3 Tait Street
Town of Huntsville

Traffic Brief for:

Ravi Prasher

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1 Introduction

1.1 Background

Ravi Prasher [the Developer] is proposing a residential development, located on the southwest corner of the Tait Street / Main Street (Muskoka Road 3) intersection, in the Town of Huntsville [Town], District Municipality of Muskoka [District].

The proposed development includes 42 residential units with 44 parking spaces. Access to the proposed development will be provided via one full-movement access to Tait Street [Site Access].

The Developer has retained **JD Northcote Engineering Inc.** [JD Engineering] to prepare this Traffic Brief & Parking Study in support of the proposed development.

1.2 Study Area

Figure 1 illustrates the location of the subject site and study area intersections in relation to the surrounding area. The Concept Plan by FAD Architects is provided in **Appendix A**. The subject site is bound by Muskoka Road 3 to the north, Tait Street to the east and residential lands to the west and south.

Based on correspondence with the Town and District, the following intersections are included in the Traffic Brief:

- Muskoka Road 3 (Main Street West) / Tait Street; and
- Site Access / Tait Street.

1.3 Study Scope and Objectives

The purpose of this study is to identify the potential impacts to traffic flow at the site access and on the surrounding roadway network. The study analysis includes the following tasks:

- Consult with the Town and District to address any traffic-related issues or concerns they have with the proposed development;
- Determine existing traffic volumes and circulation patterns;
- Estimate future traffic volumes if the proposed development was not constructed, including the impact of additional proposed developments in the area;
- Estimate the amount of traffic that would be generated by the proposed development and assign to the roadway network;
- Complete LOS analysis of horizon year (with the proposed development) traffic conditions and identify additional operational deficiencies;
- Identify improvement options to address operational deficiencies;
- Calculate lane improvements for the site access driveway based on the Transportation Association of Canada [TAC] and Ontario Ministry of Transportation guidelines;
- Review the proposed intersection spacing;
- Review the available sight distance at the site access driveway;
- Review the proposed parking supply and assess the suitability for the proposed development; and
- Document findings and recommendations in a final report.

Figure 1 – Proposed Site Location and Study Area

1.4 Analysis Periods

The weekday morning [AM] and afternoon [PM] peak hours have been selected as the analysis periods for this study.

2 Information Gathering

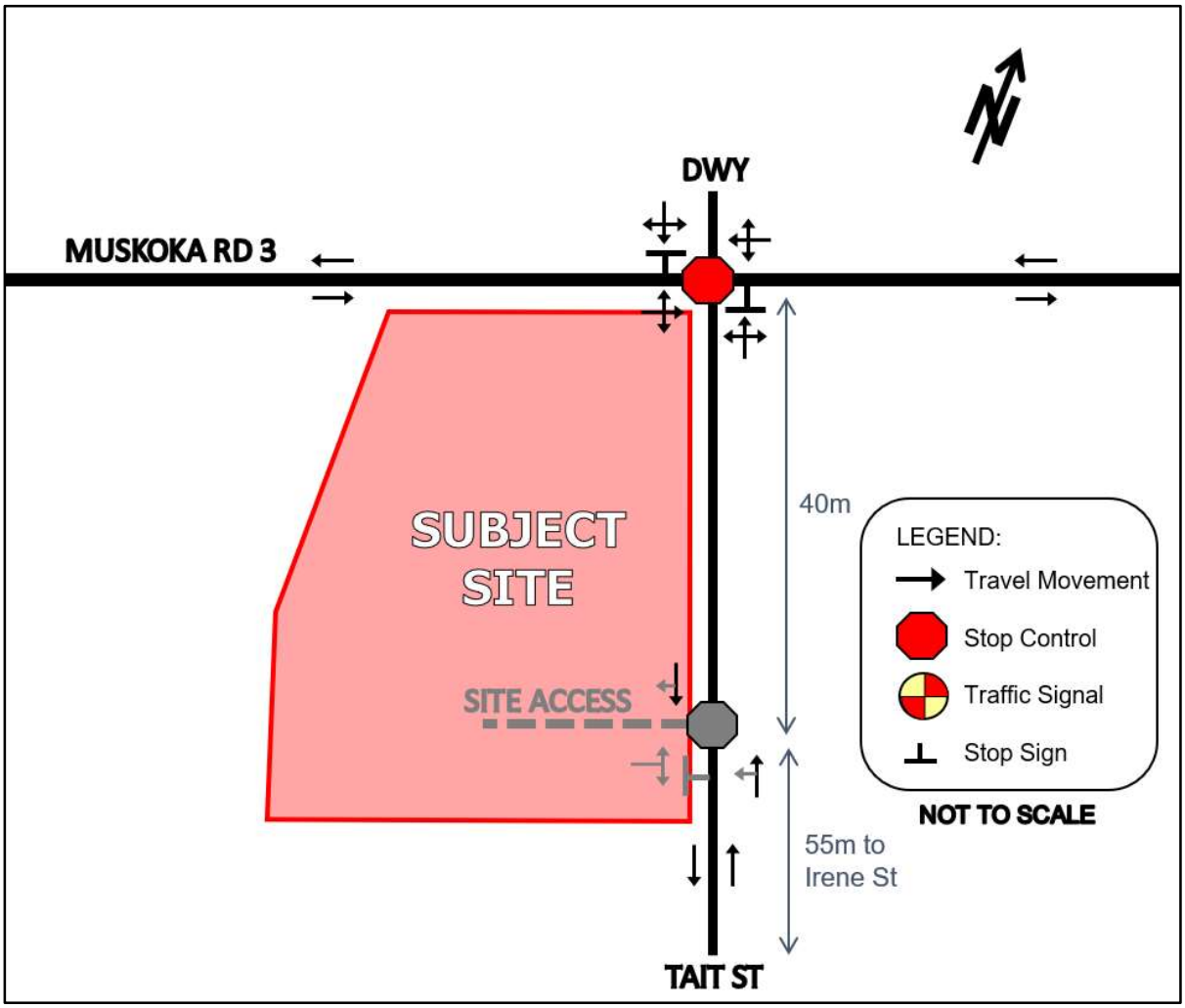
2.1 Street and Intersection Characteristics

Main Street West (Muskoka Road 3) is a two-lane Class C District Road with an urban cross-section and sidewalk on both sides of the road. Muskoka Road 3 has a posted speed limit of 50km/h through the study area and is under the jurisdiction of the District.

Tait Street is a two-lane local road with an unposted (assumed) speed limit of 50 km/h. South of Muskoka Road 3, Tait Street provides an urban cross-section with sidewalk on the west side of the road for approximately 40 metres. South of this location, Tait Street transitions to a rural cross-section with grassed/gravel shoulders. Tait Street is under the jurisdiction of the Town.

The existing intersection spacing and lane configuration within the study area is illustrated in **Figure 2**.

Figure 2 – Existing Lane Configuration within Study Area



2.2 Transit Access

The Town's transit provider, Huntsville Transit, provides two bus routes (eastbound and westbound versions of the same route) [Huntsville Transit Route] near the study area. The Huntsville Transit Route operates between 08:00 – 18:00, Monday to Friday and between 10:00 – 18:00 on Saturdays with service every two hours. The Huntsville Transit Route does not operate on Sundays.

The closest bus stop to the proposed development for the Huntsville Transit Route is Stop #3 – Legion Manor, located 350 metres south if the subject site. The Huntsville Transit Route also provides a service where pick-up locations can be determined by residents with 24 hours of notice.

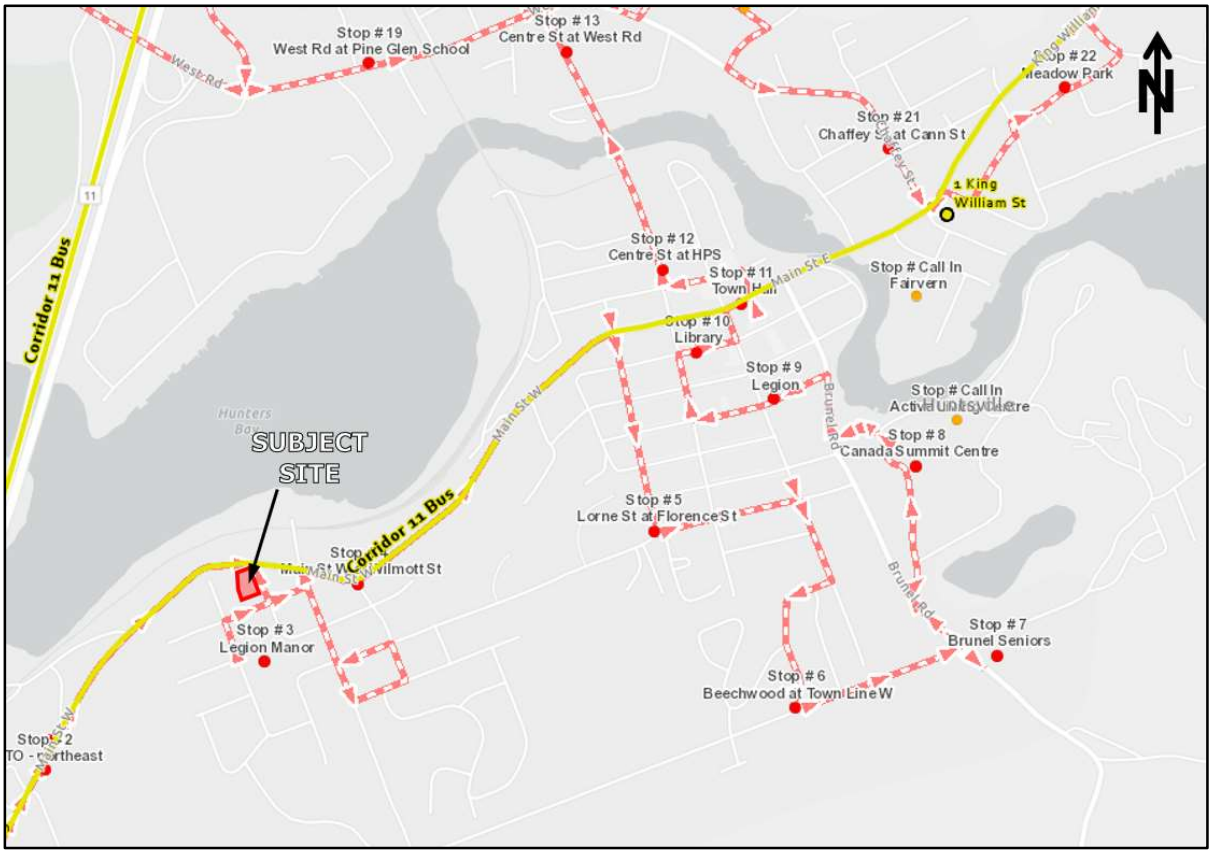
The District of Muskoka Transportation provides one bus route within the study area, the Corridor 11 Bus Route. The Corridor 11 Bus Route provides service between Huntsville and Orillia, stopping at locations in Port Sydney, Bracebridge, Gravenhurst, Kilworthy and Washago.

The Corridor 11 Bus Route operates Monday to Friday between 06:10 – 19:15, beginning in Huntsville and providing three runs to Orillia and back (06:10 to 10:20, 10:20 to 15:00 and 15:00 to 19:15). The closest bus stop to the proposed development is the 1 King William Street, approximately 2.2 kilometers east of the subject site.

The Ontario Northland bus route 101 (northbound) and 102 (southbound) provides service between Toronto and North Bay, stopping in Huntsville en route. The northbound route operates daily, stopping in Huntsville at 03:26, 13:23, 17:01 and 22:40. The southbound route operates daily, stopping in Huntsville at 03:30, 07:55, 13:30 and 17:40. The bus stop is located at the Huntsville Train Station, approximately 900 meters east of the subject site.

Figure 3 illustrates the location of the subject site in relation to local transit routes.

Figure 3 – Existing (2025) Study Area Transit Routes



2.3 Local Road Improvements

Based on a review of the District's Capital budget, the Town's Road Needs Study and the listed projects on the Town's Road Infrastructure Improvement Program, there are no planned infrastructure improvements within the study area that would impact the local traffic volumes or traffic distribution.

2.4 Development Growth

Based on our correspondence with Town and District staff, and in review of the Town's active planning applications, there are a number of developments that will impact the traffic in the study area, specifically:

- 48 West Elliott Street – 21 townhouse units;
- 31 Kitchen Road S – 55 residential units;
- Hunters Bay Condos – 62 residential units; and
- East Elliott Street Subdivision – 14 residential units.

Figure 4 illustrates the location of the above developments in relation to the subject site.

2.4.1 Development Growth Traffic Generation

Traffic generated by the 48 West Elliott Street and 31 Kitchen Road S developments have been established based on the *31 Kitchen Road South Traffic Brief (JD Engineering, 2021)* [31 Kitchen Road Brief]. (Excerpts provided in **Appendix B**). Where required, traffic volumes have been distributed on Muskoka Road 3 based on existing traffic patterns.

Traffic volumes generated by the Hunters Bay Condos and East Elliott Street Subdivision have been established based on the data provided in the Institute of Transportation Engineers [ITE] Trip Generation Manual (11th Edition) [ITE Trip Generation Manual]. The following ITE land uses have been applied to estimate the traffic from the development:

- ITE land use 210 (Single-Family Detached Housing) – General Urban/Suburban Setting; and
- ITE land use 215 (Single-Family Attached Housing) – General Urban/Suburban Setting.

Table 1 summarizes the utilized trip generation equations/rates and estimated trip generation for the Hunters Bay Condos and East Elliott Street Subdivision.

Table 1 – Estimated Traffic Generation – Adjacent Development

Land Use	Trip Basis / Size	AM Peak Hour			PM Peak Hour		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Single-Family Detached ITE Land Use: 210	equation (units)	Ln(T) = 0.91 Ln(X) + 0.12			Ln(T) = 0.94 Ln(X) + 0.27		
	distribution	25%	75%	100%	63%	37%	100%
Single-Family Attached ITE Land Use: 215	rate (units)	0.12	0.36	0.48	0.34	0.23	0.57
	distribution	25%	75%	100%	59%	41%	100%
Hunters Bay Condos	62 units	12	36	48	40	23	63
East Elliott Street Subdivision	14 units	2	5	7	5	3	8

2.4.2 Development Growth Traffic Volume Assignment

For the noted adjacent developments that did not have available traffic studies, traffic volumes have been distributed to the study area road network based on the traffic distribution developed in Section 4.2, in context with the location of each development area.

For the purpose of this study, it has been assumed that all adjacent development will be built-out by 2028.

The assignment of the adjacent development volumes through the study area road network is illustrated in **Figure 6** through **Figure 10**.

Figure 4 – Adjacent Development Locations

2.5 Background Traffic Growth

Based on our correspondence with Town and District staff, a background growth rate of 2.0% per annum has been applied to Muskoka Road 3. No growth has been applied to Tait Street in recognition of its local, residential nature.

2.6 Traffic Data

Detailed turning movement traffic and pedestrian counts were conducted at the study intersections. **Table 1** summarizes the traffic count data collection information.

Table 2 – Traffic Count Data

Intersection (E-W Street / N-S Street)	Count Date	AM Peak Hour	PM Peak Hour	Source
Muskoka Road 3 / Tait Street	Wednesday, December 18th, 2024	07:45 – 08:45	16:30 – 17:30	JD Eng.*

*Counts were completed by J3L Data, on behalf of JD Engineering.

Detailed traffic count data can be found in **Appendix C**. Heavy vehicle percentages from the traffic count data have also been included in the Synchro analysis.

Based on our review of the available Annual Average Daily Traffic (AADT) and Summer Average Daily Traffic (SADT) volumes for Highway 11, west of the study area, a seasonal traffic volume variation of 29% was derived. Consequently, in order to consider summer conditions, a 29% increase has been applied to the traffic volume on Muskoka Road 3 and Tait Street.

2.7 Existing Traffic Volumes

The existing (2025) year traffic volumes are illustrated in **Figure 11**. The existing year volumes are based on the conducted traffic counts, adjusted to reflect the annual background growth rate noted in Section 2.5, in addition to the seasonal traffic growth (outlined in Section 2.7).

2.8 Horizon Year Traffic Volumes

The background (2028) horizon year traffic volumes are illustrated in **Figure 12**. The background volumes are based on the existing (2025) traffic volumes, adjusted to reflect the annual background growth rate noted in Section 2.5, in addition to the noted adjacent development traffic volumes (outlined in Section 2.4).

3 Intersection Operation without Proposed Development

3.1 Introduction

Existing and background horizon operational conditions were established to determine how the street network within the study area is currently functioning without the proposed development. This provides a base case scenario to compare with future development scenarios. Traffic operations within the study area were evaluated using the existing and future background traffic volumes with the existing road configuration and traffic control. The intersection performance was measured using the traffic analysis software, Synchro 12, a deterministic model that employs Highway Capacity Manual and Intersection Capacity Utilization methodologies for analyzing intersection operations. These procedures are accepted by provincial and municipal agencies throughout North America.

Synchro 12 enables the study area to be graphically defined in terms of streets and intersections, along with their geometric and traffic control characteristics. The user is able to evaluate both signalized and unsignalized intersections in relation to each other, thus not only providing level of service for the individual intersections, but also enabling an assessment of the impact the various intersections in a network have on each other in terms of spacing, traffic congestion, delay, and queuing.

The intersection operations were also evaluated in terms of the LOS. LOS is a common measure of the quality of performance at an intersection and is defined in terms of vehicular delay. This delay includes deceleration delay, queue move-up time, stopped delay, and acceleration delay. LOS is expressed on a scale of A through F, where LOS A represents very little delay (i.e. less than 10 seconds per vehicle) and LOS F represents very high delay (i.e. greater than 50 seconds per vehicle for a stop sign controlled intersection and greater than 80 seconds per vehicle for a signalized intersection).

The LOS criteria for signalized and stop sign-controlled intersections are shown in **Table 3**. A description of traffic performance characteristics is included for each LOS.

Table 3 – Level of Service Criteria for Intersections

LOS	LOS Description	Control Delay (seconds per vehicle)	
		Signalized Intersections	**Stop Controlled Intersections**
A	Very low delay; most vehicles do not stop (**Excellent**)	less than 10.0	less than 10.0
B	Higher delay; more vehicles stop (**Very Good**)	between 10.0 and 20.0	between 10.0 and 15.0
C	Higher level of congestion; number of vehicles stopping is significant, although many still pass through intersection without stopping (**Good**)	between 20.0 and 35.0	between 15.0 and 25.0
D	Congestion becomes noticeable; vehicles must sometimes wait through more than one red light; many vehicles stop (**Satisfactory**)	between 35.0 and 55.0	between 25.0 and 35.0
E	Vehicles must often wait through more than one red light; considered by many agencies to be the limit of **acceptable** delay	between 55.0 and 80.0	between 35.0 and 50.0
F	This level is considered to be unacceptable to most drivers; occurs when arrival flow rates exceed the capacity of the intersection (**Unacceptable**)	greater than 80.0	greater than 50.0

3.2 Existing Intersection Operation

The results of the LOS analysis under existing (2025) traffic volumes during the AM and PM peak hour can be found below in **Table 4**. Existing intersection geometry and traffic control have been utilized for this scenario. Detailed output of the Synchro analysis can be found in **Appendix D**.

Table 4 – Existing (2025) LOS

Location (E-W Street / N-S Street)	Weekday AM Peak Hour					Weekday PM Peak Hour				
	V/C	Delay (s)	LOS	95% Queue (m)		V/C	Delay (s)	LOS	95% Queue (m)	
				Storage	Model				Storage	Model
Muskoka Road 3 / Tait Street & Driveway (unsignalized)	-	1.4	A	-	-	-	1.4	A	-	-
EB	0.00	0.1	A	-	-	0.01	0.2	A	-	-
WB	0.01	0.3	A	-	-	0.03	0.9	A	-	-
NB	0.21	17.7	C	-	6	0.09	18.7	C	-	3
SB	0.00	0.0	A	-	0	0.12	29.3	D	-	4

The results of the LOS analysis indicate that all the study area intersections are operating within the typical design limits noted in Section 3.1.

An analysis was completed for left turn movements at the study area intersections, based on the criteria outlined in Appendix 9A of the Ontario Ministry of Transportation Design Supplement for TAC Geometric Design Guide for Canadian Roads June 2017 [MTO DS]. According to the above-noted criteria a left turn lane is not warranted (results are provided in **Appendix G**).

Further consideration for traffic signal improvements were considered at the study area intersections based on the Ontario Traffic Manual Book 12 *Signal Justification*. The results indicate that traffic signals are not warranted at the study area intersections (results are provided in **Appendix H**).

A review of the need for an auxiliary right turn lane at the study area intersections was completed as part of our analysis. The results of the Synchro analysis indicate that there is excess capacity for all movements; consequently, an auxiliary right turn lane is not recommended.

No additional improvements are recommended within the study area.

3.3 Background (2028) Intersection Operation

The results of the LOS analysis under background (2028) traffic volumes during the AM, and PM peak hour can be found below in **Table 5**. Existing intersection geometry has been utilized for this scenario and traffic control has been utilized for this scenario. Detailed output of the Synchro analysis can be found in **Appendix E**.

Table 5 – Background (2028) LOS

Location (E-W Street / N-S Street)	Weekday AM Peak Hour					Weekday PM Peak Hour				
	V/C	Delay (s)	LOS	95% Queue (m)		V/C	Delay (s)	LOS	95% Queue (m)	
				Storage	Model				Storage	Model
Muskoka Road 3 / Tait Street & Driveway (unsignalized)	-	1.6	A	-	-	-	1.6	A	-	-
EB	0.00	0.1	A	-	-	0.01	0.2	A	-	-
WB	0.01	0.3	A	-	-	0.04	1.0	A	-	-
NB	0.25	20.3	C	-	8	0.11	21.5	C	-	3
SB	0.00	0.0	A	-	0	0.16	36.8	E	-	5

The results of the LOS analysis indicate that all the study area intersections are operating within the typical design limits noted in Section 3.1.

An analysis was completed for left turn movements at the unsignalized intersections, based on the criteria outlined in Appendix 9A of the MTO DS. According to the above-noted criteria a westbound left turn lane is warranted Muskoka Road 3 at Tait Street (results are provided in **Appendix G**). However, considering the 5% left turn advancing volume threshold is only met during a single peak hour, and the westbound movement experiences an excellent level-of-service with negligible delays, a left turn lane is note recommended.

Further consideration for traffic signal improvements were considered at the study area intersections based on the Ontario Traffic Manual Book 12 *Signal Justification*. The results indicate that traffic signals are not warranted at the intersection (results are provided in **Appendix H**).

A review of the need for an auxiliary right turn lane at the study area intersections was completed as part of our analysis. The results of the Synchro analysis indicate that there is excess capacity for all movements; consequently, an auxiliary right turn lane is not recommended.

No additional improvements are recommended within the study area.

4 Proposed Development Traffic Generation and Assignment

4.1 Traffic Generation

The traffic generation for proposed development has been estimated based the type of land use, development size and data provided in the ITE Trip Generation Manual (11th Edition). The following ITE land use has been applied to estimate the traffic for the proposed development:

- ITE land use 220 (Multifamily Housing (Low-Rise)) – General Urban/Suburban Setting.

The estimated trip generation of the proposed development is illustrated below in **Table 6**.

Table 6 – Estimated Trip Generation of the Proposed Development

Land Use	Trip Basis / Size	AM Peak Hour			PM Peak Hour		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Multifamily Housing (Low-Rise) ITE Land Use: 220	rate (units)	0.10	0.30	0.40	0.32	0.19	0.51
Subject Site	**42 units**	**4**	**13**	**17**	**13**	**8**	**21**

No transportation modal split has been applied to the above-noted traffic generation calculation.

4.2 Traffic Assignment

For the purposes of this study, it has been assumed that all traffic generated by the proposed development will be new traffic and would not be in the study area if the development was not constructed.

The distribution of traffic for the proposed development is based on the distribution of the existing traffic volumes within the study area. **Table 7** illustrates the calculation of the distribution of ingress and egress traffic for the proposed development.

Table 7 – Proposed Development Traffic Distribution

Travel Direction (to / from)	AM Peak Hour		PM Peak Hour	
	IN	OUT	IN	OUT
East via Muskoka Road 3	51%	46%	45%	53%
West via Muskoka Road 3	43%	52%	53%	42%
South via Tait Street	6%	2%	2%	5%
TOTAL	**100%**	**100%**	**100%**	**100%**

Using the traffic distribution pattern noted above, the traffic assignment for the proposed development was calculated for the AM and PM peak hour and is illustrated in **Figure 13.**

4.3 Total Horizon Year Traffic Volumes with the Proposed Development

For the total (2028) horizon year traffic volumes, the proposed development traffic was added to the background (2028) traffic volumes. The resulting total (2028) horizon year traffic volumes for the AM and PM peak hour are illustrated in **Figure 14**.

5 Intersection Operation with Proposed Development

5.1 Total (2028) Intersection Operation

The results of the LOS analysis under total (2028) traffic volumes during the AM and PM peak hour can be found below in **Table 8**. Existing intersection geometry and traffic control have been utilized for this scenario. Detailed output of the Synchro analysis can be found in **Appendix F**.

Table 8 – Total (2028) LOS

Location (E-W Street / N-S Street)	Weekday AM Peak Hour					Weekday PM Peak Hour				
	V/C	Delay (s)	LOS	95% Queue (m)		V/C	Delay (s)	LOS	95% Queue (m)	
				Storage	Model				Storage	Model
Muskoka Road 3 / Tait Street & Driveway (unsignalized)	-	2.0	A	-	-	-	2.0	A	-	-
EB	0.00	0.1	A	-	-	0.01	0.2	A	-	-
WB	0.01	0.4	A	-	-	0.05	1.2	A	-	-
NB	0.31	22.0	C	-	9	0.18	25.1	D	-	5
SB	0.00	0.0	A	-	0	0.16	38.7	E	-	5
Site Access / Tait Street (unsignalized)	-	1.2	A	-	-	-	0.9	A	-	-
EB	0.02	9.0	A	-	1	0.01	9.0	A	-	1
NB	0.00	0.0	-	-	-	0.00	0.4	-	-	-
SB	0.02	0.0	-	-	-	0.04	0.0	-	-	-

The results of the LOS analysis indicate that all the study area intersections are operating within the typical design limits noted in Section 3.1.

An analysis was completed for left turn movements at the unsignalized intersections, based on the criteria outlined in Appendix 9A of the MTO DS. According to the above-noted criteria a westbound left turn lane is warranted Muskoka Road 3 at Tait Street (results are provided in **Appendix G**). Similar to background conditions, the 5% left turn advancing volume threshold is only met during a single peak hour, and the westbound movement experiences an excellent level-of-service with negligible delays. Consequently, a left turn lane is note recommended.

Further consideration for traffic signal improvements were considered at the study area intersections based on the Ontario Traffic Manual Book 12 *Signal Justification*. The results indicate that traffic signals are not warranted at the intersection (results are provided in **Appendix H**).

A review of the need for an auxiliary right turn lane at the study area intersections was completed as part of our analysis. The results of the Synchro analysis indicate that there is excess capacity for all movements; consequently, an auxiliary right turn lane is not recommended.

5.2 Site Access & Intersection Spacing

The Site Access will operate efficiently as a full-movement driveway, with one-way stop control for the egress movements. A single ingress and egress lane will provide the necessary capacity to service the proposed development.

The proposed spacing between the Site Access, Muskoka Road 3 to the north and Irene Street to the south (approximately 36 metres and 56 metres, respectively, measured from edge of driveway to edge of intersection) is in excess of the minimum intersection spacing requirements as identified in the Transportation Association of Canada Design Guide for Canadian Roads (2017) [TAC Guidelines] – Figure 8.8.2 (Suggested Minimum Corner Clearance to Accesses at Major Intersections) – 15 meters for a local roads at unsignalized intersections.

The proposed spacing between the Site Access and the existing residential driveway to the south (approximately 8 metres, measured between driveway radii) is in excess of the minimum driveway spacing requirements as identified in the TAC Guidelines – Figure 8.9.2 (Driveway Spacing Guidelines – Local and Collectors) – 1 meter for residential driveways on local roads.

5.3 Sight Distance Review

The sight distance to the north of the Site Access on Tait Street (approximately 40 meters) is limited by the road's intersection with Muskoka Road 3, falling below the minimum stopping sight distance requirements as per the TAC Guidelines for a design speed of 60 km/h (85 metres). However, considering that all vehicles approaching from the north will do so from a reduced speed, having just made a turning movement, the sight distance is acceptable.

The sight distance to the south of the Site Access on Tait Street (approximately 100 meters) exceeds the minimum stopping sight distance requirements as per the TAC Guidelines for a design speed of 60 km/h and approximate downgrade of 7.5% (95 metres[1]).

There are no issues with the sight distance available for the proposed Site Access.

5.4 Pedestrian Connectivity Review

The subject site will provide direct connection between the building's entrance and the existing sidewalk on the west side of Tait Street via concrete ramp and terrace. Further connection to the sidewalk infrastructure on Muskoka Road 3 to the south provides residents of the subject site access to the Town's extensive sidewalk network.

A signalized pedestrian crossing is provided at the east leg of the Muskoka Road 3 / Yonge Street S intersection (approximately 140 east of the subject site), providing access to the sidewalk infrastructure on the north side of Muskoka Road 3 and further connection to the Hunters Bay Trail (multi-use trail).

The subject site is considered well serviced by pedestrian infrastructure.

[1] In review of the District's interactive mapping tool, a downgrade of 7.5% is estimated on Tait Street, adjacent the Subject Site. Based on TAC Table 2.5.3, a recommended stopping sight distance of 95 metres is interpolated between the stopping sight distances for a 6% and 9% downgrade (92 metres and 97 metres, respectively).

5.5 Swept Path Analysis

A swept path analysis has been provided in **Appendix I** to illustrate that the following vehicles can access the site as intended:

- TAC Passenger Vehicle (TAC P);
- TAC Medium Single Unit Truck; and
- Front Load Waste Collection Vehicle.

6 Parking Review

6.1 Scope

The purpose of this analysis is to estimate the parking supply required to adequately service the proposed development.

6.2 Study Area Parking Infrastructure

There is one private surface parking lot located within the study area. On-street parking is generally permitted along streets within the study area (excluding the south side of Muskoka Road 3).

Figure 5 illustrates the location of the above-noted existing parking in the study area.

Figure 5 – Study Area Parking Infrastructure

6.3 Township of Huntsville By-Law Parking Requirement

The Town's Zoning By-Law 2008-66P [ZBL] provides parking requirements for a variety of building types and land uses. **Table 9** summarizes the parking requirement, according to the ZBL, for the proposed development.

Table 9 - Zoning By-law Parking Requirements

Category	Parking Standard	Size	Required	Provided	Net Parking Supply
Dwelling unit (multiple dwelling, apartment)	1.5 parking spaces for each dwelling unit	42 units	63 spaces	44 spaces	- 19 spaces
TOTAL PARKING SPACES			**123 spaces**	**131 spaces**	**- 19 spaces**
Barrier-Free Parking	*3 spaces for a parking requirement between 51-75 spaces*		*3 spaces*	*4 spaces*	*+1 space*

As indicated, the proposed parking supply falls below the calculated requirement by 19 spaces. Further investigation into necessary parking provision for the subject site is provided in the proceeding sections.

6.4 Proxy Parking Counts

6.4.1 Parking Data

In order to estimate the parking demand for the subject site, parking surveys previously commissioned by JD Engineering at two sites in the District of Muskoka were reviewed (Riverview Apartments and Laketree Residences, 2023). Based on our discussion with the Town, supplementary parking surveys were conducted at a third site (23 & 25 Marry Street, Huntsville). Below summarizes parking survey locations and times:

Riverview Apartments (15 Southbank Drive, Bracebridge) – 42 units

- Friday December 8th, 2023 (18:00 – 22:00) – 30 minute intervals;
- Saturday December 9th, 2023 (15:00 – 22:00) – 30 minute intervals;
- Tuesday December 3rd, 2024(midnight spot count)
- Wednesday December 4th, 2024 (midnight spot count)
- Tuesday December 10th, 2024 (midnight spot count); and
- Wednesday December 11th, 2024 (midnight spot count).

Laketree Residences (210 Highway 60, Huntsville) – 84 units

- Friday December 8th, 2023 (18:00 – 22:00) – 30 minute intervals;
- Saturday December 9th, 2023 (15:00 – 22:00) – 30 minute intervals;
- Tuesday December 3rd, 2024 (midnight spot count); and
- Tuesday December 10th, 2024 (midnight spot count).

24 & 25 Mary Street, Huntsville – 12 units

- Friday December 13th, 2024 (18:00 – 22:00) – 30 minute intervals;
- Saturday December 14th, 2024 (15:00 – 22:00) – 30 minute intervals; and
- Tuesday December 17th, 2024 (midnight spot count).

Detailed parking counts can be found in **Appendix J**. **Table 10** through **Table 12**, summarize the results of the parking surveys.

Table 10 – Riverview Apartments - Parking Utilization Survey

Time	Parking Demand		
	Resident	Visitor	Total
Friday, December 8th, 2023			
18:00	37	3	40
18:30	28	3	31
19:00	29	3	32
19:30	29	4	33
20:00	31	4	35
20:30	33	4	37
21:00	34	4	38
21:30	36	4	40
Saturday, December 9th, 2023			
15:00	29	3	32
15:30	30	3	33
16:00	30	3	33
16:30	30	3	33
17:00	30	3	33
17:30	31	3	34
18:00	29	4	33
18:30	30	4	34
19:00	31	4	35
33419:30	33	4	37
20:00	34	4	38
20:30	35	4	39
21:00	37	4	41
21:30	37	4	41
Tuesday, December 3rd, 2024			
22:00 to 00:00	39	2	41
Wednesday, December 4th, 2024			
22:00 to 00:00	38	2	40
Tuesday, December 10th, 2024			
22:00 to 00:00	36	2	38
Wednesday, December 11th, 2024			
22:00 to 00:00	39	3	42
Parking Supply	**63 spaces**	**6 spaces**	**69 spaces**
Max Demand	**39**	**4**	**42**
Max Utilization	**62%**	**67%**	**61%**
Demand per Unit	**0.93**	**0.10**	**1.00**
Size: 42 units			

As illustrated the maximum residential parking demand is 0.93 spaces / unit. The maximum visitor parking demand is 0.10 spaces / unit.

The maximum total parking demand is 1.0 spaces / unit, occurring on a weekday between 22:00 and 00:00.

Table 11 – 23 & 25 Mary Street, Huntsville - Parking Utilization Survey

Time	Parking Demand			
	Resident	Accessible	Visitor	Total
Friday, December 13th, 2024				
18:00	3	1	1	5
18:30	4	1	1	6
19:00	3	1	1	5
19:30	3	1	1	5
20:00	3	1	1	5
20:30	2	1	1	4
21:00	3	1	1	5
21:30	3	1	1	5
Saturday, December 14th, 2024				
15:00	3	1	0	4
15:30	3	1	0	4
16:00	3	1	0	4
16:30	3	1	1	5
17:00	3	1	1	5
17:30	4	0	1	5
18:00	4	0	1	5
18:30	4	0	2	6
19:00	4	1	2	7
19:30	3	1	2	6
20:00	4	1	2	7
20:30	4	1	2	7
21:00	4	1	2	7
21:30	4	1	2	7
Tuesday, December 17th, 2024				
22:00 to 00:00	4	1	1	7
Parking Supply	**13 spaces**	**1 space**	**4 spaces**	**18 spaces**
Max Demand	**4**	**1**	**2**	**7**
Max Utilization	**31%**	**100%**	**50%**	**39%**
Demand per Unit	**0.33**	**0.08**	**0.17**	**0.58**
Size: 12 units				

As illustrated the maximum residential parking demand is 0.43 spaces / unit (resident + accessible). The maximum visitor parking demand is 0.17 spaces / unit.

The maximum total parking demand is 0.58 spaces / unit.

Table 12 – Laketree Residences - Parking Utilization Survey

Time	Parking Demand		
	Resident	Accessible	Total
Friday, December 8th, 2023			
18:00	71	3	74
18:30	67	2	69
19:00	70	2	72
19:30	77	2	79
20:00	78	2	80
20:30	79	2	81
21:00	80	3	83
21:30	81	4	85
Saturday, December 9th, 2023			
15:00	60	3	63
15:30	63	2	65
16:00	64	2	66
16:30	66	2	68
17:00	68	3	71
17:30	70	3	73
18:00	73	3	76
18:30	72	3	75
19:00	73	3	76
19:30	75	3	78
20:00	77	3	80
20:30	78	3	81
21:00	80	3	83
21:30	80	3	83
Tuesday, December 3rd, 2024			
22:00 to 00:00	91	5	96
Tuesday, December 10th, 2024			
22:00 to 00:00	88	4	92
Parking Supply	**118 spaces**	**6 spaces**	**124 spaces**
Max Demand	**91**	**5**	**96**
Max Utilization	**77%**	**83%**	**80%**
Demand per Unit	**1.08**	**0.06**	**1.14**
Size: 84 units			

As illustrated the maximum total parking demand is 1.14 spaces / unit.

It is noted that the Laketree Residences does not provide designated visitor parking spaces. Based on the typical visitor demand observed for the Riverview Apartments and 33 & 35 Mary Street apartments (0.10 to 0.17 spaces / unit), the resident parking demand for the Laketree Residences is anticipated to fall in the range of 1.0 space / unit.

6.4.2 Summary

The proxy parking counts were conducted at existing developments similar to the proposed development and provide an reasonable representation of the parking demand for residential and visitor parking.

Based on the results of the parking counts, the maximum residential parking demand ranged from 0.43 to 1.0 spaces / unit. The maximum visitor parking ranged from 0.10 to 0.17 spaces / unit.

6.5 Analysis

6.5.1 Resident Parking

Lowering the resident parking supply, in conjunction with clear communication during sales / rental process and ongoing parking enforcement, can increase development efficiency and provide a form of transportation demand management. Historically, the cost to buy or rent an apartment or condominium unit has included one or more parking spaces, which provides an incentive for private vehicle ownership.

The resident parking spaces for the subject site will be sold separately from the units, which will provide a disincentive to private vehicle ownership and a basic level of transportation demand management. The cost of the unbundled spaces can be adjusted to match the demand. This would allow the units to be priced significantly lower, benefitting residents that do not require parking.

Perspective residents will be made aware that additional residential parking is not available at this site. The proposed development is not intended to service residents that require, or are expected to require more than one parking space per unit. Based on the parking survey data, resident parking demand ranges from 0.43 to 1.0 spaces / unit. As illustrated by the parking utilization, there is a significant oversupply of parking at all three proxy parking sites, which is incentivizing and subsidizing vehicle ownership.

With the above noted parking measures, it is recommended that the subject site provide a residential parking supply of 0.88 spaces per unit.

The subject site will also provide 16 underground bicycle parking spaces.

6.5.2 Visitor Parking

As summarized in Section 5.4, the proxy parking sites have a visitor parking demand ranging from 0.10 to 0.17 spaces per unit.

Based on the proxy parking demand rate, the visitor parking demand for the subject site would be approximately 7 parking spaces for the proposed 42 units.

It is recommended that the subject site provide a visitor parking supply of 0.17 spaces / unit, 7 visitor spaces.

6.6 Recommended Parking Supply

The recommended parking supply for the residential units is illustrated in **Table 13**.

Table 13 – Recommended Parking Supply

Unit Type		Recommended Parking Rate	Size	Parking	
				Recommended	Provided
Dwelling unit (multiple dwelling, apartment)	Resident	0.88 spaces / unit	42 units	37 spaces	37 spaces
	Visitor	0.17 spaces / unit		7 spaces	7 spaces
Total		**1.05 spaces / unit**	**42 units**	**44 spaces**	**44 spaces**
Barrier-Free Parking		*3 spaces for a parking requirement between 51-75 spaces*		*3 spaces*	*4 spaces*

The above-noted parking supply is considered to be adequate to support the parking demand for the proposed development.

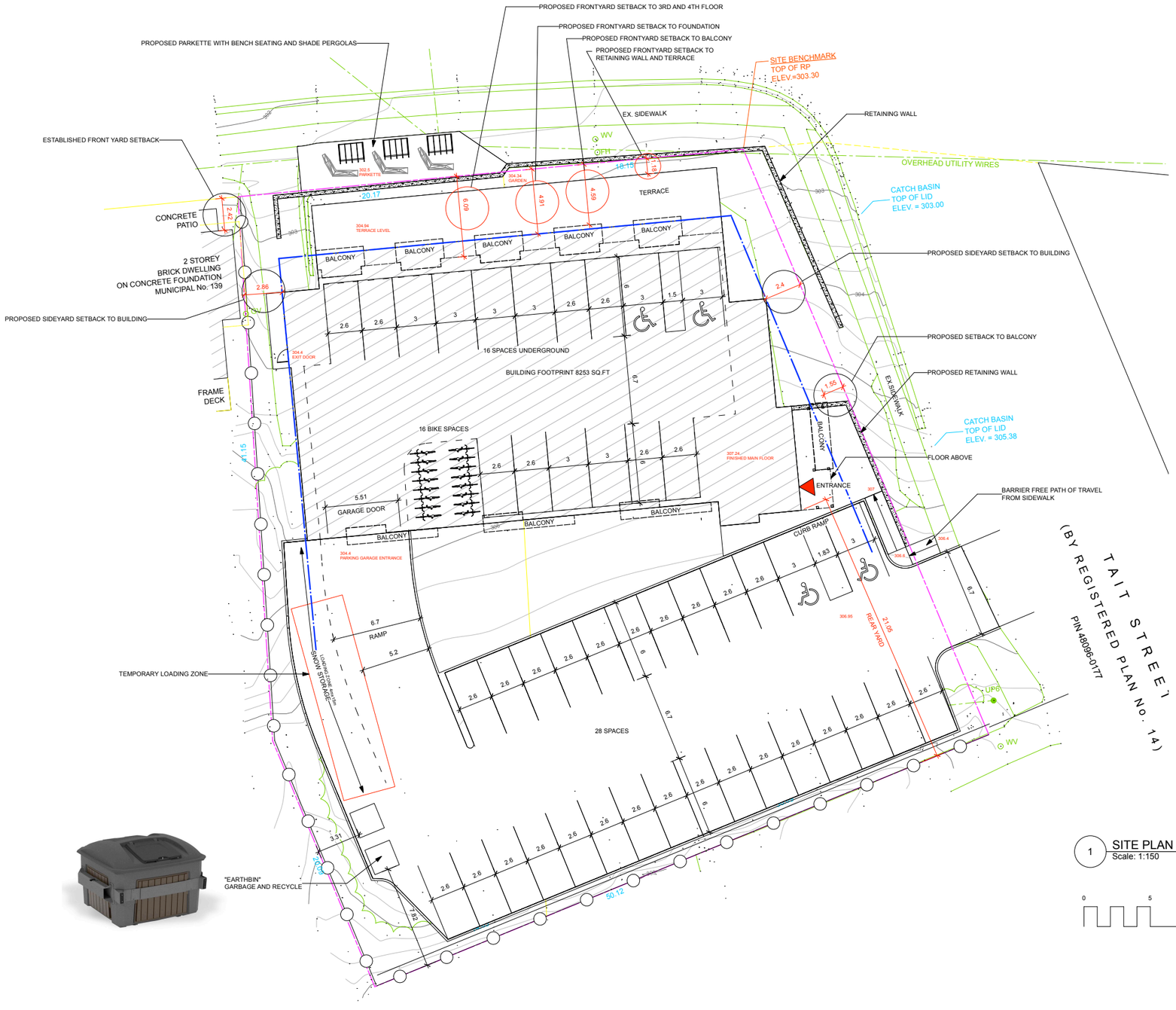
7 Summary

Ravi Prasher retained **JD Engineering** to prepare this traffic impact study in support of the proposed residential development in the Town of Huntsville. The proposed Site Plan is shown in **Appendix A**. This chapter summarizes the conclusions and recommendations from the study.

1. The proposed development is estimated to generate 17 AM and 21 PM new peak hour vehicle trips in the study area.
2. Detailed traffic and pedestrian counts were conducted at the study intersection in December 2024.
3. An intersection operational analysis was completed at the study area intersections, using the existing (2025) and background (2028) traffic volumes, without the proposed development traffic. This enabled a review of existing and future traffic deficiencies that would be present without the influence of the proposed development. No improvements are recommended.
4. An estimate of the amount of traffic that would be generated by the Subject Site was prepared and assigned to the study area roads and intersections.
5. An intersection operation analysis was completed under total (2028) traffic volumes with the proposed development operational at the study area intersections. No additional improvements are recommended.
6. The Site Access will operate efficiently as a full-movement driveway, with one-way stop control for the egress movements. A single ingress and egress lane will provide the necessary capacity to service the proposed development.
7. The location of the proposed site access driveway is considered appropriate with respect to minimum driveways spacing requirements.
8. The sight distance available for the proposed site access driveway is suitable for the intended use.
9. It is recommended that the proposed development include 37 resident parking spaces, 7 visitor parking spaces, 3 accessible parking spaces and 16 indoor bicycle parking spaces.
10. The resident parking spaces for the subject site will be sold separately from the units, and perspective residents will be made aware that additional residential parking is not available at this site.

11. Based on the parking survey data, the recommended visitor parking supply will meet the peak visitor parking demand and the recommended resident parking supply is within the range of resident parking demand for similar existing developments.
12. In summary the proposed development will not cause any operational issues and will not add significant delay or congestion to the local roadway network

Appendix A – Site Plan



1 SITE PLAN
Scale: 1:150

0 5 10 15 20 25 m

N

FAD architects

Contractors must check and verify all dimensions on the project and report any discrepancies to FAD before proceeding with the work.

All drawings are the property of the Architect and are instruments of service. They are for use only on the project for which they were prepared, and must be returned upon request. Reproduction of drawings in part or in whole is forbidden without the Architect's permission.

The Contractor is to be familiar with the Ontario Building Code and its latest revisions.

DRAWINGS SHOULD NOT BE SCALED

Project Title

LIONSTON DEVELOPMENT PROPOSAL
3 TAIT ST.
HUNTSVILLE, ON

Consultant

REV.	DATE	DESCRIPTION

NO.	DATE	ISSUE NOTE

Project Manager | Drawn By

Date: JAN 2025 | Reviewed By: MR

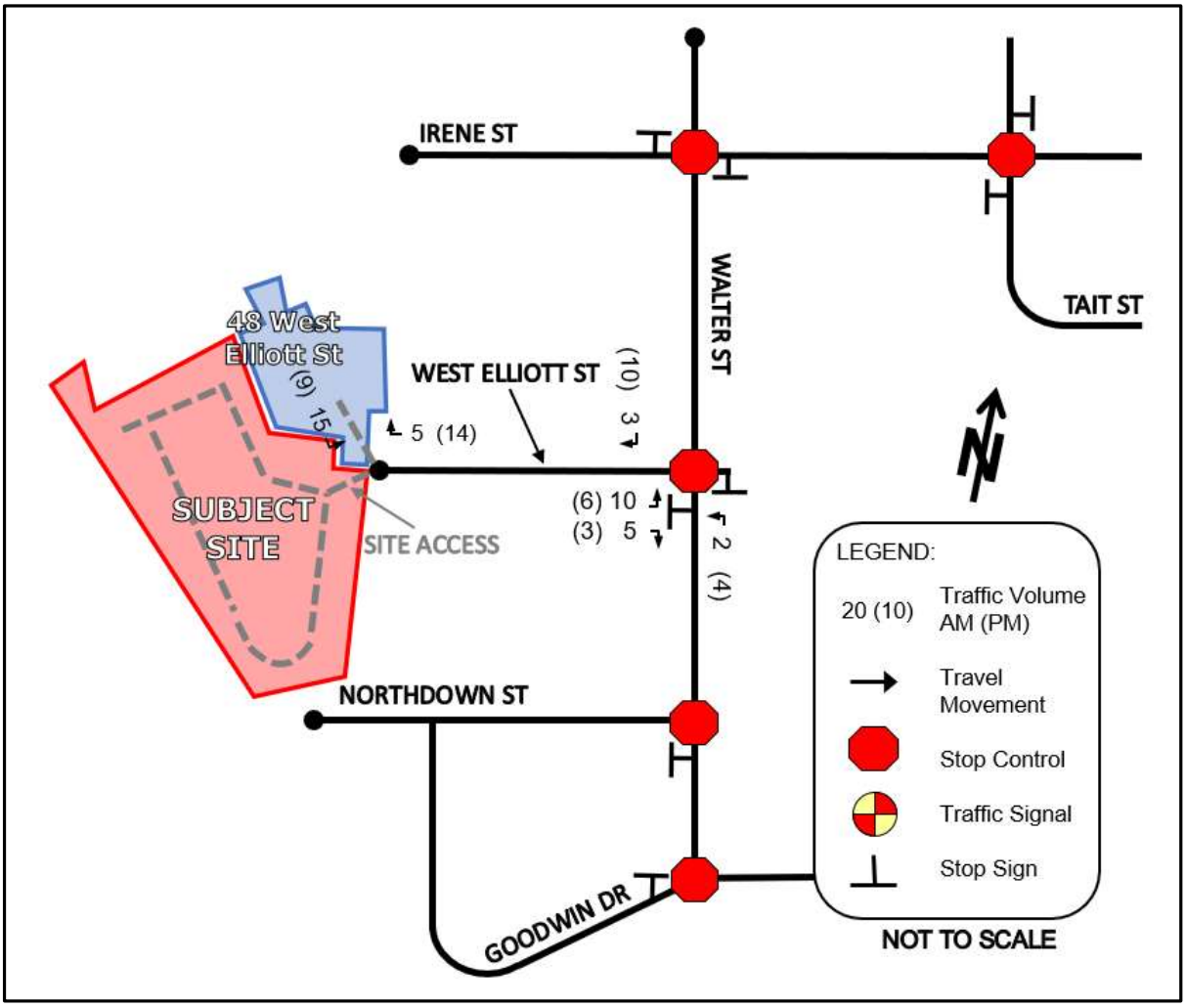
Project ID: 2411

Sheet Title: SITE PLAN

Sheet No.: A1.1

Appendix B –
Adjacent Development Excerpts

Figure 3 – Adjacent Development (48 West Elliott Street)



2.5 Traffic Data

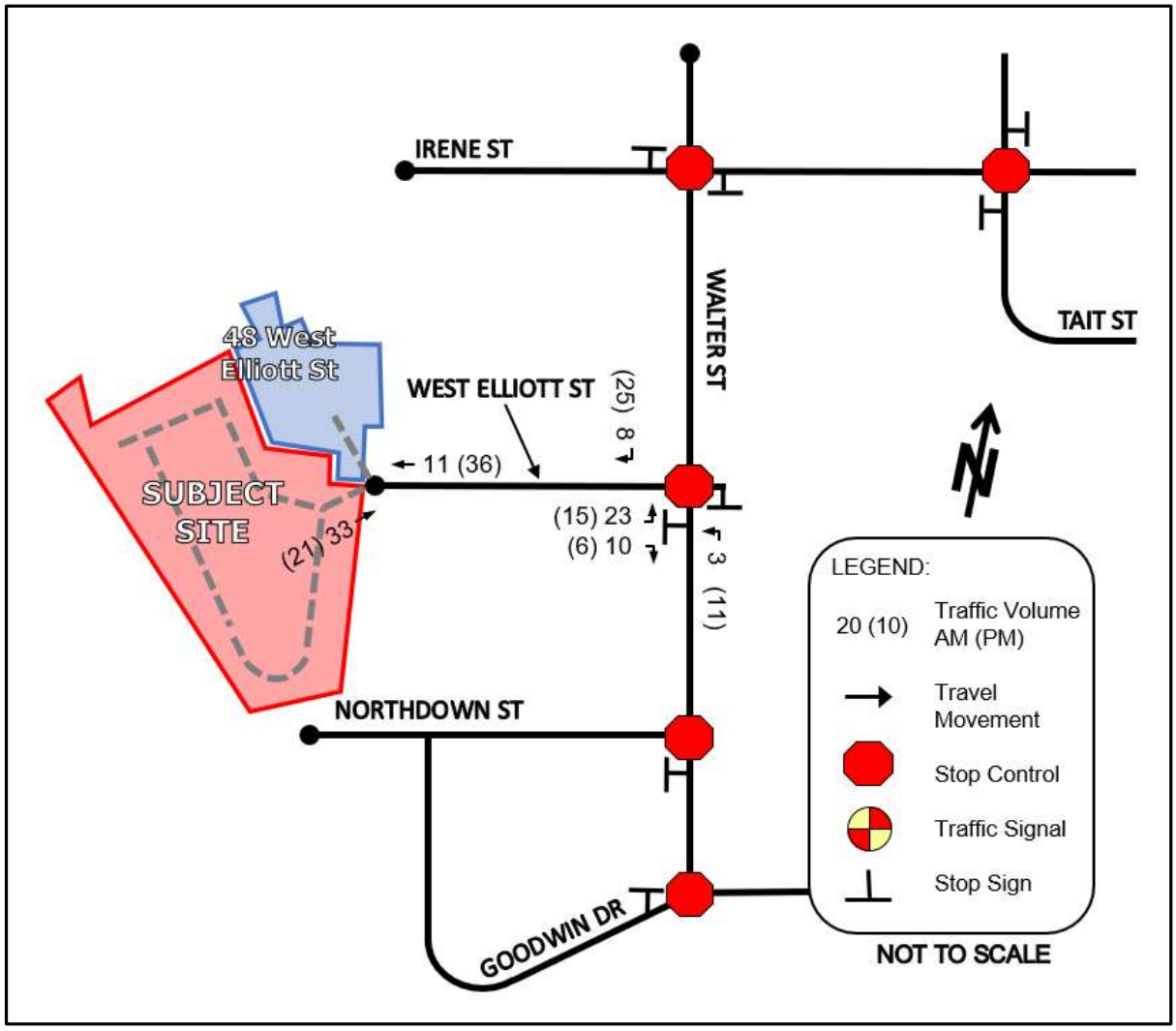
Traffic volumes on West Elliott Street and Walter Street have been estimated based on Annual Average Daily Traffic (AADT) as published within the Town's RNS for the 2015 existing (published) year and 5- and 10-year projections.

In developing the estimated peak hour volumes on West Elliott Street and Walter Street, the following assumptions have been made:

- Peak hour volumes = 20% of daily volumes; and
- Peak hour direction split of 50/50 north/south and east/west.

The estimated peak hour volumes for West Elliott Street and Walter Street are provided in **Table 2**.

Figure 6 – Traffic Assignment for Proposed Development



4.3 Total Horizon Year Traffic Volumes with the Proposed Development

For the total (2023) horizon year traffic volumes, the proposed development traffic was added to the background (2023) traffic volumes. The resulting total (2023) horizon year traffic volume for the AM and PM peak hour are illustrated in **Figure 7**.

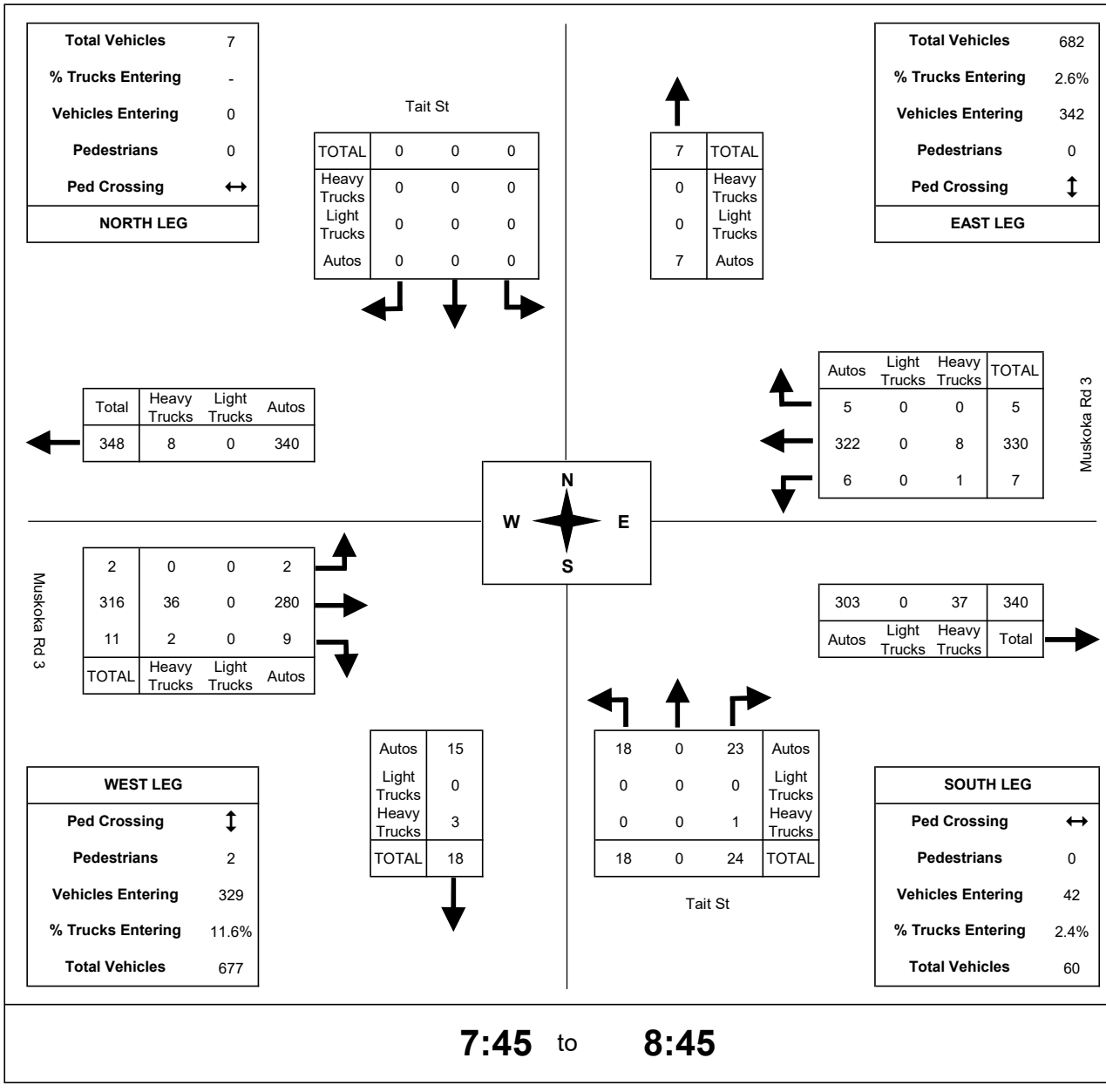
Appendix C –
Traffic Count Data

TURNING MOVEMENT COUNT
AM PEAK HOUR

GENERAL INFORMATION

Surveyor	JL	**Municipality/Date**	Huntsville Weds, Dec 18, 2024
Weather	Overcast, -5C	**Main Road**	Muskoka Rd 3 E-W
Project Name	Tait Street	**Minor Road**	Tait St N-S
Project Number	24-05	**Intersection Control**	stop control on minor street

Comments



7:45 to **8:45**

TURNING MOVEMENT COUNT
PM PEAK HOUR

GENERAL INFORMATION

Surveyor	JL	**Municipality/Date**	Huntsville — Weds, Dec 18, 2024
Weather	Overcast, -5C	**Main Road**	Muskoka Rd 3 — E-W
Project Name	Tait Street	**Minor Road**	Tait St — N-S
Project Number	24-05	**Intersection Control**	stop control on minor street

Comments

NORTH LEG	
Total Vehicles	18
% Trucks Entering	0.0%
Vehicles Entering	7
Pedestrians	0
Ped Crossing	↔

Tait St

TOTAL	0	2	5
Heavy Trucks	0	0	0
Light Trucks	0	0	0
Autos	0	2	5

11	TOTAL		
0	Heavy Trucks		
0	Light Trucks		
11	Autos		

EAST LEG	
Total Vehicles	747
% Trucks Entering	4.4%
Vehicles Entering	341
Pedestrians	0
Ped Crossing	↕

Total	Heavy Trucks	Light Trucks	Autos
317	15	0	302

Autos	Light Trucks	Heavy Trucks	TOTAL
7	0	0	7
299	0	14	313
20	0	1	21

Muskoka Rd 3

N
W E
S

Muskoka Rd 3

4	0	0	4
392	6	0	386
12	2	0	10
TOTAL	Heavy Trucks	Light Trucks	Autos

400	0	6	406
Autos	Light Trucks	Heavy Trucks	Total

Autos	32
Light Trucks	0
Heavy Trucks	3
TOTAL	35

3	0	9	Autos
0	0	0	Light Trucks
1	0	0	Heavy Trucks
4	0	9	TOTAL

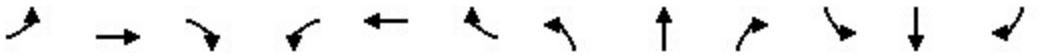
Tait St

WEST LEG	
Ped Crossing	↕
Pedestrians	2
Vehicles Entering	408
% Trucks Entering	2.0%
Total Vehicles	725

SOUTH LEG	
Ped Crossing	↔
Pedestrians	0
Vehicles Entering	13
% Trucks Entering	7.7%
Total Vehicles	48

16:30 to 17:30

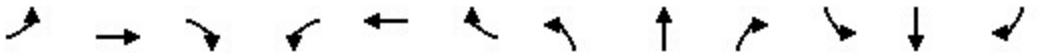
Appendix D –
Synchro Analysis Output –
Existing Traffic Volumes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	416	14	9	435	6	23	0	32	0	0	0
Future Volume (Veh/h)	3	416	14	9	435	6	23	0	32	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.89	0.89	0.89	0.75	0.75	0.75	0.92	0.92	0.92
Hourly flow rate (vph)	3	438	15	10	489	7	31	0	43	0	0	0
Pedestrians								5			5	
Lane Width (m)								3.7			3.7	
Walking Speed (m/s)								1.1			1.1	
Percent Blockage								0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	501			458			969	978	451	1012	982	498
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	501			458			969	978	451	1012	982	498
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			86	100	93	100	100	100
cM capacity (veh/h)	1058			1037			228	245	602	198	244	570

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	456	506	74	0
Volume Left	3	10	31	0
Volume Right	15	7	43	0
cSH	1058	1037	357	1700
Volume to Capacity	0.00	0.01	0.21	0.00
Queue Length 95th (m)	0.1	0.2	5.8	0.0
Control Delay (s/veh)	0.1	0.3	17.7	0.0
Lane LOS	A	A	C	A
Approach Delay (s/veh)	0.1	0.3	17.7	0.0
Approach LOS			C	A

Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	39.3%	ICU Level of Service	A	
Analysis Period (min)	15			

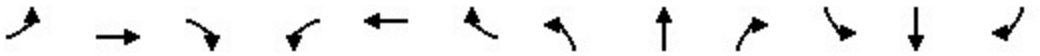


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	516	15	28	412	9	5	0	12	6	3	0
Future Volume (Veh/h)	5	516	15	28	412	9	5	0	12	6	3	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.92	0.92	0.92	0.65	0.65	0.65	0.44	0.44	0.44
Hourly flow rate (vph)	6	600	17	30	448	10	8	0	18	14	7	0
Pedestrians								5			5	
Lane Width (m)								3.7			3.7	
Walking Speed (m/s)								1.1			1.1	
Percent Blockage								0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	463			622			1142	1149	614	1157	1152	458
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	463			622			1142	1149	614	1157	1152	458
tC, single (s)	4.1			4.1			7.4	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.7	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			97			95	100	96	91	96	100
cM capacity (veh/h)	1093			940			149	189	490	160	188	600

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	623	488	26	21
Volume Left	6	30	8	14
Volume Right	17	10	18	0
cSH	1093	940	288	169
Volume to Capacity	0.01	0.03	0.09	0.12
Queue Length 95th (m)	0.1	0.8	2.2	3.2
Control Delay (s/veh)	0.2	0.9	18.7	29.3
Lane LOS	A	A	C	D
Approach Delay (s/veh)	0.2	0.9	18.7	29.3
Approach LOS			C	D

Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	50.5%	ICU Level of Service	A	
Analysis Period (min)	15			

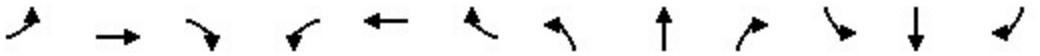
Appendix E –
Synchro Analysis Output –
Background Traffic Volumes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	465	15	10	487	6	24	0	34	0	0	0
Future Volume (Veh/h)	3	465	15	10	487	6	24	0	34	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.89	0.89	0.89	0.75	0.75	0.75	0.92	0.92	0.92
Hourly flow rate (vph)	3	489	16	11	547	7	32	0	45	0	0	0
Pedestrians								5			5	
Lane Width (m)								3.7			3.7	
Walking Speed (m/s)								1.1			1.1	
Percent Blockage								0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	559			510			1081	1089	502	1126	1094	556
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	559			510			1081	1089	502	1126	1094	556
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			83	100	92	100	100	100
cM capacity (veh/h)	1007			991			191	210	563	164	209	528

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	508	565	77	0
Volume Left	3	11	32	0
Volume Right	16	7	45	0
cSH	1007	991	311	1700
Volume to Capacity	0.00	0.01	0.25	0.00
Queue Length 95th (m)	0.1	0.3	7.3	0.0
Control Delay (s/veh)	0.1	0.3	20.3	0.0
Lane LOS	A	A	C	A
Approach Delay (s/veh)	0.1	0.3	20.3	0.0
Approach LOS			C	A

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	42.9%	ICU Level of Service	A	
Analysis Period (min)	15			

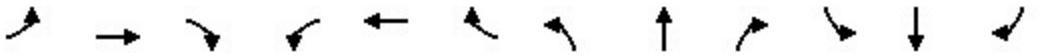


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	583	16	30	464	10	5	0	13	6	3	0
Future Volume (Veh/h)	5	583	16	30	464	10	5	0	13	6	3	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.92	0.92	0.92	0.65	0.65	0.65	0.44	0.44	0.44
Hourly flow rate (vph)	6	678	19	33	504	11	8	0	20	14	7	0
Pedestrians								5			5	
Lane Width (m)								3.7			3.7	
Walking Speed (m/s)								1.1			1.1	
Percent Blockage								0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	520			702			1284	1291	693	1300	1295	515
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	520			702			1284	1291	693	1300	1295	515
tC, single (s)	4.1			4.1			7.4	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.7	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			96			93	100	95	89	95	100
cM capacity (veh/h)	1041			877			117	155	441	126	154	557

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	703	548	28	21
Volume Left	6	33	8	14
Volume Right	19	11	20	0
cSH	1041	877	247	134
Volume to Capacity	0.01	0.04	0.11	0.16
Queue Length 95th (m)	0.1	0.9	2.9	4.1
Control Delay (s/veh)	0.2	1.0	21.5	36.8
Lane LOS	A	A	C	E
Approach Delay (s/veh)	0.2	1.0	21.5	36.8
Approach LOS			C	E

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	55.0%	ICU Level of Service	B	
Analysis Period (min)	15			

Appendix F –
Synchro Analysis Output –
Total Traffic Volumes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	465	17	12	487	6	30	0	40	0	0	0
Future Volume (Veh/h)	3	465	17	12	487	6	30	0	40	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.89	0.89	0.89	0.75	0.75	0.75	0.92	0.92	0.92
Hourly flow rate (vph)	3	489	18	13	547	7	40	0	53	0	0	0
Pedestrians								5			5	
Lane Width (m)								3.7			3.7	
Walking Speed (m/s)								1.1			1.1	
Percent Blockage								0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	559			512			1086	1094	503	1139	1100	556
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	559			512			1086	1094	503	1139	1100	556
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			79	100	91	100	100	100
cM capacity (veh/h)	1007			990			189	208	562	158	207	528

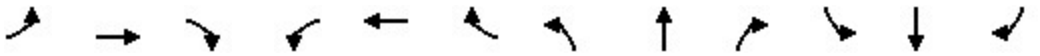
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	510	567	93	0
Volume Left	3	13	40	0
Volume Right	18	7	53	0
cSH	1007	990	304	1700
Volume to Capacity	0.00	0.01	0.31	0.00
Queue Length 95th (m)	0.1	0.3	9.6	0.0
Control Delay (s/veh)	0.1	0.4	22.0	0.0
Lane LOS	A	A	C	A
Approach Delay (s/veh)	0.1	0.4	22.0	0.0
Approach LOS			C	A

Intersection Summary				
Average Delay	2.0			
Intersection Capacity Utilization	45.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	1	0	58	25	4
Future Volume (Veh/h)	12	1	0	58	25	4
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)	13	1	0	63	27	4
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	92	29	31			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	92	29	31			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	908	1046	1582			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	14	63	31
Volume Left	13	0	0
Volume Right	1	0	4
cSH	917	1582	1700
Volume to Capacity	0.02	0.00	0.02
Queue Length 95th (m)	0.4	0.0	0.0
Control Delay (s/veh)	9.0	0.0	0.0
Lane LOS	A		
Approach Delay (s/veh)	9.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	583	21	37	464	10	9	0	17	6	3	0
Future Volume (Veh/h)	5	583	21	37	464	10	9	0	17	6	3	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.92	0.92	0.92	0.65	0.65	0.65	0.44	0.44	0.44
Hourly flow rate (vph)	6	678	24	40	504	11	14	0	26	14	7	0
Pedestrians								5			5	
Lane Width (m)								3.7			3.7	
Walking Speed (m/s)								1.1			1.1	
Percent Blockage								0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	520			707			1300	1307	695	1323	1314	515
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	520			707			1300	1307	695	1323	1314	515
tC, single (s)	4.1			4.1			7.4	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.7	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			95			88	100	94	88	95	100
cM capacity (veh/h)	1041			873			113	150	440	119	149	557

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	708	555	40	21
Volume Left	6	40	14	14
Volume Right	24	11	26	0
cSH	1041	873	219	128
Volume to Capacity	0.01	0.05	0.18	0.16
Queue Length 95th (m)	0.1	1.1	5.0	4.3
Control Delay (s/veh)	0.2	1.2	25.1	38.7
Lane LOS	A	A	D	E
Approach Delay (s/veh)	0.2	1.2	25.1	38.7
Approach LOS			D	E

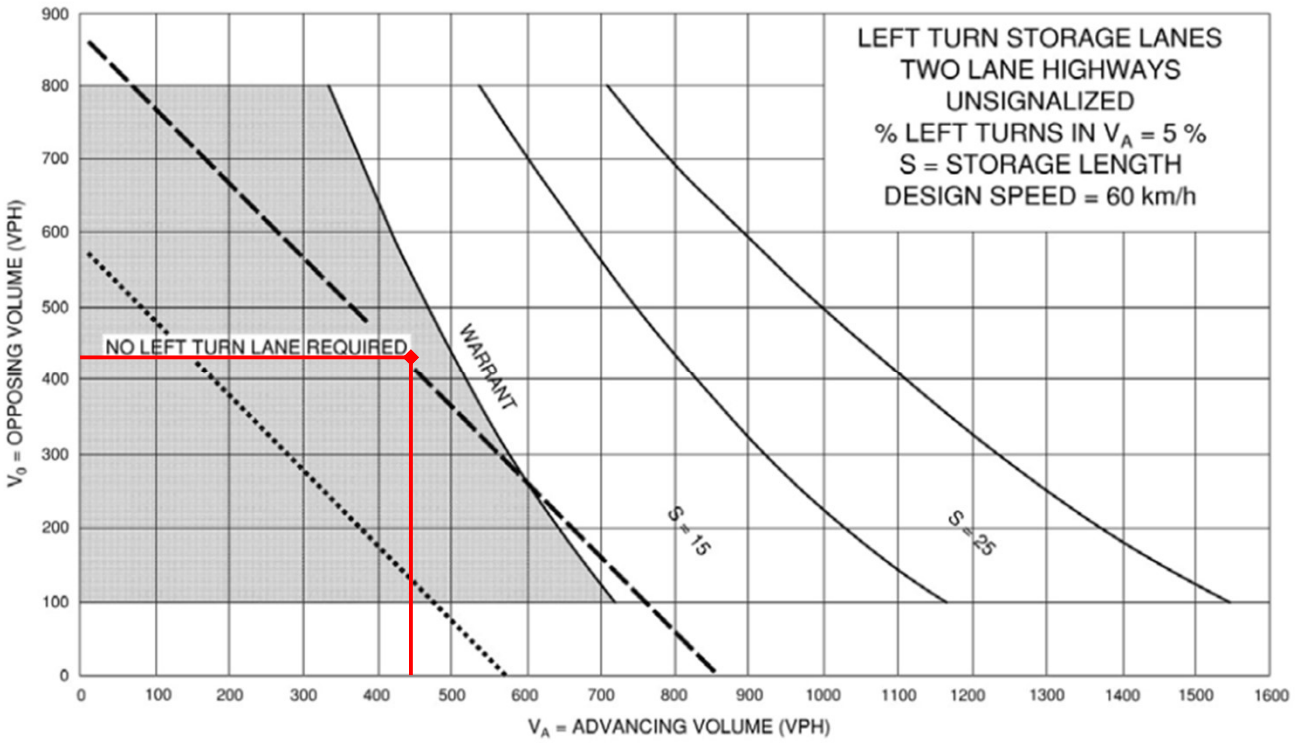
Intersection Summary				
Average Delay	2.0			
Intersection Capacity Utilization	59.9%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	0	1	18	49	12
Future Volume (Veh/h)	8	0	1	18	49	12
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)	9	0	1	20	53	13
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	82	60	66			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	82	60	66			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	920	1006	1536			

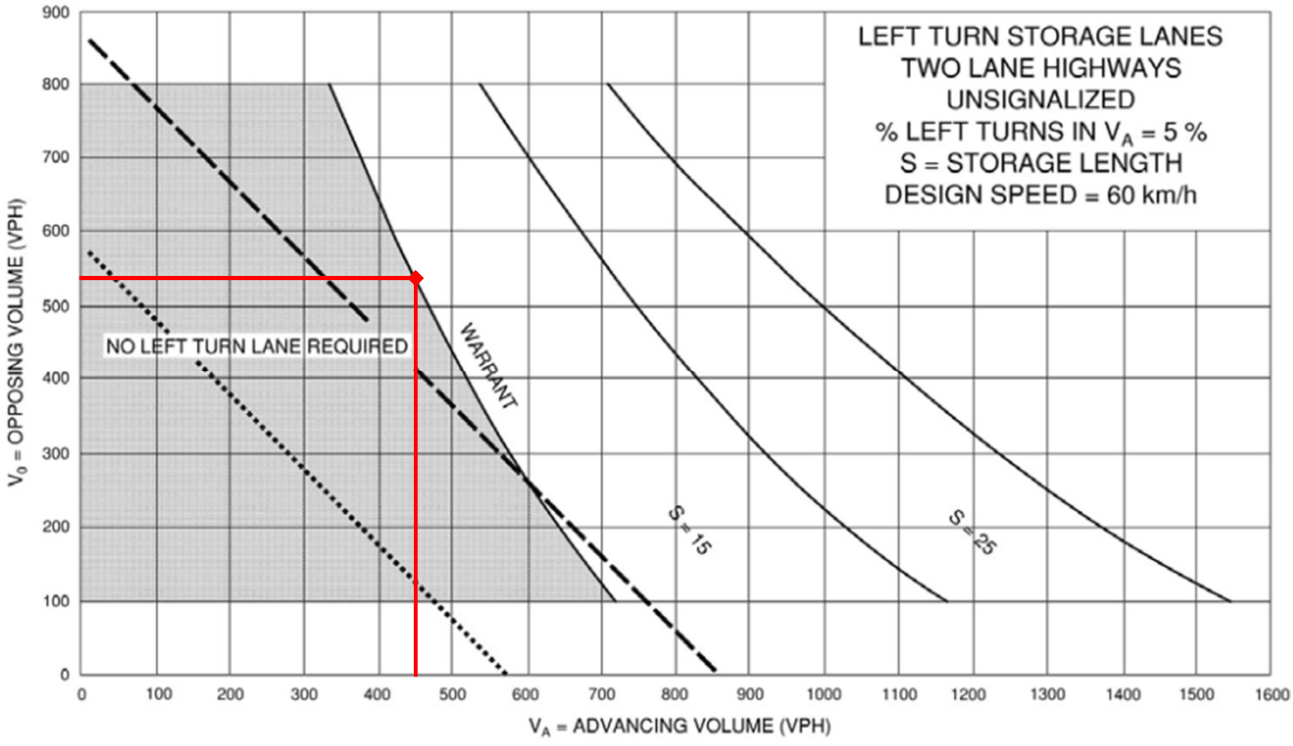
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	9	21	66
Volume Left	9	1	0
Volume Right	0	0	13
cSH	920	1536	1700
Volume to Capacity	0.01	0.00	0.04
Queue Length 95th (m)	0.2	0.0	0.0
Control Delay (s/veh)	9.0	0.4	0.0
Lane LOS	A	A	
Approach Delay (s/veh)	9.0	0.4	0.0
Approach LOS	A		

Intersection Summary			
Average Delay		0.9	
Intersection Capacity Utilization		13.3%	ICU Level of Service
Analysis Period (min)		15	

Appendix G –
MTO Left Turn Warrant Analysis

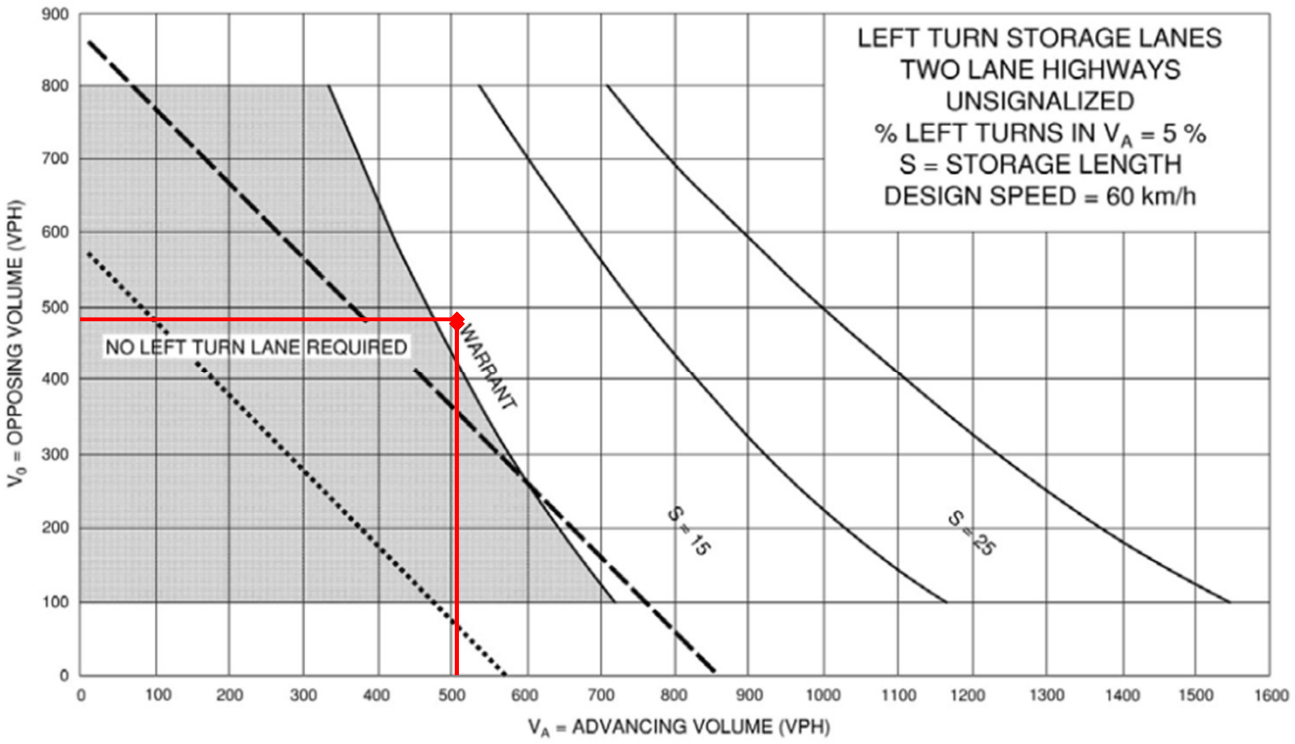


Existing (2025) AM Peak – WB on Muskoka Road / Tait Street

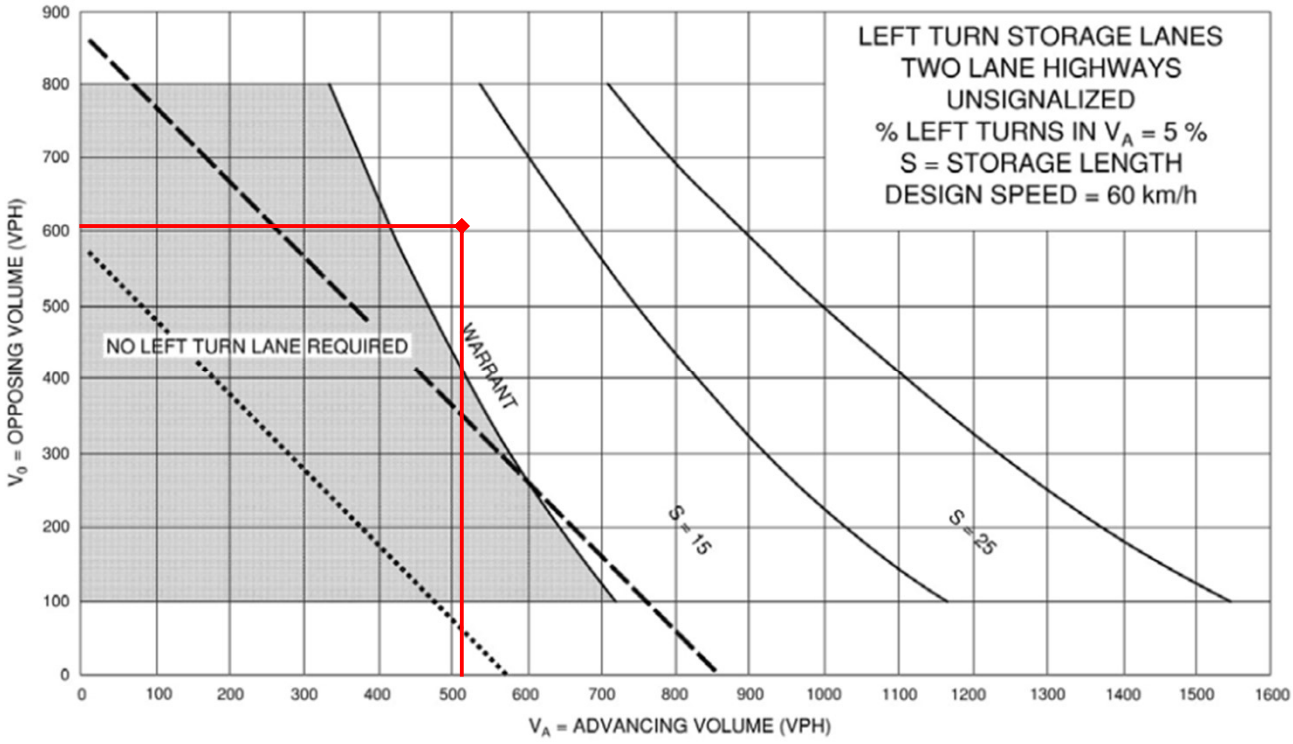


Existing (2025) PM Peak – WB on Muskoka Road / Tait Street

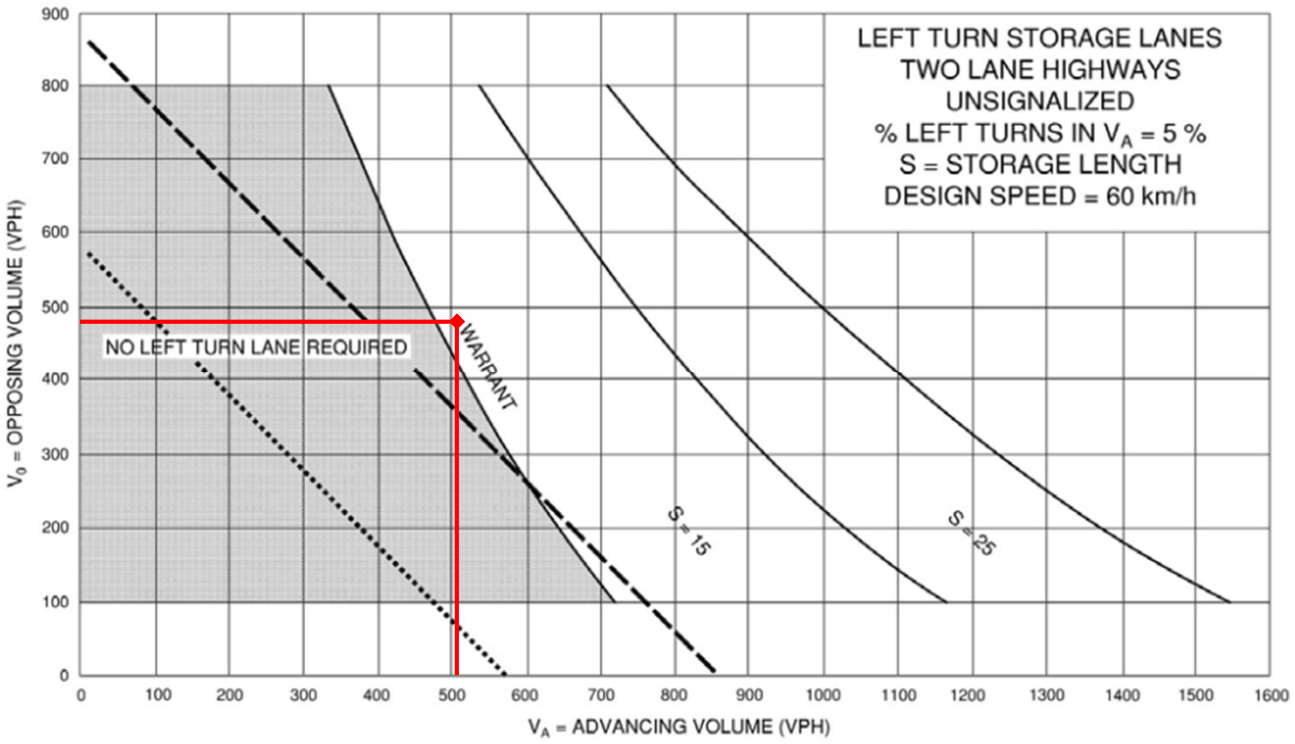
ENGINEERING



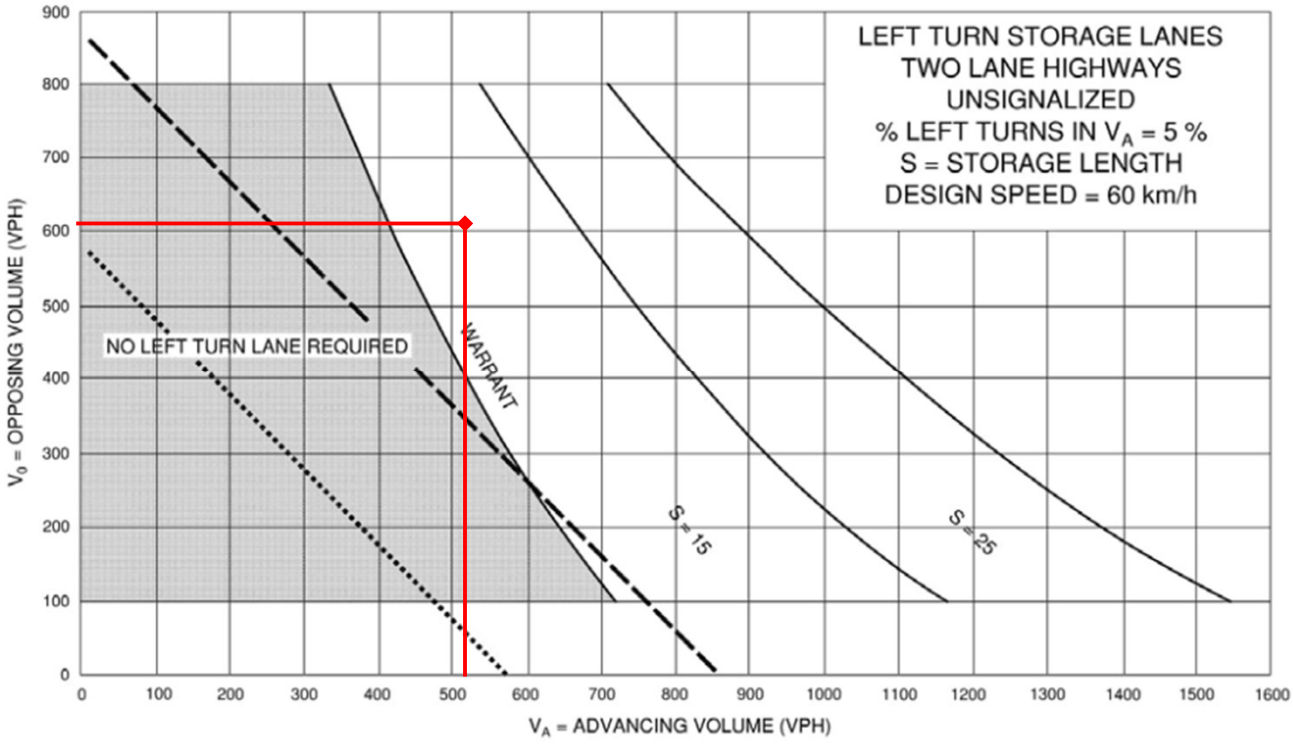
Background (2028) AM Peak – WB on Muskoka Road / Tait Street



Background (2028) PM Peak – WB on Muskoka Road / Tait Street



Total (2028) AM Peak – WB on Muskoka Road / Tait Street



Total (2028) PM Peak – WB on Muskoka Road / Tait Street

ENGINEERING

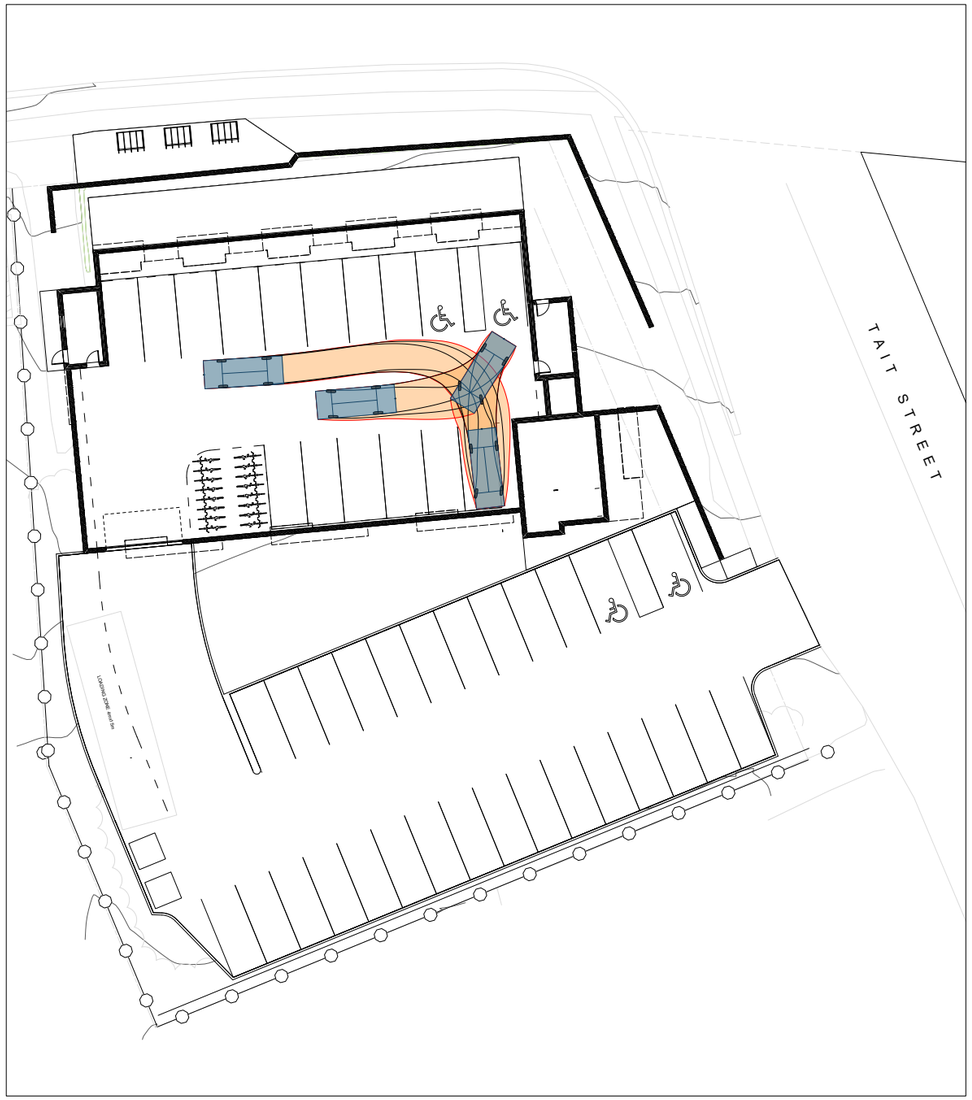
Appendix H –
OTM Signal Justification Sheets

Justification No. 7 - Total (2028) Traffic

MR 3 / Tait St

Justification	Description		Compliance			Signal Warrant	Underground Provisions Warrant
			Sectional		Entire %		
		Rest. Flow	Numerical	%			
1. Minimum Vehicluar Volume	A. Vehicle volume, all aproaches (average hour)	720	554	77%	13%	NO	NO
	B. Vehicle volume, along minor streets (average hour)	170	26	15%		NO	NO
2. Delay to cross traffic	A. Vehicle volume, major street (average hour)	720	514	71%	13%	NO	NO
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	75	12	16%		NO	NO

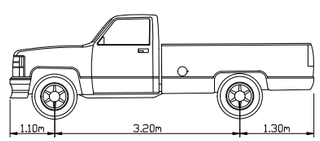
Appendix I –
Swept Path Analysis



DESIGN VEHICLE

PASSENGER VEHICLE (TAC P)

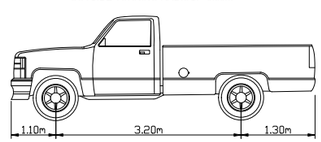
VEHICLE WIDTH: 2.00m
OUTSIDE TURNING RADIUS: 6.30m



DESIGN VEHICLE

PASSENGER VEHICLE (TAC P)

VEHICLE WIDTH: 2.00m
OUTSIDE TURNING RADIUS: 6.30m



GENERAL NOTES
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2. DO NOT SCALE DRAWINGS.
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4. BASE DRAWING PROVIDED BY FAD ARCHITECTS ON JANUARY 15TH, 2025.

NO.	DATE	APPROVED	REVISIONS
1.	JAN 2025	JN	FIRST SUBMISSION

JD Northcote Engineering Inc.
Phone: 705.725.4035
86 Cumberland Street
Barrie, ON L4N 2P6
www.JDEngineering.ca

PROJECT: 3 TAIT STREET

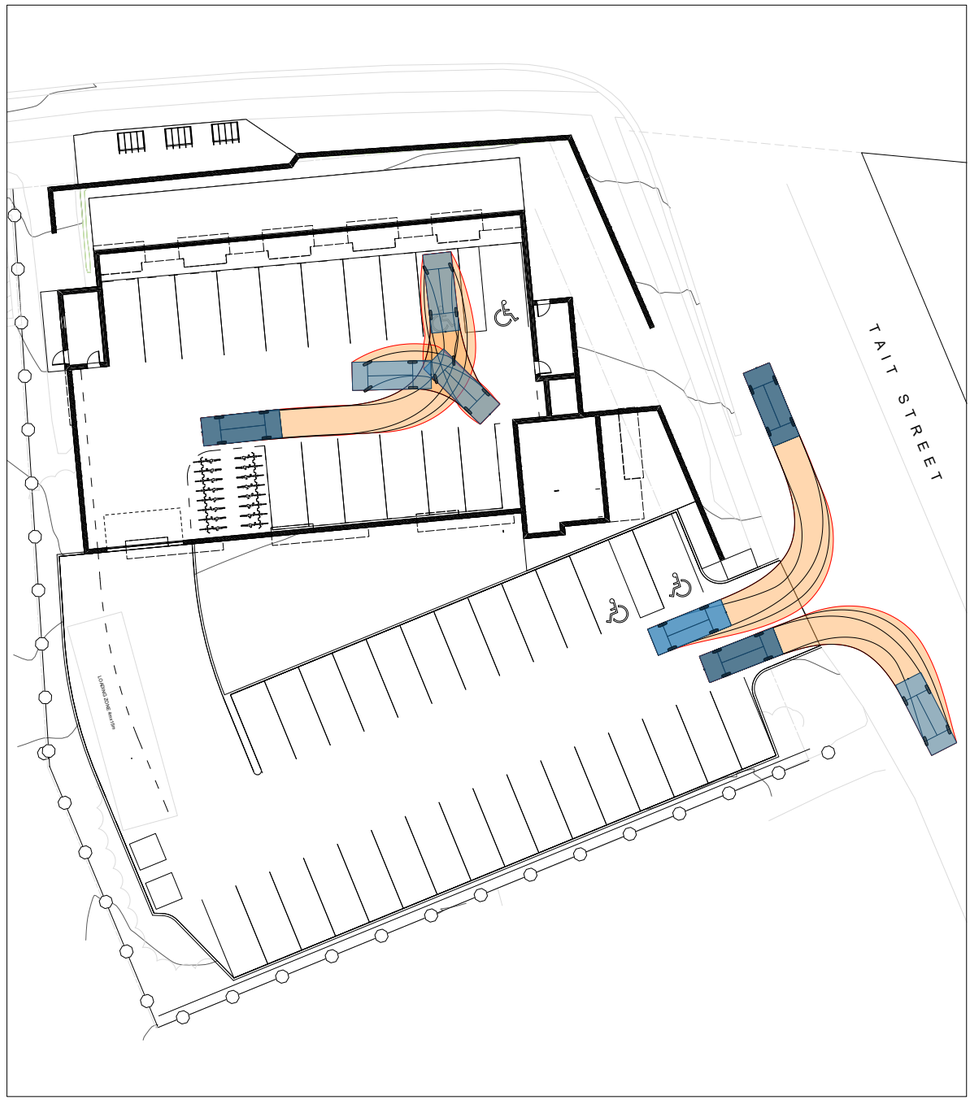
CLIENT: RAVI PRASHER INC.

DRAWING TITLE: VEHICLE SWEPT PATH REVIEW

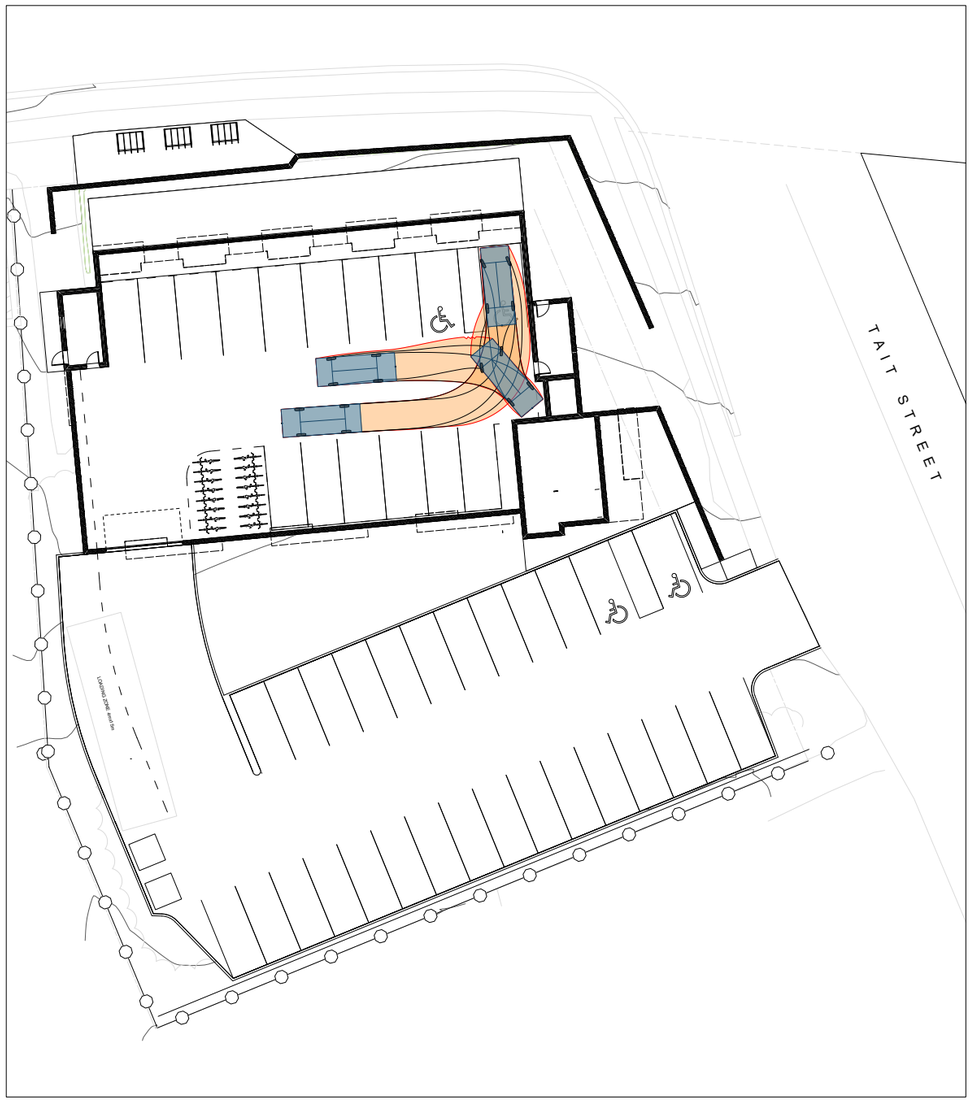
SUBTITLE: TAC PASSENGER VEHICLE

DESIGN:	RH	DATE:	01/25
DRAWN:	RH	DATE:	01/25
REVIEWED:	JN	DATE:	01/25
SCALE HOR.	1:200	SCALE VERT.	N/A

SHEET NO. 24055 - TURN-1



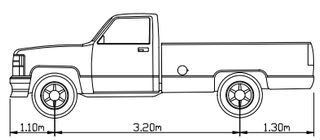
N



DESIGN VEHICLE

PASSENGER VEHICLE (TAC P)

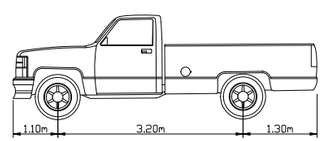
VEHICLE WIDTH: 2.00m
OUTSIDE TURNING RADIUS: 6.30m



DESIGN VEHICLE

PASSENGER VEHICLE (TAC P)

VEHICLE WIDTH: 2.00m
OUTSIDE TURNING RADIUS: 6.30m



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NO.	DATE	APPROVED	REVISIONS
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JD Northcote Engineering Inc.
Phone: 705.725.4035
86 Cumberland Street
Barrie, ON L4N 2P6
www.JDEngineering.ca

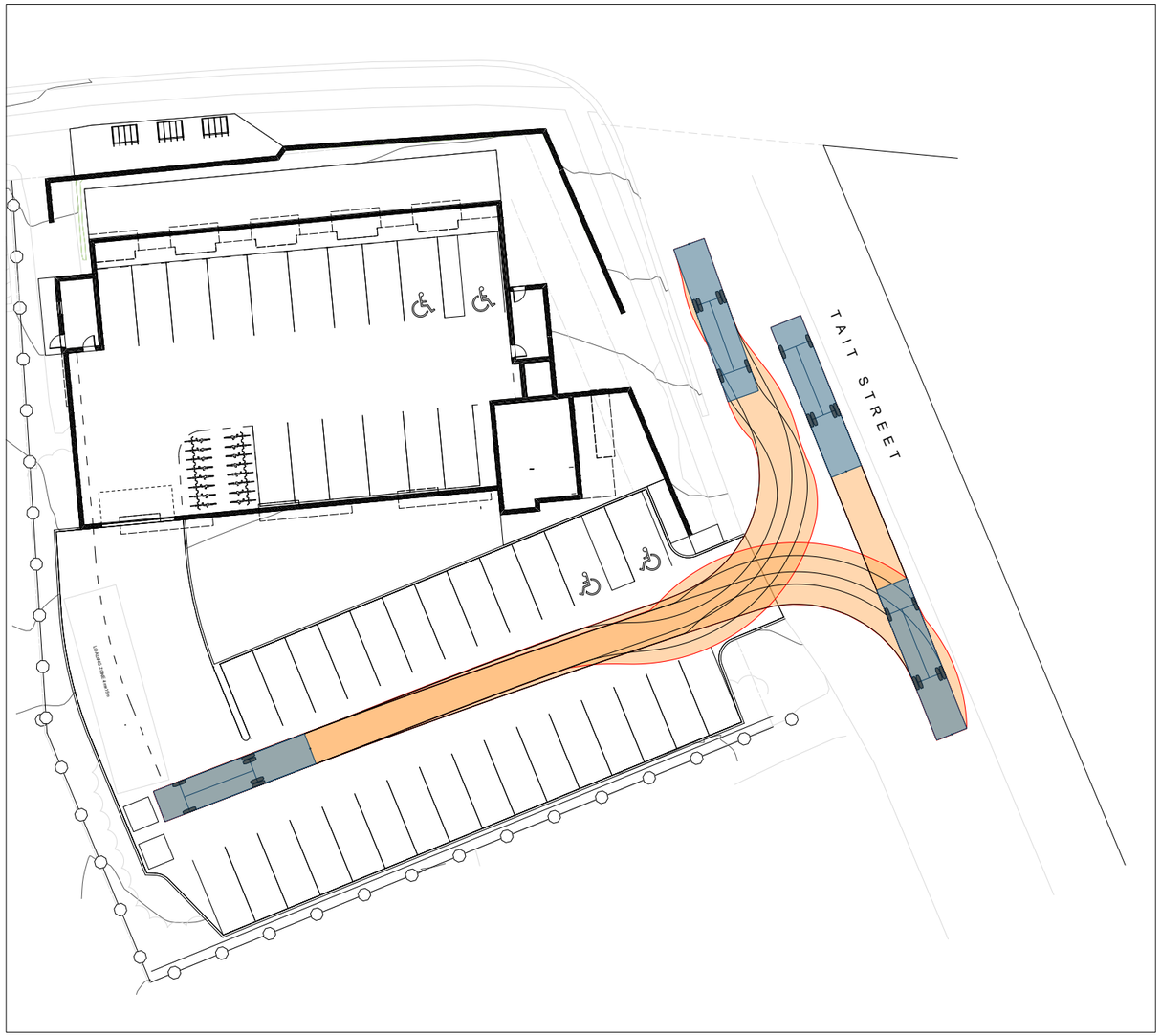
PROJECT: 3 TAIT STREET

CLIENT: RAVI PRASHER INC.

DRAWING TITLE: VEHICLE SWEPT PATH REVIEW

SUBTITLE: TAC PASSENGER VEHICLE

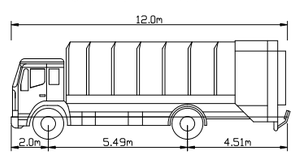
DESIGN: RH	DATE: 01/25
DRAWN: RH	DATE: 01/25
REVIEWED: JN	DATE: 01/25
SCALE HOR. 1:200	SCALE VERT. N/A
SHEET NO.	24055 - TURN-2



DESIGN VEHICLE

FRONT LOAD WASTE COLLECTION VEHICLE

VEHICLE WIDTH: 2.40m
OUTSIDE TURNING RADIUS: 14.0m



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4. BASE DRAWING PROVIDED BY FAD ARCHITECTS ON JANUARY 15TH, 2025.

NO.	DATE	APPROVED	REVISIONS
1.	JAN 2025	JN	FIRST SUBMISSION

JD Northcote Engineering Inc.
Phone: 705.725.4035
86 Cumberland Street
Barrie, ON L4N 2P6
www.JDEngineering.ca

PROJECT: 3 TAIT STREET

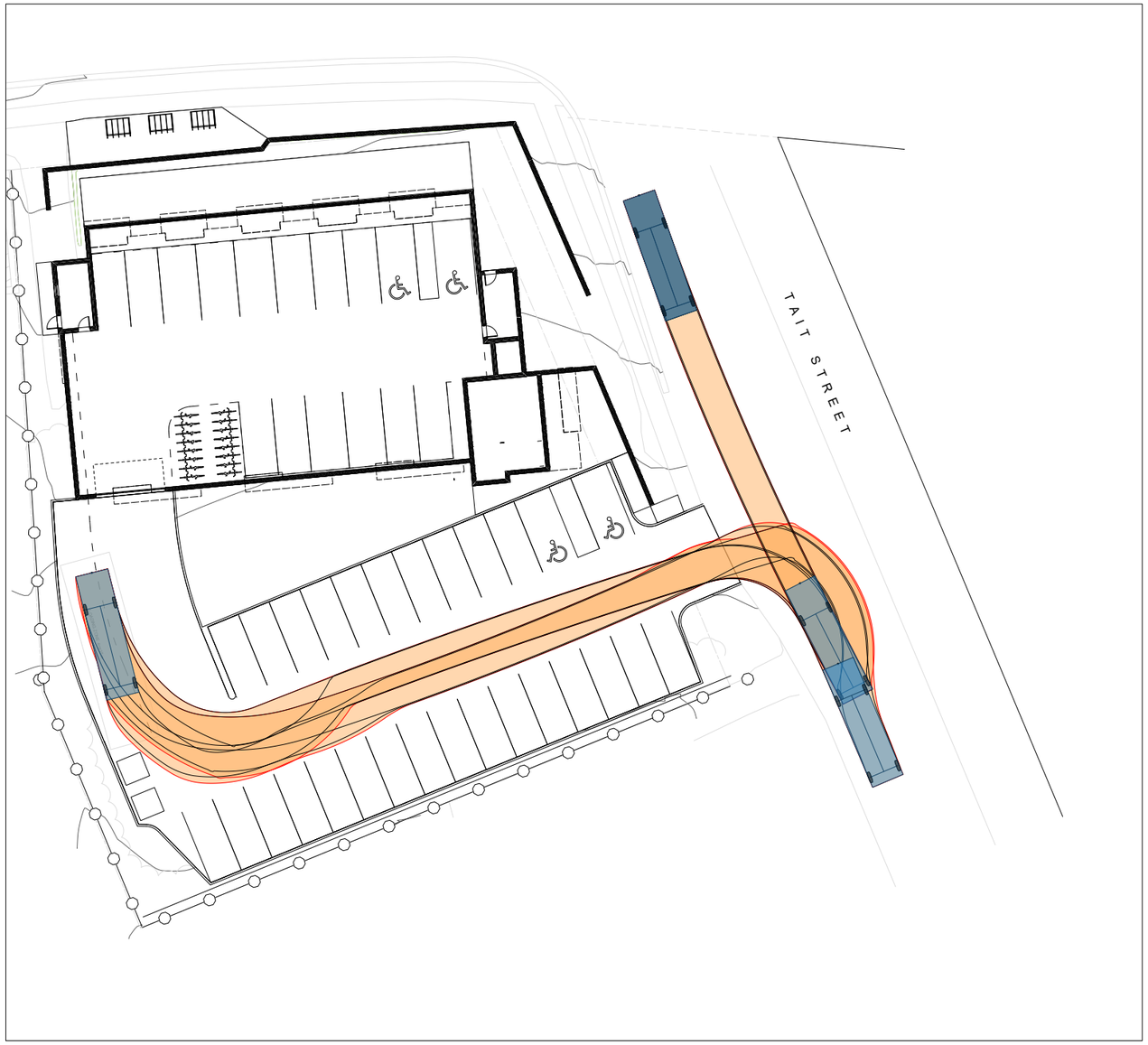
CLIENT: RAVI PRASHER INC.

DRAWING TITLE: VEHICLE SWEPT PATH REVIEW

SUBTITLE: WASTE COLLECTION TRUCK

DESIGN: RH	DATE: 01/25
DRAWN: RH	DATE: 01/25
REVIEWED: JN	DATE: 01/25
SCALE HOR. 1:200	SCALE VERT. N/A

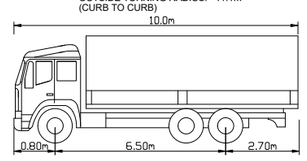
SHEET NO. 24055 - TURN- 3



DESIGN VEHICLE

TAC MEDIUM SINGLE UNIT TRUCK

VEHICLE WIDTH: 2.60m
OUTSIDE TURNING RADIUS: 11.1m
(CURB TO CURB)



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4. BASE DRAWING PROVIDED BY FAD ARCHITECTS ON JANUARY 15TH, 2025.

NO.	DATE	APPROVED	REVISIONS
1.	JAN 2025	JN	FIRST SUBMISSION

JD Northcote Engineering Inc.
Phone: 705.725.4035
86 Cumberland Street
Barrie, ON L4N 2P6
www.JDEngineering.ca

PROJECT: 3 TAIT STREET

CLIENT: RAVI PRASHER INC.

DRAWING TITLE: VEHICLE SWEPT PATH REVIEW

SUBTITLE: LOADING VEHICLE

DESIGN: RH	DATE: 01/25
DRAWN: RH	DATE: 01/25
REVIEWED: JN	DATE: 01/25
SCALE HOR. 1:200	SCALE VERT. N/A
SHEET NO. 24055 - TURN- 4	

Appendix J – Parking Data

J3L Data

Location: 33&35 Mary Street, Huntsvlle

Friday, Dec 13, 2024					
		Parked Vehicles			
Time		Res	Acsbl.	Visitor	Total
18:00	18:30	3	1	1	5
18:30	19:00	4	1	1	6
19:00	19:30	3	1	1	5
19:30	20:00	3	1	1	5
20:00	20:30	3	1	1	5
20:30	21:00	2	1	1	4
21:00	21:30	3	1	1	5
21:30	22:00	3	1	1	5
Available Spaces =		**13**	**1**	**4**	**18**

Saturday, Dec 14, 2024					
		Parked Vehicles			
Time		Res	Acsbl.	Visitor	Total
15:00	15:30	3	1	0	4
15:30	16:00	3	1	0	4
16:00	16:30	3	1	0	4
16:30	17:00	3	1	1	5
17:00	17:30	3	1	1	5
17:30	18:00	4	0	1	5
18:00	18:30	4	0	1	5
18:30	19:00	4	0	2	6
19:00	19:30	4	1	2	7
19:30	20:00	3	1	2	6
20:00	20:30	4	1	2	7
20:30	21:00	4	1	2	7
21:00	21:30	4	1	2	7
21:30	22:00	4	1	2	7
Available Spaces =		**13**	**1**	**4**	**18**

Tuesday, Dec 17, 2024				
	Parked Vehicles			
Time	Res	Acsbl.	Visitor	Total
Midnight Spot Count	4	1	1	6
Available Spaces =	**13**	**1**	**4**	**18**

Units: 12

	Max	/unit
Visitor Demand	**2**	**0.17**
Resident Demand	**5**	**0.42**
Total Demand	**7**	**0.58**

Ontario Traffic Inc - Parking Occupancy Counts

Location: Riverview Apartments (15 Southbank Drive, Bracebridge)

Date: Friday, December 08, 2023

(maybe 1 vacany)

Units 42

Time			Parked Vehicles					
			Regular	Visitor		Res	Vis	Total
18:00	to	18:30	37	3	40	0.88	0.07	0.95
18:30	to	19:00	28	3	31	0.67	0.07	0.74
19:00	to	19:30	29	3	32	0.69	0.07	0.76
19:30	to	20:00	29	4	33	0.69	0.10	0.79
20:00	to	20:30	31	4	35	0.74	0.10	0.83
20:30	to	21:00	33	4	37	0.79	0.10	0.88
21:00	to	21:30	34	4	38	0.81	0.10	0.90
21:30	to	22:00	36	4	40	0.86	0.10	0.95
Available Parking Spaces =			**63**	**6**				

Date: Saturday, December 09, 2023

Time			Parked Vehicles					
			Regular	Visitor		Res	Vis	Total
15:00	to	15:30	29	3	32	0.69	0.07	0.76
15:30	to	16:00	30	3	33	0.71	0.07	0.79
16:00	to	16:30	30	3	33	0.71	0.07	0.79
16:30	to	17:00	30	3	33	0.71	0.07	0.79
17:00	to	17:30	30	3	33	0.71	0.07	0.79
17:30	to	18:00	31	3	34	0.74	0.07	0.81
18:00	to	18:30	29	4	33	0.69	0.10	0.79
18:30	to	19:00	30	4	34	0.71	0.10	0.81
19:00	to	19:30	31	4	35	0.74	0.10	0.83
19:30	to	20:00	33	4	37	0.79	0.10	0.88
20:00	to	20:30	34	4	38	0.81	0.10	0.90
20:30	to	21:00	35	4	39	0.83	0.10	0.93
21:00	to	21:30	37	4	41	0.88	0.10	0.98
21:30	to	22:00	37	4	41	0.88	0.10	0.98
Available Parking Spaces =			**63**	**6**				

Ontario Traffic Inc - Parking Occupancy Counts

Location: Laketree Residences (210 Highway 60, Huntsville)

Date: Friday, December 08, 2023

Units 84

Time			Parked Vehicles			
			Regular	Accessible		
18:00	to	18:30	71	3	74	0.88
18:30	to	19:00	67	2	69	0.82
19:00	to	19:30	70	2	72	0.86
19:30	to	20:00	77	2	79	0.94
20:00	to	20:30	78	2	80	0.95
20:30	to	21:00	79	2	81	0.96
21:00	to	21:30	80	3	83	0.99
21:30	to	22:00	81	4	85	1.01
Available Parking Spaces =			**118**	**6**		0.00

Date: Saturday, December 09, 2023

Time			Parked Vehicles			
			Regular	Accessible		
15:00	to	15:30	60	3	63	0.75
15:30	to	16:00	63	2	65	0.77
16:00	to	16:30	64	2	66	0.79
16:30	to	17:00	66	2	68	0.81
17:00	to	17:30	68	3	71	0.85
17:30	to	18:00	70	3	73	0.87
18:00	to	18:30	73	3	76	0.90
18:30	to	19:00	72	3	75	0.89
19:00	to	19:30	73	3	76	0.90
19:30	to	20:00	75	3	78	0.93
20:00	to	20:30	77	3	80	0.95
20:30	to	21:00	78	3	81	0.96
21:00	to	21:30	80	3	83	0.99
21:30	to	22:00	80	3	83	0.99
Available Parking Spaces =			**118**	**6**		

J3L Data

Location: Riverview Apartments (15 Southbank Drive, Bracebridge)

Units 42

Spot Count (10pm-12am)	Parked Vehicles		Res	Vis	Total
	Regular	Visitor			
Tuesday, Dec 3, 2024	39	2	0.93	0.05	0.98
Wednesday, Dec 4, 2024	38	2	0.90	0.05	0.95
Tuesday, Dec 10, 2024	36	2	0.86	0.05	0.90
Wednesday, Dec 11, 2024	39	3	0.93	0.07	1.00
Available Parking Spaces =	**63**	**6**			

Location: Laketree Residences (210 Highway 60, Huntsville)

Units 84

Spot Count (10pm-12am)	Parked Vehicles		Res	Total
	Regular	Accessible		
Tuesday, Dec 3, 2024	91	5	96	1.14
Tuesday, Dec 10, 2024	88	4	92	1.10
Available Parking Spaces =	**118**	**6**		