3	0	0	0		0	1	2	0		3	**-**
Buses %	5.5%	0%	0%		5.1%	0%	0%	0%		0%	10%	3.3%	0%		4.3%	**-**
Bicycles on Road	0	0	0		0	0	0	0		0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	100%		-	-	-	0%		-	-	-	0%		**-**

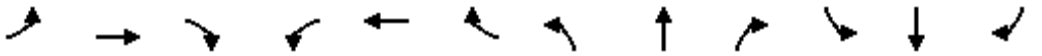
Peak Hour: 08:30 AM - 09:30 AM Weather:



Peak Hour: 04:00 PM - 05:00 PM Weather: Overcast Clouds (2.34 °C)

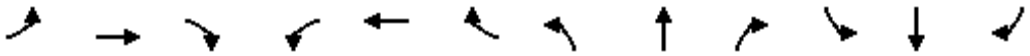


Appendix C – Existing Traffic Capacity Analysis Results



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	5	0	0	0	35	8	0	35	0
Future Volume (vph)	0	0	0	5	0	0	0	35	8	0	35	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt								0.975				
Flt Protected					0.950							
Satd. Flow (prot)	0	1900	0	0	1805	0	0	1808	0	0	1792	0
Flt Permitted					0.950							
Satd. Flow (perm)	0	1900	0	0	1805	0	0	1808	0	0	1792	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		82.0			126.3			205.0			155.5	
Travel Time (s)		5.9			9.1			14.8			11.2	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	6%	0%
Adj. Flow (vph)	0	0	0	8	0	0	0	54	12	0	54	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	8	0	0	66	0	0	54	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.7%		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)	0	0	0	5	0	0	0	35	8	0	35	0
Future Volume (Veh/h)	0	0	0	5	0	0	0	35	8	0	35	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	0	0	0	8	0	0	0	54	12	0	54	0
Pedestrians		1										
Lane Width (m)		3.6										
Walking Speed (m/s)		1.2										
Percent Blockage		0										
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	115	121	55	114	115	60	55			66		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	115	121	55	114	115	60	55			66		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	100	100			100		
cM capacity (veh/h)	865	772	1017	867	778	1011	1562			1549		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	8	66	54
Volume Left	0	8	0	0
Volume Right	0	0	12	0
cSH	1700	867	1562	1549
Volume to Capacity	0.00	0.01	0.00	0.00
Queue Length 95th (m)	0.0	0.2	0.0	0.0
Control Delay (s)	0.0	9.2	0.0	0.0
Lane LOS	A	A		
Approach Delay (s)	0.0	9.2	0.0	0.0
Approach LOS	A	A		

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	13.7%	ICU Level of Service	A	
Analysis Period (min)	15			

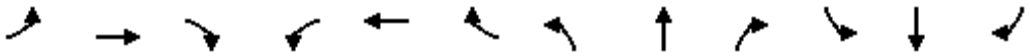
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	17	5	38	3	0	40
Future Volume (vph)	17	5	38	3	0	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.968		0.989			
Flt Protected	0.963					
Satd. Flow (prot)	1771	0	1829	0	0	1810
Flt Permitted	0.963					
Satd. Flow (perm)	1771	0	1829	0	0	1810
Link Speed (k/h)	50		50			50
Link Distance (m)	316.3		426.5			205.0
Travel Time (s)	22.8		30.7			14.8
Confl. Peds. (#/hr)		1				
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles (%)	0%	0%	3%	0%	0%	5%
Adj. Flow (vph)	26	8	58	5	0	61
Shared Lane Traffic (%)						
Lane Group Flow (vph)	34	0	63	0	0	61
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.7%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	17	5	38	3	0	40
Future Volume (Veh/h)	17	5	38	3	0	40
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Hourly flow rate (vph)	26	8	58	5	0	61
Pedestrians						1
Lane Width (m)						3.6
Walking Speed (m/s)						1.2
Percent Blockage						0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	122	62			63	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	122	62			63	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	99			100	
cM capacity (veh/h)	879	1008			1553	

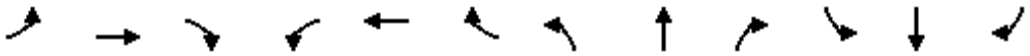
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	34	63	61
Volume Left	26	0	0
Volume Right	8	5	0
cSH	906	1700	1553
Volume to Capacity	0.04	0.04	0.00
Queue Length 95th (m)	0.9	0.0	0.0
Control Delay (s)	9.1	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.1	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	13.7%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	151	40	111	61	3	25	18	101	6	33	12
Future Volume (vph)	5	151	40	111	61	3	25	18	101	6	33	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.973			0.997			0.905			0.968	
Flt Protected		0.999			0.969			0.991			0.994	
Satd. Flow (prot)	0	1813	0	0	1750	0	0	1624	0	0	1694	0
Flt Permitted		0.999			0.969			0.991			0.994	
Satd. Flow (perm)	0	1813	0	0	1750	0	0	1624	0	0	1694	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		424.2			427.0			733.3			426.5	
Travel Time (s)		30.5			30.7			52.8			30.7	
Confl. Peds. (#/hr)	7					7	6					6
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	20%	1%	3%	5%	5%	0%	4%	6%	5%	17%	3%	17%
Adj. Flow (vph)	6	186	49	137	75	4	31	22	125	7	41	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	241	0	0	216	0	0	178	0	0	63	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.0%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	5	151	40	111	61	3	25	18	101	6	33	12
Future Volume (vph)	5	151	40	111	61	3	25	18	101	6	33	12
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	6	186	49	137	75	4	31	22	125	7	41	15

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	241	216	178	63
Volume Left (vph)	6	137	31	7
Volume Right (vph)	49	4	125	15
Hadj (s)	-0.09	0.20	-0.30	0.01
Departure Headway (s)	4.7	5.0	4.8	5.3
Degree Utilization, x	0.32	0.30	0.24	0.09
Capacity (veh/h)	714	674	682	600
Control Delay (s)	9.9	10.2	9.3	8.9
Approach Delay (s)	9.9	10.2	9.3	8.9
Approach LOS	A	B	A	A

Intersection Summary				
Delay	9.8			
Level of Service	A			
Intersection Capacity Utilization	44.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	35	0	0	35
Future Volume (vph)	0	0	35	0	0	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1900	0	0	1900	0	1900
Flt Permitted						
Satd. Flow (perm)	1900	0	0	1900	0	1900
Link Speed (k/h)	50		50			50
Link Distance (m)	125.0		155.5			647.7
Travel Time (s)	9.0		11.2			46.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	38	0	0	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	38	0	0	38
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

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

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	35	0	0	35
Future Volume (Veh/h)	0	0	35	0	0	35
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	38	0	0	38
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	76	38			38	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	76	38			38	
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)	932	1040			1585	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	38	38
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1585
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		

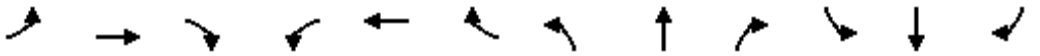
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	10
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	151	40	111	61	3	25	18	101	6	33	12
Future Vol, veh/h	5	151	40	111	61	3	25	18	101	6	33	12
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	20	1	3	5	5	0	4	6	5	17	3	17
Mvmt Flow	6	186	49	137	75	4	31	22	125	7	41	15
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

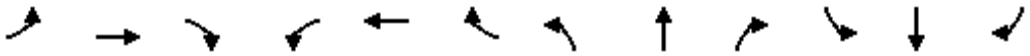
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.6	10.2	9.4	9.1
HCM LOS	B	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	17%	3%	63%	12%
Vol Thru, %	13%	77%	35%	65%
Vol Right, %	70%	20%	2%	24%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	144	196	175	51
LT Vol	25	5	111	6
Through Vol	18	151	61	33
RT Vol	101	40	3	12
Lane Flow Rate	178	242	216	63
Geometry Grp	1	1	1	1
Degree of Util (X)	0.237	0.335	0.3	0.095
Departure Headway (Hd)	4.796	4.99	5.002	5.445
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	741	716	713	651
Service Time	2.868	3.06	3.073	3.535
HCM Lane V/C Ratio	0.24	0.338	0.303	0.097
HCM Control Delay	9.4	10.6	10.2	9.1
HCM Lane LOS	A	B	B	A
HCM 95th-tile Q	0.9	1.5	1.3	0.3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	10	0	0	0	52	11	1	47	0
Future Volume (vph)	0	0	0	10	0	0	0	52	11	1	47	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt								0.976				
Flt Protected					0.950						0.999	
Satd. Flow (prot)	0	1900	0	0	1805	0	0	1795	0	0	1792	0
Flt Permitted					0.950						0.999	
Satd. Flow (perm)	0	1900	0	0	1805	0	0	1795	0	0	1792	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		82.0			126.3			205.0			155.5	
Travel Time (s)		5.9			9.1			14.8			11.2	
Confl. Peds. (#/hr)	1					1	4		1	1		4
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	6%	0%
Adj. Flow (vph)	0	0	0	12	0	0	0	60	13	1	55	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	12	0	0	73	0	0	56	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

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



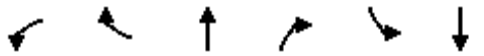
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	10	0	0	0	52	11	1	47	0
Future Volume (Veh/h)	0	0	0	10	0	0	0	52	11	1	47	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	0	0	0	12	0	0	0	60	13	1	55	0
Pedestrians		4			1						1	
Lane Width (m)		3.6			3.6						3.6	
Walking Speed (m/s)		1.2			1.2						1.2	
Percent Blockage		0			0						0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	128	135	59	124	128	68	59			74		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	128	135	59	124	128	68	59			74		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	100	100			100		
cM capacity (veh/h)	843	756	1009	850	762	999	1553			1537		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	12	73	56
Volume Left	0	12	0	1
Volume Right	0	0	13	0
cSH	1700	850	1553	1537
Volume to Capacity	0.00	0.01	0.00	0.00
Queue Length 95th (m)	0.0	0.3	0.0	0.0
Control Delay (s)	0.0	9.3	0.0	0.1
Lane LOS	A	A		A
Approach Delay (s)	0.0	9.3	0.0	0.1
Approach LOS	A	A		

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	14.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	6	60	10	4	55
Future Volume (vph)	4	6	60	10	4	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.914		0.981			
Flt Protected	0.982					0.997
Satd. Flow (prot)	1705	0	1792	0	0	1809
Flt Permitted	0.982					0.997
Satd. Flow (perm)	1705	0	1792	0	0	1809
Link Speed (k/h)	50		50			50
Link Distance (m)	316.3		426.5			205.0
Travel Time (s)	22.8		30.7			14.8
Confl. Peds. (#/hr)		1				
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	3%	10%	0%	5%
Adj. Flow (vph)	4	7	66	11	4	60
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	0	77	0	0	64
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

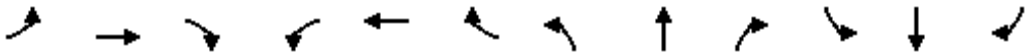
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 16.5%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	6	60	10	4	55
Future Volume (Veh/h)	4	6	60	10	4	55
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	4	7	66	11	4	60
Pedestrians						1
Lane Width (m)						3.6
Walking Speed (m/s)						1.2
Percent Blockage						0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	140	72			77	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	140	72			77	
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	99			100	
cM capacity (veh/h)	856	994			1535	

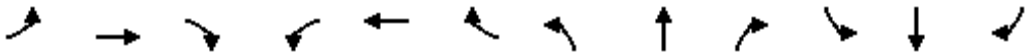
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	11	77	64
Volume Left	4	0	4
Volume Right	7	11	0
cSH	939	1700	1535
Volume to Capacity	0.01	0.05	0.00
Queue Length 95th (m)	0.3	0.0	0.1
Control Delay (s)	8.9	0.0	0.5
Lane LOS	A		A
Approach Delay (s)	8.9	0.0	0.5
Approach LOS	A		

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	16.5%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	75	43	129	138	6	55	53	90	3	39	17
Future Volume (vph)	13	75	43	129	138	6	55	53	90	3	39	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.956			0.997			0.939			0.961	
Flt Protected		0.995			0.977			0.986			0.998	
Satd. Flow (prot)	0	1740	0	0	1826	0	0	1734	0	0	1735	0
Flt Permitted		0.995			0.977			0.986			0.998	
Satd. Flow (perm)	0	1740	0	0	1826	0	0	1734	0	0	1735	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		424.2			427.0			733.3			426.5	
Travel Time (s)		30.5			30.7			52.8			30.7	
Confl. Peds. (#/hr)	9					9	9					9
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	15%	3%	2%	1%	1%	17%	2%	0%	2%	33%	0%	12%
Adj. Flow (vph)	14	81	46	139	148	6	59	57	97	3	42	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	141	0	0	293	0	0	213	0	0	63	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 46.1%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	13	75	43	129	138	6	55	53	90	3	39	17
Future Volume (vph)	13	75	43	129	138	6	55	53	90	3	39	17
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	14	81	46	139	148	6	59	57	97	3	42	18

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	141	293	213	63
Volume Left (vph)	14	139	59	3
Volume Right (vph)	46	6	97	18
Hadj (s)	-0.11	0.11	-0.19	-0.08
Departure Headway (s)	4.9	4.9	4.9	5.2
Degree Utilization, x	0.19	0.40	0.29	0.09
Capacity (veh/h)	673	695	680	610
Control Delay (s)	9.1	11.1	9.9	8.8
Approach Delay (s)	9.1	11.1	9.9	8.8
Approach LOS	A	B	A	A

Intersection Summary				
Delay	10.1			
Level of Service	B			
Intersection Capacity Utilization	46.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	52	0	0	48
Future Volume (vph)	0	0	52	0	0	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1900	0	0	1900	0	1900
Flt Permitted						
Satd. Flow (perm)	1900	0	0	1900	0	1900
Link Speed (k/h)	50		50			50
Link Distance (m)	125.0		155.5			647.7
Travel Time (s)	9.0		11.2			46.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	57	0	0	52
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	57	0	0	52
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

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

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	52	0	0	48
Future Volume (Veh/h)	0	0	52	0	0	48
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	57	0	0	52
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	109	57			57	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	109	57			57	
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)	893	1015			1560	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	57	52
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1560
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	Err%	ICU Level of Service	H
Analysis Period (min)	15		

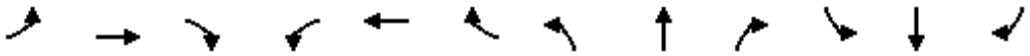
Intersection	
Intersection Delay, s/veh	10.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	75	43	129	138	6	55	53	90	3	39	17
Future Vol, veh/h	13	75	43	129	138	6	55	53	90	3	39	17
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	15	3	2	1	1	17	2	0	2	33	0	12
Mvmt Flow	14	81	46	139	148	6	59	57	97	3	42	18
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.4	11.2	9.9	9.4
HCM LOS	A	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	28%	10%	47%	5%
Vol Thru, %	27%	57%	51%	66%
Vol Right, %	45%	33%	2%	29%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	198	131	273	59
LT Vol	55	13	129	3
Through Vol	53	75	138	39
RT Vol	90	43	6	17
Lane Flow Rate	213	141	294	63
Geometry Grp	1	1	1	1
Degree of Util (X)	0.288	0.197	0.397	0.1
Departure Headway (Hd)	4.866	5.044	4.872	5.654
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	732	704	734	627
Service Time	2.942	3.128	2.943	3.75
HCM Lane V/C Ratio	0.291	0.2	0.401	0.1
HCM Control Delay	9.9	9.4	11.2	9.4
HCM Lane LOS	A	A	B	A
HCM 95th-tile Q	1.2	0.7	1.9	0.3

Appendix D – 2029 Future Background Capacity Analysis Results



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	5	0	0	0	39	8	0	39	0
Future Volume (Veh/h)	0	0	0	5	0	0	0	39	8	0	39	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	0	0	0	8	0	0	0	60	12	0	60	0
Pedestrians		1										
Lane Width (m)		3.6										
Walking Speed (m/s)		1.2										
Percent Blockage		0										
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	127	133	61	126	127	66	61			72		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	127	133	61	126	127	66	61			72		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	100	100			100		
cM capacity (veh/h)	850	761	1009	852	767	1003	1554			1541		

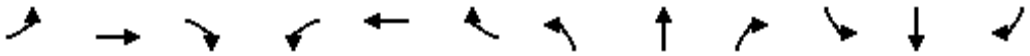
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	8	72	60
Volume Left	0	8	0	0
Volume Right	0	0	12	0
cSH	1700	852	1554	1541
Volume to Capacity	0.00	0.01	0.00	0.00
Queue Length 95th (m)	0.0	0.2	0.0	0.0
Control Delay (s)	0.0	9.3	0.0	0.0
Lane LOS	A	A		
Approach Delay (s)	0.0	9.3	0.0	0.0
Approach LOS	A	A		

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	13.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	17	5	42	3	0	44
Future Volume (Veh/h)	17	5	42	3	0	44
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Hourly flow rate (vph)	26	8	64	5	0	67
Pedestrians						1
Lane Width (m)						3.6
Walking Speed (m/s)						1.2
Percent Blockage						0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	134	68			69	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	134	68			69	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	99			100	
cM capacity (veh/h)	865	1001			1545	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	34	69	67
Volume Left	26	0	0
Volume Right	8	5	0
cSH	894	1700	1545
Volume to Capacity	0.04	0.04	0.00
Queue Length 95th (m)	0.9	0.0	0.0
Control Delay (s)	9.2	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.2	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	13.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	6	167	44	123	67	3	28	20	112	7	36	13
Future Volume (vph)	6	167	44	123	67	3	28	20	112	7	36	13
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	7	206	54	152	83	4	35	25	138	9	44	16

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	267	239	198	69
Volume Left (vph)	7	152	35	9
Volume Right (vph)	54	4	138	16
Hadj (s)	-0.08	0.20	-0.30	0.02
Departure Headway (s)	4.9	5.2	5.0	5.6
Degree Utilization, x	0.36	0.34	0.28	0.11
Capacity (veh/h)	693	653	648	568
Control Delay (s)	10.6	10.9	9.9	9.2
Approach Delay (s)	10.6	10.9	9.9	9.2
Approach LOS	B	B	A	A

Intersection Summary				
Delay	10.4			
Level of Service	B			
Intersection Capacity Utilization	47.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	39	0	0	39
Future Volume (Veh/h)	0	0	39	0	0	39
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	42	0	0	42
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	84	42			42	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	84	42			42	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	923	1034			1580	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	42	42
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1580
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		

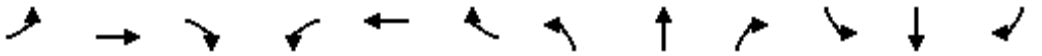
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	10.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	167	44	123	67	3	28	20	112	7	36	13
Future Vol, veh/h	6	167	44	123	67	3	28	20	112	7	36	13
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	20	1	3	5	5	0	4	6	5	17	3	17
Mvmt Flow	7	206	54	152	83	4	35	25	138	9	44	16
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

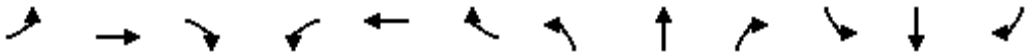
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	11.4	10.9	9.9	9.5
HCM LOS	B	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	17%	3%	64%	12%
Vol Thru, %	13%	77%	35%	64%
Vol Right, %	70%	20%	2%	23%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	160	217	193	56
LT Vol	28	6	123	7
Through Vol	20	167	67	36
RT Vol	112	44	3	13
Lane Flow Rate	198	268	238	69
Geometry Grp	1	1	1	1
Degree of Util (X)	0.271	0.38	0.339	0.11
Departure Headway (Hd)	4.941	5.104	5.123	5.742
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	717	697	693	628
Service Time	3.039	3.201	3.222	3.742
HCM Lane V/C Ratio	0.276	0.385	0.343	0.11
HCM Control Delay	9.9	11.4	10.9	9.5
HCM Lane LOS	A	B	B	A
HCM 95th-tile Q	1.1	1.8	1.5	0.4



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	10	0	0	0	57	11	1	52	0
Future Volume (vph)	0	0	0	10	0	0	0	57	11	1	52	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt								0.978				
Flt Protected					0.950						0.999	
Satd. Flow (prot)	0	1900	0	0	1805	0	0	1798	0	0	1792	0
Flt Permitted					0.950						0.999	
Satd. Flow (perm)	0	1900	0	0	1805	0	0	1798	0	0	1792	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		82.0			126.3			205.0			155.5	
Travel Time (s)		5.9			9.1			14.8			11.2	
Confl. Peds. (#/hr)	1					1	4		1	1		4
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	6%	0%
Adj. Flow (vph)	0	0	0	12	0	0	0	66	13	1	60	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	12	0	0	79	0	0	61	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 15.1%		ICU Level of Service A	
Analysis Period (min) 15			



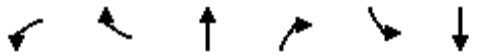
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	10	0	0	0	57	11	1	52	0
Future Volume (Veh/h)	0	0	0	10	0	0	0	57	11	1	52	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	0	0	0	12	0	0	0	66	13	1	60	0
Pedestrians		4			1						1	
Lane Width (m)		3.6			3.6						3.6	
Walking Speed (m/s)		1.2			1.2						1.2	
Percent Blockage		0			0						0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	140	146	64	136	140	74	64			80		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	140	146	64	136	140	74	64			80		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	100	100			100		
cM capacity (veh/h)	829	745	1003	837	752	991	1546			1529		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	12	79	61
Volume Left	0	12	0	1
Volume Right	0	0	13	0
cSH	1700	837	1546	1529
Volume to Capacity	0.00	0.01	0.00	0.00
Queue Length 95th (m)	0.0	0.3	0.0	0.0
Control Delay (s)	0.0	9.4	0.0	0.1
Lane LOS	A	A		A
Approach Delay (s)	0.0	9.4	0.0	0.1
Approach LOS	A	A		

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	15.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	6	66	10	4	61
Future Volume (vph)	4	6	66	10	4	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.914		0.982			
Flt Protected	0.982					0.997
Satd. Flow (prot)	1705	0	1795	0	0	1809
Flt Permitted	0.982					0.997
Satd. Flow (perm)	1705	0	1795	0	0	1809
Link Speed (k/h)	50		50			50
Link Distance (m)	316.3		426.5			205.0
Travel Time (s)	22.8		30.7			14.8
Confl. Peds. (#/hr)		1				
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	3%	10%	0%	5%
Adj. Flow (vph)	4	7	73	11	4	67
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	0	84	0	0	71
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

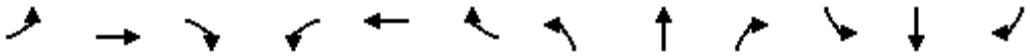
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 16.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	6	66	10	4	61
Future Volume (Veh/h)	4	6	66	10	4	61
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	4	7	73	11	4	67
Pedestrians						1
Lane Width (m)						3.6
Walking Speed (m/s)						1.2
Percent Blockage						0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	154	80			84	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	154	80			84	
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	99			100	
cM capacity (veh/h)	841	986			1526	

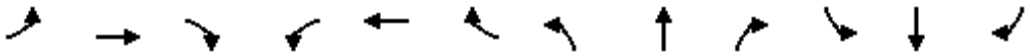
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	11	84	71
Volume Left	4	0	4
Volume Right	7	11	0
cSH	927	1700	1526
Volume to Capacity	0.01	0.05	0.00
Queue Length 95th (m)	0.3	0.0	0.1
Control Delay (s)	8.9	0.0	0.4
Lane LOS	A		A
Approach Delay (s)	8.9	0.0	0.4
Approach LOS	A		

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	16.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	83	47	142	152	7	61	59	99	3	43	19
Future Volume (vph)	14	83	47	142	152	7	61	59	99	3	43	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.956			0.997			0.939			0.961	
Flt Protected		0.995			0.977			0.986			0.998	
Satd. Flow (prot)	0	1741	0	0	1825	0	0	1734	0	0	1737	0
Flt Permitted		0.995			0.977			0.986			0.998	
Satd. Flow (perm)	0	1741	0	0	1825	0	0	1734	0	0	1737	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		424.2			427.0			733.3			426.5	
Travel Time (s)		30.5			30.7			52.8			30.7	
Confl. Peds. (#/hr)	9					9	9					9
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	15%	3%	2%	1%	1%	17%	2%	0%	2%	33%	0%	12%
Adj. Flow (vph)	15	89	51	153	163	8	66	63	106	3	46	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	155	0	0	324	0	0	235	0	0	69	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.5%		ICU Level of Service A	
Analysis Period (min) 15			



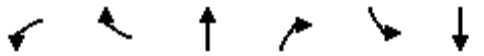
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	14	83	47	142	152	7	61	59	99	3	43	19
Future Volume (vph)	14	83	47	142	152	7	61	59	99	3	43	19
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	15	89	51	153	163	8	66	63	106	3	46	20

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	155	324	235	69
Volume Left (vph)	15	153	66	3
Volume Right (vph)	51	8	106	20
Hadj (s)	-0.11	0.10	-0.19	-0.08
Departure Headway (s)	5.1	5.1	5.1	5.5
Degree Utilization, x	0.22	0.45	0.33	0.10
Capacity (veh/h)	649	678	648	580
Control Delay (s)	9.5	12.2	10.6	9.1
Approach Delay (s)	9.5	12.2	10.6	9.1
Approach LOS	A	B	B	A

Intersection Summary				
Delay	10.9			
Level of Service	B			
Intersection Capacity Utilization	53.5%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	57	0	0	53
Future Volume (vph)	0	0	57	0	0	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1900	0	0	1900	0	1900
Flt Permitted						
Satd. Flow (perm)	1900	0	0	1900	0	1900
Link Speed (k/h)	50		50			50
Link Distance (m)	125.0		155.5			647.7
Travel Time (s)	9.0		11.2			46.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	62	0	0	58
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	62	0	0	58
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

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



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	57	0	0	53
Future Volume (Veh/h)	0	0	57	0	0	53
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	62	0	0	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	120	62			62	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	120	62			62	
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)	880	1009			1554	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	62	58
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1554
Volume to Capacity	0.00	0.04	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	Err%	ICU Level of Service	H
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	11.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	83	47	142	152	7	61	59	99	3	43	19
Future Vol, veh/h	14	83	47	142	152	7	61	59	99	3	43	19
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	15	3	2	1	1	17	2	0	2	33	0	12
Mvmt Flow	15	89	51	153	163	8	66	63	106	3	46	20
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.9	12.3	10.7	9.8
HCM LOS	A	B	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	28%	10%	47%	5%
Vol Thru, %	27%	58%	50%	66%
Vol Right, %	45%	33%	2%	29%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	219	144	301	65
LT Vol	61	14	142	3
Through Vol	59	83	152	43
RT Vol	99	47	7	19
Lane Flow Rate	235	155	324	70
Geometry Grp	1	1	1	1
Degree of Util (X)	0.334	0.228	0.457	0.115
Departure Headway (Hd)	5.112	5.291	5.081	5.947
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	706	680	712	602
Service Time	3.128	3.32	3.095	3.983
HCM Lane V/C Ratio	0.333	0.228	0.455	0.116
HCM Control Delay	10.7	9.9	12.3	9.8
HCM Lane LOS	B	A	B	A
HCM 95th-tile Q	1.5	0.9	2.4	0.4

Appendix E – 2016 TTS Trip Distribution Data

Street	Direction	AM		PM	
		IN	OUT	IN	OUT
Confederation Stree	NB	63%	0%	60%	8%
	SB	1%	67%	4%	58%
Wildwood/Main St	EB	20%	0%	23%	0%
	WB	0%	19%	0%	16%
Mountain Street	EB	0%	14%	0%	19%
	WB	16%	0%	13%	0%
		100%	100%	100%	100%

AM inbound

Mon Jan 15 2024 14:51:59 GMT-0500 (Eastern Standard Time) - Run Time: 2904ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of origin - pd_orig
Column: 2006 GTA zone of destination - gta06_dest

RowG:
ColG:(4164 4195)
TblG:

Filters:
Start time of trip - start_time In 700-1000
and
Trip purpose - trip_ 2 3
and
Primary travel mod M P T U
and
Planning district of origin - pd_orig Not In 37
and
2006 GTA zone of 4195

TAZ/PD	Trips	Dist %	Via
PD 1 of Toronto	8	1%	Confederation NB
PD 3 of Toronto	13	1%	Confederation NB
PD 4 of Toronto	28	3%	Confederation NB
PD 8 of Toronto	20	2%	Confederation NB
Caledon	62	6%	Mountain WB
Brampton	107	10%	Mountain WB
Mississauga	76	7%	Confederation NB
Milton	29	3%	Main St EB
Oakville	56	5%	Confederation NB
City of Guelph	17	2%	Main St EB
Guelph/Eramosa	37	3%	Main St EB
Erin	8	1%	Confederation SB
4149	35	3%	Main St EB
4158	36	3%	Confederation NB
4159	8	1%	Confederation NB
4160	68	6%	Confederation NB
4162	113	11%	Confederation NB
4163	84	8%	Main St EB
4164	200	19%	Confederation NB
4166	5	0%	Confederation NB
4172	9	1%	Main St EB
4174	7	1%	Confederation SB
4193	8	1%	Confederation NB
4194	41	4%	Confederation NB
Total	**1075**	**100%**	

Mon Jan 15 2024 15:05:12 GMT-0500 (Eastern Standard Time) - Run Time: 2593ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of origin - gta06_orig
Column: 2006 GTA zone of destination - gta06_dest

RowG:
ColG:(4164 4195)
TblG:

Filters:
Start time of trip - start_time In 700-1000
and
Trip purpose - trip_ 2 3
and
Primary travel mod M P T U
and
Planning district of origin - pd_orig In 37
and
2006 GTA zone of 4195

Row Labels	Sum of Dist %
Confederation NB	63%
Confederation SB	1%
Main St EB	20%
Mountain WB	16%
Grand Total	**1**

AM outbound

Mon Jan 15 2024 14:58:41 GMT-0500 (Eastern Standard Time) - Run Time: 3111ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of destination - pd_dest
Column: 2006 GTA zone of origin - gta06_orig

RowG:
ColG:(4164 4195)
TblG:

Filters:
Start time of trip - start_time In 700-1000
and
Trip purpos 2 3
and
Primary tra M P T U
and
Planning district of destination - pd_dest Not In 37
and
2006 GTA 4195

TAZ/PD	Trips	Dist %	Via
PD 1 of Toronto	139	5%	Confederation SB
PD 2 of Toronto	15	1%	Confederation SB
PD 3 of Toronto	25	1%	Confederation SB
PD 8 of Toronto	60	2%	Confederation SB
PD 9 of Toronto	34	1%	Confederation SB
PD 10 of Toronto	19	1%	Confederation SB
Pickering	13	0%	Confederation SB
Ajax	15	1%	Confederation SB
Markham	3	0%	Confederation SB
Caledon	152	6%	Mountain EB
Brampton	197	7%	Mountain EB
Mississauga	396	14%	Confederation SB
Milton	126	5%	Main St WB
Oakville	77	3%	Confederation SB
Burlington	112	4%	Confederation SB
Kitchener	8	0%	Main St WB
Orangeville	25	1%	Mountain EB
Mono	12	0%	Mountain EB
4157	8	0%	Confederation SB
4158	26	1%	Confederation SB
4159	19	1%	Confederation SB
4160	95	3%	Confederation SB
4162	415	15%	Confederation SB
4163	331	12%	Main St WB
4164	200	7%	Confederation SB
4166	20	1%	Main St WB
4177	9	0%	Main St WB
4193	16	1%	Confederation SB
4194	154	6%	Confederation SB
4197	38	1%	Main St WB
Total	**2759**	**100%**	

Mon Jan 15 2024 15:06:55 GMT-0500 (Eastern Standard Time) - Run Time: 2580ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of destination - gta06_dest
Column: 2006 GTA zone of origin - gta06_orig

RowG:
ColG:(4164 4195)
TblG:

Filters:
Start time of trip - start_time In 700-1000
and
Trip purpos 2 3
and
Primary tra M P T U
and
Planning district of destination - pd_dest In 37
and
2006 GTA 4195

Row Labels	Sum of Dist %
Confederation SB	67%
Main St WB	19%
Mountain EB	14%
Grand Total	**1**

PM inbound

Mon Jan 15 2024 15:08:51 GMT-0500 (Eastern Standard Time) - Run Time: 2573ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of origin - pd_orig
Column: 2006 GTA zone of destination - gta06_dest

RowG:
ColG:(416‹ 4195)
TblG:

Filters:
Start time of trip - start_time In 1600-1900
and
Trip purpo‹ 2 3
and
Primary tra‹ M P T U
and
Planning district of origin - pd_orig Not In 37
and
2006 GTA 4195

TAZ/PD	Trips	Dist %	Via
PD 1 of Toronto	237	7%	Confederation NB
PD 2 of Toronto	15	0%	Confederation NB
PD 7 of Toronto	12	0%	Confederation NB
PD 8 of Toronto	60	2%	Confederation NB
PD 9 of Toronto	42	1%	Confederation NB
Ajax	15	0%	Confederation NB
Markham	12	0%	Confederation NB
Caledon	79	2%	Mountain WB
Brampton	254	7%	Mountain WB
Mississauga	368	11%	Confederation NB
Milton	88	3%	Main St EB
Oakville	82	2%	Main St EB
Burlington	112	3%	Main St EB
Niagara-on-the-Lake	33	1%	Main St EB
City of Guelph	29	1%	Main St EB
Erin	62	2%	Confederation SB
Orangeville	25	1%	Mountain WB
Essa	71	2%	Mountain WB
4157	8	0%	Confederation NB
4159	99	3%	Confederation NB
4160	127	4%	Confederation NB
4162	491	14%	Confederation NB
4163	258	8%	Main St EB
4164	85	3%	Confederation NB
4166	33	1%	Main St EB
4168	19	1%	Main St EB
4174	90	3%	Confederation SB
4176	41	1%	Main St EB
4177	48	1%	Main St EB
4193	82	2%	Confederation NB
4194	382	11%	Confederation NB
4197	38	1%	Main St EB
Total	**3397**	**100%**	

Mon Jan 15 2024 15:09:59 GMT-0500 (Eastern Standard Time) - Run Time: 2643ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: 2006 GTA zone of origin - gta06_orig
Column: 2006 GTA zone of destination - gta06_dest

RowG:
ColG:(416‹ 4195)
TblG:

Filters:
Start time of trip - start_time In 1600-1900
and
Trip purpo‹ 2 3
and
Primary tra‹ M P T U
and
Planning district of origin - pd_orig In 37
and
2006 GTA 4195

Row Labels	Sum of Dist %
Confederation NB	60%
Confederation SB	4%
Main St EB	23%
Mountain WB	13%
Grand Total	**1**

PM outbound

Mon Jan 15 2024 15:10:56 GMT-0500 (Eastern Standard Time) - Run Time: 2467ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of destination - pd_dest
Column: 2006 GTA zone of origin - gta06_orig

RowG:
ColG:(416‹ 4195)
TblG:

Filters:
Start time of trip - start_time In 1600-1900
and
Trip purpo‹ 2 3
and
Primary tra‹ M P T U
and
Planning district of destination - pd_dest Not In 37
and
2006 GTA 4195

TAZ/PD	Trips	Dist %	Via
PD 1 of Toronto	8	0%	Confederation SB
PD 4 of Toronto	28	1%	Confederation SB
PD 7 of Toronto	12	1%	Confederation SB
Vaughan	20	1%	Confederation SB
Caledon	271	11%	Mountain EB
Brampton	146	6%	Mountain EB
Mississauga	124	5%	Confederation SB
Milton	32	1%	Main St WB
Oakville	64	3%	Confederation SB
Burlington	13	1%	Confederation SB
Kitchener	22	1%	Main St WB
City of Guelph	17	1%	Main St WB
Guelph/Eramosa	37	2%	Main St WB
Erin	78	3%	Confederation NB
4149	35	1%	Main St WB
4152	25	1%	Confederation SB
4158	22	1%	Main St WB
4160	272	11%	Confederation SB
4161	29	1%	Confederation SB
4162	333	14%	Confederation SB
4163	53	2%	Main St WB
4164	85	4%	Confederation SB
4165	29	1%	Mountain EB
4166	46	2%	Main St WB
4168	19	1%	Main St WB
4172	8	0%	Main St WB
4174	103	4%	Confederation NB
4176	41	2%	Main St WB
4177	39	2%	Main St WB
4193	32	1%	Confederation SB
4194	350	15%	Confederation SB
Total	**2393**	**100%**	

Mon Jan 15 2024 15:11:33 GMT-0500 (Eastern Standard Time) - Run Time: 2504ms

Cross Tabulation Query Form - Trip - 2016 v1.1

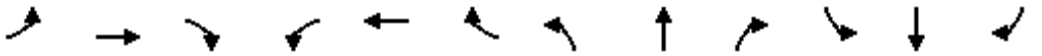
Row: 2006 GTA zone of destination - gta06_dest
Column: 2006 GTA zone of origin - gta06_orig

RowG:
ColG:(416‹ 4195)
TblG:

Filters:
Start time of trip - start_time In 1600-1900
and
Trip purpo‹ 2 3
and
Primary tra‹ M P T U
and
Planning district of destination - pd_dest In 37
and
2006 GTA 4195

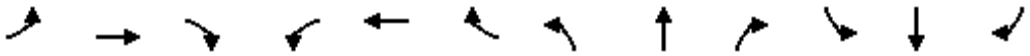
Row Labels	Sum of Dist %
Confederation NB	8%
Confederation SB	58%
Main St WB	16%
Mountain EB	19%
Grand Total	**1**

Appendix F – 2029 Future Total Capacity Analysis Results



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	5	0	0	0	50	8	0	67	0
Future Volume (vph)	0	0	0	5	0	0	0	50	8	0	67	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt								0.982				
Flt Protected					0.950							
Satd. Flow (prot)	0	1900	0	0	1805	0	0	1819	0	0	1792	0
Flt Permitted					0.950							
Satd. Flow (perm)	0	1900	0	0	1805	0	0	1819	0	0	1792	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		82.0			126.3			205.0			155.5	
Travel Time (s)		5.9			9.1			14.8			11.2	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	6%	0%
Adj. Flow (vph)	0	0	0	8	0	0	0	77	12	0	103	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	8	0	0	89	0	0	103	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.8%		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)	0	0	0	5	0	0	0	50	8	0	67	0
Future Volume (Veh/h)	0	0	0	5	0	0	0	50	8	0	67	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Hourly flow rate (vph)	0	0	0	8	0	0	0	77	12	0	103	0
Pedestrians		1										
Lane Width (m)		3.6										
Walking Speed (m/s)		1.2										
Percent Blockage		0										
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	187	193	104	186	187	83	104			89		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	187	193	104	186	187	83	104			89		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	100	100			100		
cM capacity (veh/h)	777	705	955	779	711	982	1499			1519		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	8	89	103
Volume Left	0	8	0	0
Volume Right	0	0	12	0
cSH	1700	779	1499	1519
Volume to Capacity	0.00	0.01	0.00	0.00
Queue Length 95th (m)	0.0	0.2	0.0	0.0
Control Delay (s)	0.0	9.7	0.0	0.0
Lane LOS	A	A		
Approach Delay (s)	0.0	9.7	0.0	0.0
Approach LOS	A	A		

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	13.8%	ICU Level of Service	A	
Analysis Period (min)	15			

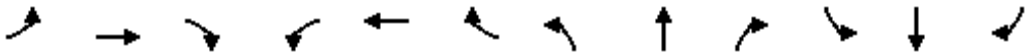
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	17	7	52	3	4	68
Future Volume (vph)	17	7	52	3	4	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.960		0.992			
Flt Protected	0.966					0.997
Satd. Flow (prot)	1762	0	1833	0	0	1809
Flt Permitted	0.966					0.997
Satd. Flow (perm)	1762	0	1833	0	0	1809
Link Speed (k/h)	50		50			50
Link Distance (m)	316.3		426.5			205.0
Travel Time (s)	22.8		30.7			14.8
Confl. Peds. (#/hr)		1				
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles (%)	0%	0%	3%	0%	0%	5%
Adj. Flow (vph)	26	11	79	5	6	103
Shared Lane Traffic (%)						
Lane Group Flow (vph)	37	0	84	0	0	109
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	17	7	52	3	4	68
Future Volume (Veh/h)	17	7	52	3	4	68
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Hourly flow rate (vph)	26	11	79	5	6	103
Pedestrians						1
Lane Width (m)						3.6
Walking Speed (m/s)						1.2
Percent Blockage						0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	196	82			84	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	196	82			84	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	99			100	
cM capacity (veh/h)	794	982			1526	

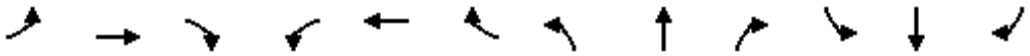
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	37	84	109
Volume Left	26	0	6
Volume Right	11	5	0
cSH	842	1700	1526
Volume to Capacity	0.04	0.05	0.00
Queue Length 95th (m)	1.1	0.0	0.1
Control Delay (s)	9.5	0.0	0.4
Lane LOS	A		A
Approach Delay (s)	9.5	0.0	0.4
Approach LOS	A		

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	17.2%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	167	44	123	67	3	28	27	112	7	55	19
Future Volume (vph)	8	167	44	123	67	3	28	27	112	7	55	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.973			0.998			0.910			0.969	
Flt Protected		0.998			0.969			0.992			0.996	
Satd. Flow (prot)	0	1807	0	0	1751	0	0	1634	0	0	1706	0
Flt Permitted		0.998			0.969			0.992			0.996	
Satd. Flow (perm)	0	1807	0	0	1751	0	0	1634	0	0	1706	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		424.2			427.0			733.3			426.5	
Travel Time (s)		30.5			30.7			52.8			30.7	
Confl. Peds. (#/hr)	7					7	6					6
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	20%	1%	3%	5%	5%	0%	4%	6%	5%	17%	3%	17%
Adj. Flow (vph)	10	206	54	152	83	4	35	33	138	9	68	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	270	0	0	239	0	0	206	0	0	100	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 49.5%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	8	167	44	123	67	3	28	27	112	7	55	19
Future Volume (vph)	8	167	44	123	67	3	28	27	112	7	55	19
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	10	206	54	152	83	4	35	33	138	9	68	23

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	270	239	206	100
Volume Left (vph)	10	152	35	9
Volume Right (vph)	54	4	138	23
Hadj (s)	-0.08	0.20	-0.28	0.01
Departure Headway (s)	5.0	5.3	5.1	5.6
Degree Utilization, x	0.38	0.35	0.29	0.16
Capacity (veh/h)	668	631	632	566
Control Delay (s)	11.1	11.2	10.3	9.6
Approach Delay (s)	11.1	11.2	10.3	9.6
Approach LOS	B	B	B	A

Intersection Summary				
Delay	10.7			
Level of Service	B			
Intersection Capacity Utilization	49.5%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	28	0	39	12	0	39
Future Volume (vph)	28	0	39	12	0	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.865		
Flt Protected	0.950					
Satd. Flow (prot)	1805	0	0	1644	0	1900
Flt Permitted	0.950					
Satd. Flow (perm)	1805	0	0	1644	0	1900
Link Speed (k/h)	50		50			50
Link Distance (m)	125.0		155.5			647.7
Travel Time (s)	9.0		11.2			46.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	30	0	42	13	0	42
Shared Lane Traffic (%)						
Lane Group Flow (vph)	30	0	42	13	0	42
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

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

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	28	0	39	12	0	39
Future Volume (Veh/h)	28	0	39	12	0	39
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)	30	0	42	13	0	42
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	84	42			55	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	84	42			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 %	97	100			100	
cM capacity (veh/h)	923	1034			1563	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	30	55	42
Volume Left	30	0	0
Volume Right	0	13	0
cSH	923	1700	1563
Volume to Capacity	0.03	0.03	0.00
Queue Length 95th (m)	0.8	0.0	0.0
Control Delay (s)	9.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.0	0.0	0.0
Approach LOS	A		

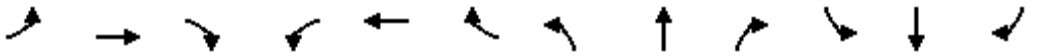
Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	11.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	167	44	123	67	3	28	27	112	7	55	19
Future Vol, veh/h	8	167	44	123	67	3	28	27	112	7	55	19
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	20	1	3	5	5	0	4	6	5	17	3	17
Mvmt Flow	10	206	54	152	83	4	35	33	138	9	68	23
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

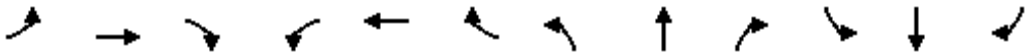
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	11.9	11.3	10.3	10
HCM LOS	B	B	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	17%	4%	64%	9%
Vol Thru, %	16%	76%	35%	68%
Vol Right, %	67%	20%	2%	23%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	167	219	193	81
LT Vol	28	8	123	7
Through Vol	27	167	67	55
RT Vol	112	44	3	19
Lane Flow Rate	206	270	238	100
Geometry Grp	1	1	1	1
Degree of Util (X)	0.295	0.401	0.355	0.161
Departure Headway (Hd)	5.153	5.342	5.367	5.795
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	697	673	670	618
Service Time	3.187	3.373	3.399	3.835
HCM Lane V/C Ratio	0.296	0.401	0.355	0.162
HCM Control Delay	10.3	11.9	11.3	10
HCM Lane LOS	B	B	B	A
HCM 95th-tile Q	1.2	1.9	1.6	0.6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	10	0	0	0	83	11	1	71	0
Future Volume (vph)	0	0	0	10	0	0	0	83	11	1	71	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt								0.984				
Flt Protected					0.950						0.999	
Satd. Flow (prot)	0	1900	0	0	1805	0	0	1806	0	0	1792	0
Flt Permitted					0.950						0.999	
Satd. Flow (perm)	0	1900	0	0	1805	0	0	1806	0	0	1792	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		82.0			126.3			205.0			155.5	
Travel Time (s)		5.9			9.1			14.8			11.2	
Confl. Peds. (#/hr)	1					1	4		1	1		4
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	6%	0%
Adj. Flow (vph)	0	0	0	12	0	0	0	97	13	1	83	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	12	0	0	110	0	0	84	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 16.0%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	10	0	0	0	83	11	1	71	0
Future Volume (Veh/h)	0	0	0	10	0	0	0	83	11	1	71	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	0	0	0	12	0	0	0	97	13	1	83	0
Pedestrians		4			1						1	
Lane Width (m)		3.6			3.6						3.6	
Walking Speed (m/s)		1.2			1.2						1.2	
Percent Blockage		0			0						0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	194	200	87	190	194	106	87			111		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	194	200	87	190	194	106	87			111		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	98	100	100	100			100		
cM capacity (veh/h)	764	696	974	772	702	953	1517			1490		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	12	110	84
Volume Left	0	12	0	1
Volume Right	0	0	13	0
cSH	1700	772	1517	1490
Volume to Capacity	0.00	0.02	0.00	0.00
Queue Length 95th (m)	0.0	0.4	0.0	0.0
Control Delay (s)	0.0	9.7	0.0	0.1
Lane LOS	A	A		A
Approach Delay (s)	0.0	9.7	0.0	0.1
Approach LOS	A	A		

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	16.0%	ICU Level of Service	A	
Analysis Period (min)	15			

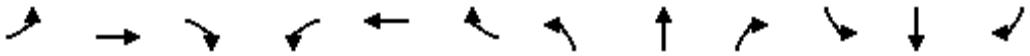
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	9	89	10	8	76
Future Volume (vph)	4	9	89	10	8	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.904		0.986			
Flt Protected	0.986					0.995
Satd. Flow (prot)	1694	0	1806	0	0	1809
Flt Permitted	0.986					0.995
Satd. Flow (perm)	1694	0	1806	0	0	1809
Link Speed (k/h)	50		50			50
Link Distance (m)	316.3		426.5			205.0
Travel Time (s)	22.8		30.7			14.8
Confl. Peds. (#/hr)		1				
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	3%	10%	0%	5%
Adj. Flow (vph)	4	10	98	11	9	84
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	109	0	0	93
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 21.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	9	89	10	8	76
Future Volume (Veh/h)	4	9	89	10	8	76
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	4	10	98	11	9	84
Pedestrians						1
Lane Width (m)						3.6
Walking Speed (m/s)						1.2
Percent Blockage						0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	206	104			109	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	206	104			109	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	99			99	
cM capacity (veh/h)	783	955			1494	

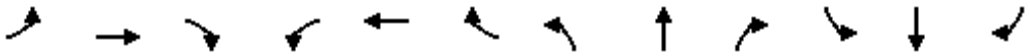
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	14	109	93
Volume Left	4	0	9
Volume Right	10	11	0
cSH	898	1700	1494
Volume to Capacity	0.02	0.06	0.01
Queue Length 95th (m)	0.4	0.0	0.1
Control Delay (s)	9.1	0.0	0.8
Lane LOS	A		A
Approach Delay (s)	9.1	0.0	0.8
Approach LOS	A		

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	21.0%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	83	47	142	152	7	61	75	99	3	55	22
Future Volume (vph)	21	83	47	142	152	7	61	75	99	3	55	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.958			0.997			0.943			0.962	
Flt Protected		0.993			0.977			0.987			0.998	
Satd. Flow (prot)	0	1732	0	0	1825	0	0	1745	0	0	1746	0
Flt Permitted		0.993			0.977			0.987			0.998	
Satd. Flow (perm)	0	1732	0	0	1825	0	0	1745	0	0	1746	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		424.2			427.0			733.3			426.5	
Travel Time (s)		30.5			30.7			52.8			30.7	
Confl. Peds. (#/hr)	9					9	9					9
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	15%	3%	2%	1%	1%	17%	2%	0%	2%	33%	0%	12%
Adj. Flow (vph)	23	89	51	153	163	8	66	81	106	3	59	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	163	0	0	324	0	0	253	0	0	86	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 54.7%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	21	83	47	142	152	7	61	75	99	3	55	22
Future Volume (vph)	21	83	47	142	152	7	61	75	99	3	55	22
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	23	89	51	153	163	8	66	81	106	3	59	24

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	163	324	253	86
Volume Left (vph)	23	153	66	3
Volume Right (vph)	51	8	106	24
Hadj (s)	-0.09	0.10	-0.18	-0.08
Departure Headway (s)	5.2	5.2	5.2	5.6
Degree Utilization, x	0.24	0.47	0.36	0.13
Capacity (veh/h)	626	657	637	569
Control Delay (s)	9.9	12.6	11.1	9.4
Approach Delay (s)	9.9	12.6	11.1	9.4
Approach LOS	A	B	B	A

Intersection Summary				
Delay	11.3			
Level of Service	B			
Intersection Capacity Utilization	54.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	19	2	57	26	1	53
Future Volume (vph)	19	2	57	26	1	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.988			0.865		
Flt Protected	0.956					0.999
Satd. Flow (prot)	1795	0	0	1644	0	1898
Flt Permitted	0.956					0.999
Satd. Flow (perm)	1795	0	0	1644	0	1898
Link Speed (k/h)	50		50			50
Link Distance (m)	125.0		155.5			647.7
Travel Time (s)	9.0		11.2			46.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	21	2	62	28	1	58
Shared Lane Traffic (%)						
Lane Group Flow (vph)	23	0	62	28	0	59
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

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

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	19	2	57	26	1	53
Future Volume (Veh/h)	19	2	57	26	1	53
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)	21	2	62	28	1	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	122	62			90	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	122	62			90	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	878	1009			1518	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	23	90	59
Volume Left	21	0	1
Volume Right	2	28	0
cSH	888	1700	1518
Volume to Capacity	0.03	0.05	0.00
Queue Length 95th (m)	0.6	0.0	0.0
Control Delay (s)	9.2	0.0	0.1
Lane LOS	A		A
Approach Delay (s)	9.2	0.0	0.1
Approach LOS	A		

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	Err%	ICU Level of Service	H
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	11.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	83	47	142	152	7	61	75	99	3	55	22
Future Vol, veh/h	21	83	47	142	152	7	61	75	99	3	55	22
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	15	3	2	1	1	17	2	0	2	33	0	12
Mvmt Flow	23	89	51	153	163	8	66	81	106	3	59	24
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.2	12.7	11.2	10.1
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	26%	14%	47%	4%
Vol Thru, %	32%	55%	50%	69%
Vol Right, %	42%	31%	2%	28%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	235	151	301	80
LT Vol	61	21	142	3
Through Vol	75	83	152	55
RT Vol	99	47	7	22
Lane Flow Rate	253	162	324	86
Geometry Grp	1	1	1	1
Degree of Util (X)	0.365	0.245	0.468	0.144
Departure Headway (Hd)	5.197	5.442	5.202	6.044
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	692	659	693	593
Service Time	3.23	3.476	3.231	4.086
HCM Lane V/C Ratio	0.366	0.246	0.468	0.145
HCM Control Delay	11.2	10.2	12.7	10.1
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	1.7	1	2.5	0.5

Appendix G – TTS Travel Mode Data

Tue Jun 11 2024 12:57:23 GMT-0400 (Eastern Daylight Time) - Run Time: 2415ms

Cross Tabulation Query Form - Trip - 2016

Row: Primary travel mode of trip - mode_prime
Column: 2006 GTA zone of household - gta06_hhld

RowG:
ColG:(4164 4195)
TblG:

Filters:
Start time of trip - start_time In 700-1000
and
Trip purpos 2 3
and
2006 GTA z 4195

Trip 2016
Table:

	1
Cycle	20
Auto driver	2587
GO rail only	21
Joint GO rai	36
Auto passer	481
Walk	210

3355 0%

Auto driver	Auto passenger	Transit	Cycle	Walk
77%	14%	2%	1%	6%
91%		9%		

Tue Jun 11 2024 12:57:51 GMT-0400 (Eastern Daylight Time) - Run Time: 2291ms

Cross Tabulation Query Form - Trip - 2016

Row: Primary travel mode of trip - mode_prime
Column: 2006 GTA zone of household - gta06_hhld

RowG:
ColG:(4164 4195)
TblG:

Filters:
Start time of trip - start_time In 1600-1900
and
Trip purpos 2 3
and
2006 GTA z 4195

Trip 2016
Table:

	1
Auto driver	3688
GO rail only	26
Joint GO rai	115
Auto passer	850
Walk	249

4928 0%

Auto driver	Auto passer	Transit	Cycle	Walk
75%	17%	3%	0%	5%
92%		8%		

Appendix H – Terms of Reference

520 Industrial Parkway South, Suite 201
Aurora, Ontario L4G 6W8

Phone: 905-503-2563
www.nextrans.ca

nexTrans CONSULTING ENGINEERS
NextEng Consulting Group Inc.

To: Town of Halton Hills

From: Janus Mora, Nextrans Consulting Engineers

Date: December 8, 2023

Re: Terms of Reference – Transportation Impact Study
Proposed Residntial Development
159 Confederation Street, Town of Halton Hills
Our Project No. NT-23-196

INTRODUCTION

Nextrans wishes to confirm the following scope of work for a Transportation Impact Study in support of the proposed Draft Plan of Subdivision for the above noted property, located at 159 Confederation Street, in the Town of Halton Hills (the "Town").

The development proposal is to subdivide the property to accommodate 25 new two (2) storey townhouse units. Vehicular access to the site will be provided through a new road which will intersect with Confederation Street.

The following outlines the proposed scope of work for the Transportation Impact Study.

ASSESSMENT OF EXISTING CONDITIONS

A review of the existing conditions of the study area will be conducted, which will include descriptions of the site location, the nature of the development proposal, the surrounding road network lane configurations, and traffic control, transit routes, and active transportation facilities.

STUDY AREA & TRAFFIC DATA

The study will consider the weekday AM and PM peak periods for traffic analyses. The proposed study area will include the analysis of the following intersections:

- Confederation Street and Glen Crescent Drive;
- Confederation Street and Site Access;

In the case that historic traffic data for the study area intersections is unavailable, new turning movement counts (TMC) at the will be collected to capture and quantify existing traffic conditions.

TRAFFIC ASSESSMENT

Traffic operations during the identified weekday peak hours will be assessed using Synchro 10 software, in accordance with the Highway Capacity Manual (HCM) 2000 capacity analysis methodology.

BACKGROUND TRAFFIC

General Corridor Growth Rate – Historical traffic data will be reviewed and Nextrans will consult with the Town or Region as required to determine corridor growth rates within the study area road network.

Road Network Improvements – Nextrans will identify potential road network improvements within the study area and account for any traffic diversions associated with these improvements within in the analysis.

Background Development Traffic – Nextrans will consult with the Town for any relevant background developments to be considered within the study. Nextrans requests that all relevant background traffic documents be made available.

TRIP GENERATION, DISTRIBUTION, & ASSIGNMENT

The Institute of Transportation Engineers (ITE) Trip Generation Manual 11th Edition will be used to estimate the number of site generated vehicle trips. The general trip distribution will be based on a review of data from the 2016 Transportation Tomorrow Survey and existing traffic patterns observed in TMC. Trip assignment will be conducted accordingly to reflect the configuration of the proposed site accesses, turning restrictions, and logical routings.

FUTURE TRAFFIC SCENARIOS

Future background and future total analyses for the study area intersections will be conducted the horizon years 2029, five (5)-years from the baseline year of 2024.

REMEDIAL MEASURES

Under future total conditions, any through or shared through/turning movements at the studied intersections that exceed a V/C ratio of 0.90 or exclusive movements that exceed a V/C ratio of 1.00 will be identified. If remedial actions such as signal optimization are unsuccessful this will also be identified. If remedial measures are to be employed, a scenario will be provided demonstrating the change in intersection operations.

PARKING ASSESSEMENT

A review of the proposed on-site parking provisions will be undertaken to determine compliance with the Town of Halton Hills Zoning By-law 2010-0050.

SITE PLAN REVIEW

A review of the proposed internal roadway will be undertaken to ensure that the roads and intersections are designed in accordance with the standards of the 2017 Geometric Design Guide for Canadian Roads (TAC Manual). The proposed site access will be assessed to ensure compliance with the TAC standards, which include those pertaining to sightlines, intersection spacing, corner clearances, road alignments, etc.

Autoturn swept path analysis will be confirm that design vehicles are able to effectively maneuver in/out and throughout the site.

Available on street parking provisions will be identified and shown on an On-Street Parking Plan. Proposed active transportation facilities within the site and connections to public active transportation facilities will I identified.

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

Janus Mora, B.Eng., EIT
Transportation Analyst

Enclosed: Proposed Concept Plan

THESE DRAWINGS ARE NOT TO BE SCALED:

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR PRIOR TO COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES MUST BE REPORTED DIRECTLY TO SRN ARCHITECTS INC.

PROJECT CONSULTANTS:

LEGEND

- FSE FINISHED SECOND FLOOR ELEVATION
- FFE FINISHED FLOOR ELEVATION
- TFW TOP OF FOUNDATION WALL
- TBS TOP OF BASEMENT SLAB
- USF UNDER SIDE FOOTING
- USFR UNDER SIDE FOOTING @ REAR
- USFG UNDER SIDE FOOTING @ GARAGE
- R NUMBER OF RISERS TO GRADE
- WOD WALKOUT DECK
- LOB LOOKOUT BASEMENT
- WOB WALK OUT BASEMENT
- WUB WALK UP BASEMENT
- REV REVERSE PLAN
- STD STANDARD PLAN
- DOOR
- WINDOW
- BELL PEDESTAL
- CABLE PEDESTAL
- CATCH BASIN
- DBL. CATCH BASIN
- ENGINEERED FILL
- HYDRO CONNECTION
- FIRE HYDRANT
- SL STREET LIGHT
- MAIL BOX
- TRANSFORMER
- SEWER CONNECTIONS (2 LOTS)
- SEWER CONNECTIONS (1 LOT)
- AC AIR CONDITIONING
- DOWN SPOUT TO SPLASH PAD
- SWALE DIRECTION
- SP SUMP PUMP
- WATER CONNECTION
- WATER VALVE CHAMBER
- HYDRANT AND VALVE
- HYDRO METER
- GAS METER
- DOWN LIGHT
- 14' POLE LIGTHING
- 12' POLE LIGTHING
- BOLLARD LIGHTING
- Ra-1 STOP SIGN
- Rb-51 NO PARKING
- NO PARKING IN LANEWAY
- FR FIRE ROUTE
- 3HRS PARKING (RIGHT)
- 3HRS PARKING (LEFT)
- x100.00 PROPOSED SPOT GRADE
- x100.00 EXISTING SPOT GRADE
- EXISTING TREE (TO BE REMOVED)
- EXISTING TREE (TO BE RETAINED)
- ## MUNICIPAL ADDRESS
- RETAINING WALL TW -TOP OF WALL BW -BOTTOM OF WALL
- SNOW STORAGE AREAS
- X CHAINLINK FENCE
- XX PRIVACY FENCE
- XXX SOUND BARRIER
- FOOTING TO BE EXTENDED TO 1.22 (MIN) BELOW GRADE
- FR FIRE FIGHTER TRAVEL PATH
- REVCHK REVERSE CHECK FOUNDATION

ISSUED OR REVISION COMMENTS

NO.	DESCRIPTION	DATE	DWN	CHK
1	ISSUED FOR REVIEW	25-SEPT-2023	MTL	MTL
1	ISSUED FOR REVIEW	27-SEPT-2023	AG	
3	ISSUED FOR COORDINATION	16-NOV-2023	RP	

RN DESIGN

WWW.RNDESIGN.COM
T:905-738-3177
WWW.THEPLUSGROUP.CA

CLIENT
EDEN OAK

PROJECT/LOCATION
BAYFIELD
GEORGETOWN

DRAWING
CONCEPT PLAN

DATE	SCALE
27-SEP-2023	1:750
DRAWN BY: RP	CHECKED BY: RN
PROJECT NUMBER: 23020	DRAWING NUMBER: CONCEPT 3