

29 & 45 Birch Street

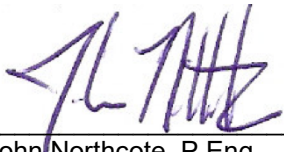
Town of Collingwood

Traffic Brief and Parking Study for County of Simcoe

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Executive Summary

This report summarizes the traffic and parking study for the proposed development, on a site municipally known as 29 & 45 Birch Street, located on the west side of Birch Street, midblock between First Street and Second Street, in the Town of Collingwood [Town]. The report assesses the impact of traffic related to the development on the adjacent roadway and provides recommendations to accommodate this traffic in a safe and efficient manner. This report also provides a recommendation for the minimum parking supply required to service the proposed development.

The subject site currently includes two residential buildings, which will be removed as part of the proposed development.

The proposed affordable housing development includes 30 residential units.

The proposed development will include a new full-movement access driveway onto Birch Street [Site Access]. The Site Access will replace the existing driveway for the property [Existing Driveway].

Based on our correspondence with Town staff, the Birch Street / Site Access intersection will be analysed as part of the study.

Conclusions

Traffic Study

1. The proposed development is expected to generate a total of 11 AM and 12 PM peak hour trips.
2. Detailed intersection counts were conducted at the Existing Driveway on Birch Street on Wednesday May 28th, 2025.
3. An intersection operation analysis was completed at the study area intersections, using the existing (2025) traffic volumes. 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 within the study area.
4. An estimate of the amount of traffic that would be generated by the Subject Site was prepared and assigned to the study area street and intersection.
5. An intersection operation analysis was completed under total (2030) traffic volumes with the existing development removed and the proposed development operational at the study area intersections. No improvements are recommended within the study area with respect to intersection operations.
6. The proposed Site Access will operate efficiently with one-way stop control for westbound egress movements. One lane for egress traffic and one lane for ingress traffic at the Site Access will provide the necessary capacity for the proposed development.
7. In summary the proposed development will not cause any operational issues and will not add significant delay or congestion to the local roadway network.

Parking Study

8. The proposed parking supply meets the minimum parking requirements for resident, accessible and bicycle parking, as identified in the Town's ZBL.

9. The proposed residential visitor parking supply is 0.2 parking spaces / unit, which is less than the minimum residential visitor parking requirement identified in the Town's ZBL (0.25 parking spaces / unit).
10. Based on the peak residential visitor parking demand at the proxy parking sites the proposed visitor parking supply is sufficient for the intended use.
11. The proposed parking supply (15 resident stalls, six visitor stalls including one accessible stall) will accommodate the anticipated peak parking demand for the proposed development.
12. In the rare event that the visitor parking spaces in the proposed development are occupied, overflow parking can be accommodated via the existing public parking supply on Birch Street, Second Street, Oak Street, Beech Street and the municipal parking areas to the north on First Street north of Birch Street. The temporary impact of the additional visitor parking in the area would be negligible.

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1 Introduction

1.1 Background

The **County of Simcoe** [County] is proposing an affordable housing development on a site municipally known as 29 & 45 Birch Street, located on the west side of Birch Street, midblock between First Street and Second Street, in the Town of Collingwood [Town].

The subject site currently includes two residential buildings, which will be removed as part of the proposed development.

The proposed affordable housing development includes 30 residential units.

The proposed development will include a new full-movement access driveway onto Birch Street [Site Access]. The Site Access will replace the existing driveway for the property [Existing Driveway]

The County has retained **JD Northcote Engineering Inc.** [JD Engineering] to prepare this traffic brief and parking study in support of the proposed development.

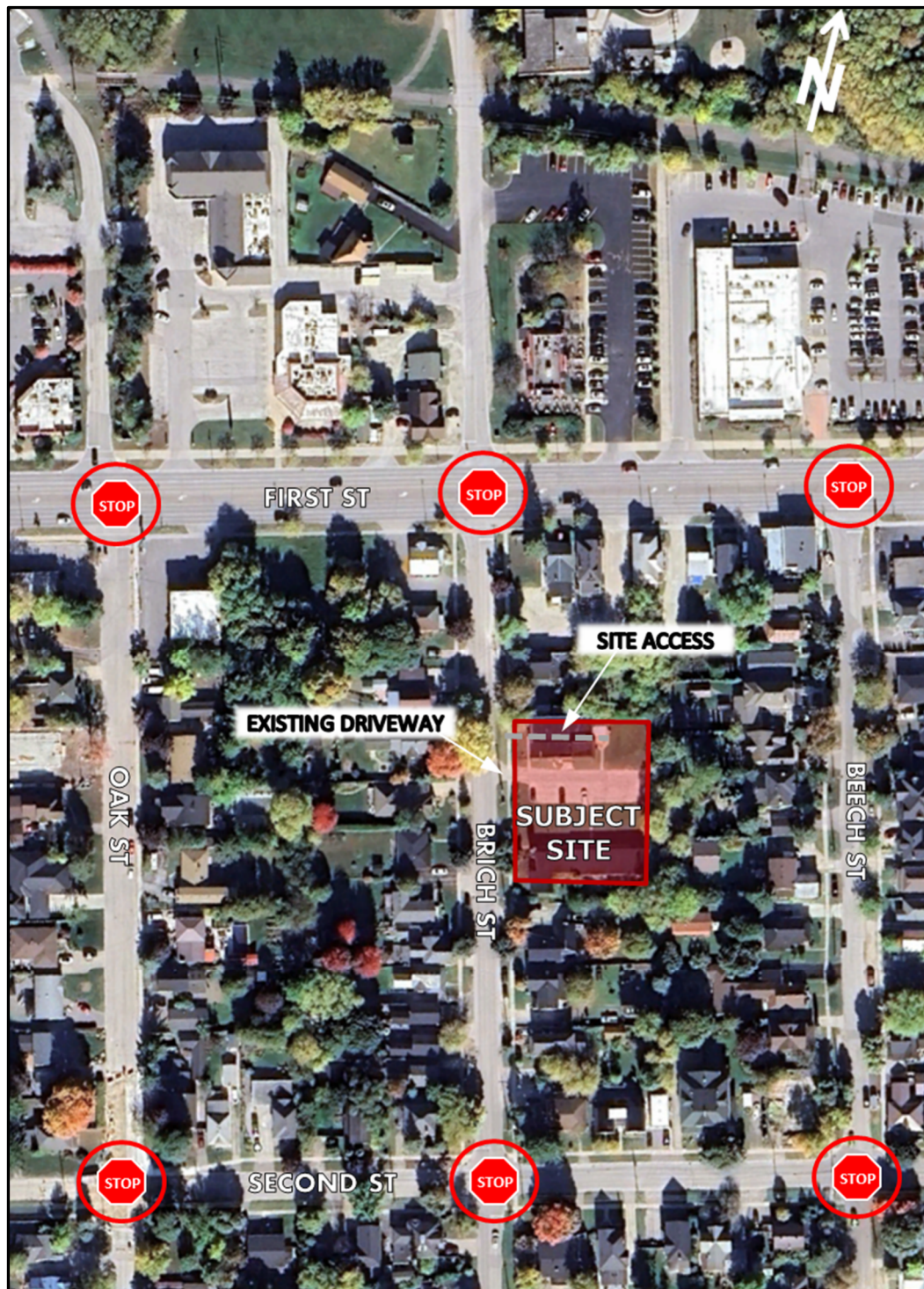
1.2 Study Area

Figure 1 shows the location of the subject site and study area intersections in relation to the surrounding area. The Site Plan by MCL Architects is provided in **Appendix A**.

The subject site is bound by Birch Street to the east and existing residential buildings to the north, east and south.

Based on out correspondence with Town staff, the Birch Street / Site Access intersection will be analysed as part of the study.

Figure 1 – Proposed Site Location and Study Area



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 to address any traffic-related issues or concerns they have with the proposed development;
- Determine existing traffic volumes and circulation patterns;
- Complete level-of-service [LOS] analysis for existing year traffic conditions and identify additional operational deficiencies;
- 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;
- Complete a review of the proposed Site Access in context with Town standards;
- Review the proposed parking supply and assess the suitability for the proposed development; and
- Document findings and recommendations in a final report.

1.4 Horizon Year and Analysis Periods

Traffic scenarios for the existing (2025) and horizon year (2030) were selected for analysis of traffic operations in the study area. The weekday morning [AM] and weekday afternoon [PM] peak hours have been selected as the analysis periods for this study.

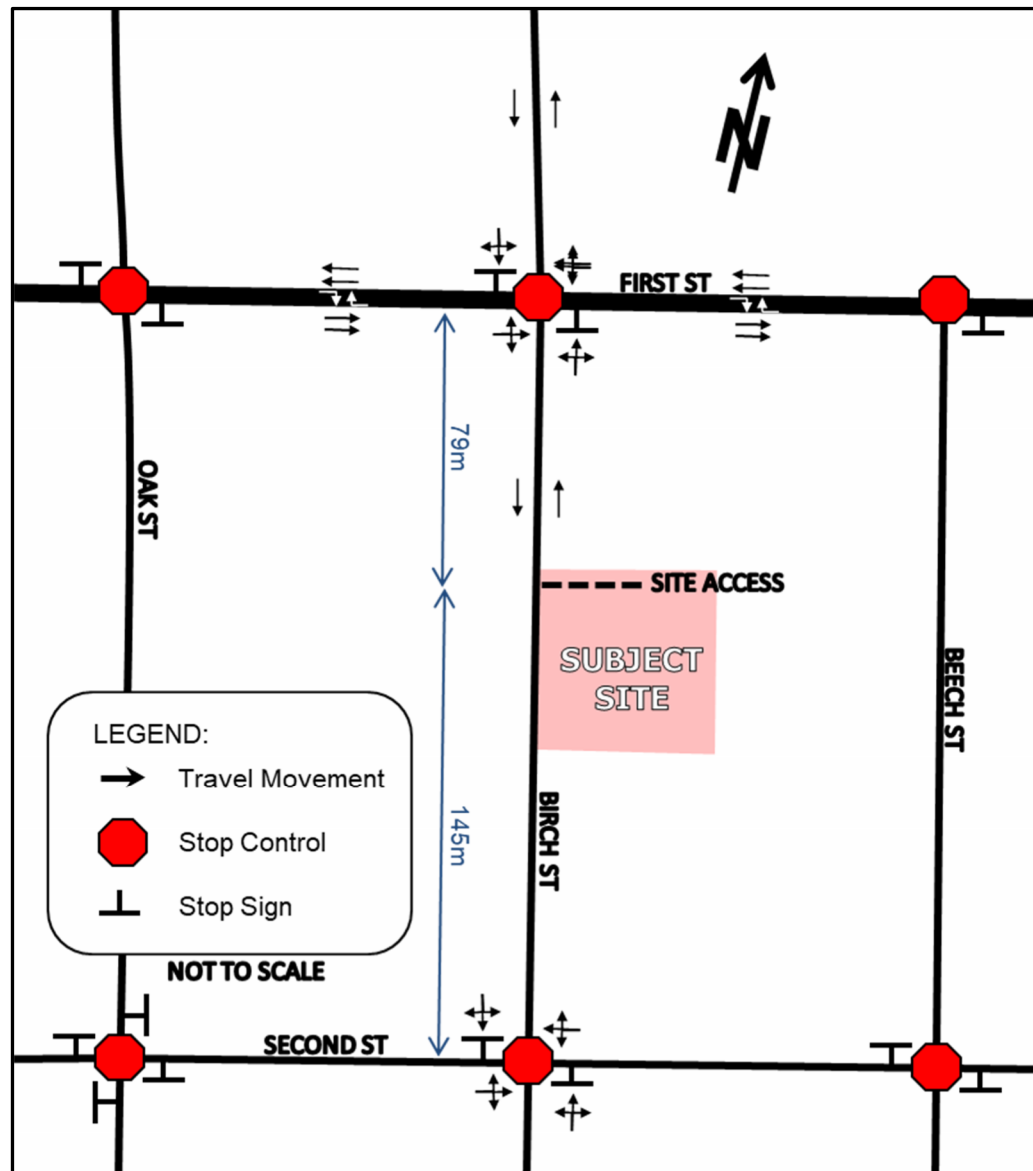
2 Information Gathering

2.1 Street and Intersection Characteristics

Birch Street is a two-lane local road with an urban cross-section and sidewalk on both sides of the road. Birch Street has an unposted (assumed) speed limit of 50km/h within the study area and is under the jurisdiction of the Town.

The intersection spacing for the proposed Site Access and lane configuration within the study area is illustrated in **Figure 2**.

Figure 2 – Existing (2025) Intersection Spacing and Lane Configuration within Study Area



2.2 Local Transportation Infrastructure Improvements

Based on a review of the Town's Capital Budget (2025) and Transportation Study Update (2019) [TSU] there are no planned infrastructure improvements within the study area.

2.3 Transit Access

The subject site is serviced by Collingwood Transit. The Collingwood Crosstown East bus route provides service on First Street and Second Street in the study area.

The Collingwood Crosstown East bus route operates between 06:00 – 22:00 on weekdays with service every hour. The Collingwood Crosstown East bus route operates on the weekend with on-demand

service. The closest westbound bus stop to the proposed development is located on the north side of First Street, midblock between Oak Street and Birch Street (500 metre walking distance from the Subject Site). The closest eastbound bus stop to the proposed development is located on the southeast corner of the Beech Street / Second Street intersection (230 metre walking distance from the Subject Site)

It is noted that the Town's main transit terminal is located in the southeast corner of the Second Street / Pine Street intersection, within 550 metres of the proposed development. Various additional transit routes are accessible at this transit terminal.

TransitPLUS service is a specialized transit service offering door-to-door public transportation for anyone who is unable to access conventional transit due to medical, physical, or cognitive disabilities. TransitPLUS is available for residents of the Subject Site. Residents will be able to schedule rides online.

2.4 Other Developments within the Study Area

Based on a review of the Town's Planning & Development Projects interactive map and the Town's TMP, there are no planned developments in the study area.

2.5 Background Traffic Growth

Based on the Town's historic traffic data on Oak Street between First Street and Second Street (2012 – 2019)¹, a background traffic growth rate of 4.0% was calculated and applied on Birch Street. Based on our experience with other developments in the Town, this is a conservative estimate of the background traffic growth for Birch Street.

2.6 Traffic Counts

Detailed turning movement traffic and pedestrian counts were commissioned at the Birch Street / Existing Driveway. **Table 1** summarizes the traffic count data.

Table 1 – Traffic Count Data

Intersection (N-S Street / E-W Street)	Count Date	AM Peak Hour	PM Peak Hour	Source
Birch Street / Existing Driveway	Wednesday May 28 th , 2025	08:45 – 09:45	16:15 – 17:15	JD Eng.*

*Counts were completed by Accu Traffic Inc. on behalf of JD Engineering.

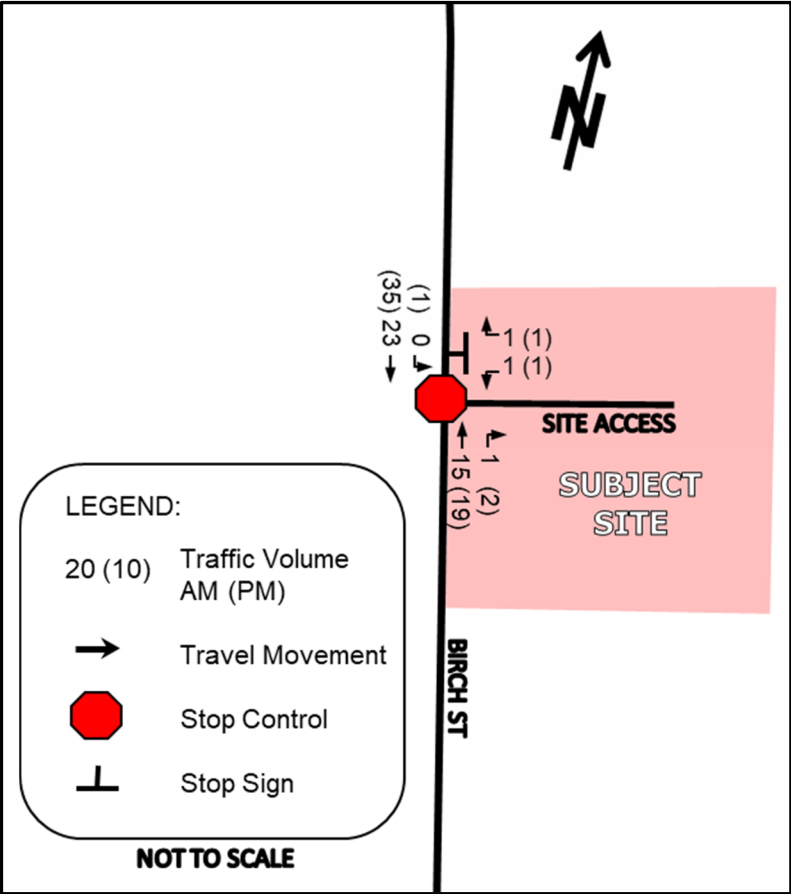
Detailed traffic count data can be found in **Appendix B**. The peak hours of traffic generation for the study area intersections generally aligned with the anticipated peak hour of traffic generation by the proposed development.

Heavy vehicle percentages from the traffic count data have also been included in the Synchro analysis.

The existing (2025) AM and PM peak hour traffic volumes through the study are illustrated in **Figure 3**.

¹ The Town's historic traffic data did not have data on Birch Street; the traffic data on Oak Street, an adjacent parallel N-S road to the west, was used to estimate the background traffic growth.

Figure 3 – Existing (2025) Traffic Volumes

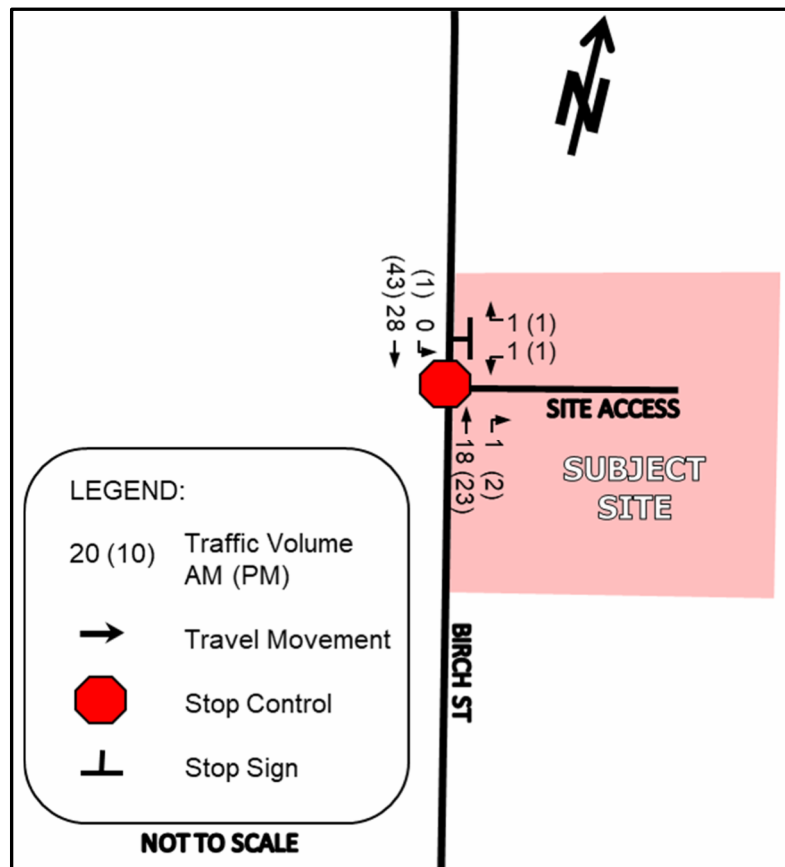


2.7 Horizon Year Traffic Volumes

The background traffic growth rate discussed in Section 2.5 has been applied to the existing traffic volumes to estimate the background (2030) horizon year traffic volumes.

The background (2030) horizon year traffic volumes are illustrated in **Figure 4**.

Figure 4 – Background (2030) Traffic Volumes



3 Intersection Operation without Proposed Development

3.1 Intersection Capacity Analysis Criteria

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 analysing 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.

Individual turning movements with a volume-to-capacity [V/C] ratio of 0.85 or greater are considered to be critical movements and have been highlighted in the LOS tables.

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 2**. A description of traffic performance characteristics is included for each LOS.

Table 2 – 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 (2025) 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 3**. Existing intersection geometry and traffic control have been utilized for this scenario. Detailed output of the Synchro analysis can be found in **Appendix C**.

Table 3 – Total (2030) LOS

Location (N-S Street / E-W 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)	
				Model	Storage				Model	Storage
Birch Street / Site Access (unsignalized)	-	0.4	A	-	-	-	0.3	A	-	-
WB	0.00	8.6	A	0	-	0.00	8.7	A	0	-

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

There are no issues with the anticipated queuing in the study area.

An analysis was completed for left turn movements at the unsignalized intersections in the study area, based on the criteria outlined in Appendix 9A of the Ontario Ministry of Transportation Design Supplement for TAC Geometric Design Guide for Canadian Roads (dated June 2017) [MTO DS] (results are provided in **Appendix E**). Based on the above noted criteria, an auxiliary left-turn lane is not warranted at the Birch Street / Site Access intersection.

A review of the need for additional auxiliary right turn lanes 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 at the Birch Street / Site Access intersection.

Based on the Ontario Traffic Manual Book 12 *Signal Justification*, traffic signals are not warranted at the Birch Street / Site Access intersection (results are provided in **Appendix F**).

No infrastructure improvements are required for the existing (2025) scenario.

4 Proposed Development Traffic Generation and Assignment

4.1 Traffic Generation

The traffic generation for the subject site has been based on the Institute of Transportation Engineers [ITE] Trip generation Manual (11th Edition) [ITE Trip Generation Manual]. The following ITE land use has been applied to estimate the traffic from the proposed development:

- ITE land use 221 (Multifamily Housing (Mid-Rise)) – General Urban/Suburban Setting.

The AM and PM peak hour traffic generation for the proposed development do not exactly align with the AM and PM peak hour in the traffic counts; consequently, we have applied the peak hour of adjacent street traffic values provided in the ITE Trip Generation Manual. The estimated trip generation of the proposed development is illustrated below in **Table 4**.

Table 4 – Estimated Traffic Generation for the Subject Site

Land Use	Size	AM Peak Hour			PM Peak Hour		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Multifamily Housing (Mid-Rise) ITE Lane Use: 221	30 units	3	8	11	7	5	12
EXISTING DEVELOPMENT TRAFFIC*		1	2	3	3	2	5
NET TRAFFIC GENERATION		+2	+6	+8	+4	+3	+7

* From traffic counts completed in Section 2.6.

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.

ITE data provides the anticipated percentage of new traffic entering and exiting during the peak hour. For the proposed development, the distribution of traffic beyond the local area has been calculated based on the 2022 Transportation Tomorrow Survey [TTS] data for traffic zone 17189, 17194, 17195 and 17196² retrieved using the TTS Internet Data Retrieval System [IDRS] (output attached in **Appendix G**). TTS data provides historical origin and destination trip data for specific areas within the Town and municipalities in southern Ontario.

Traffic distribution for the trips generated by the proposed residential development during the AM and PM peak hour is expected to generally follow commuter travel patterns. Our analysis is based on egress traffic during the AM peak hour. Generally, the distribution of ingress traffic is expected to follow the inverse of the egress traffic distribution. For each of the individual areas identified in the TTS data, we have selected the probable route of travel, assuming that people will select their route primarily based on travel time.

The estimated distribution of trips generated by the proposed development is illustrated in **Table 5**, which was calculated using the methodology outlined above.

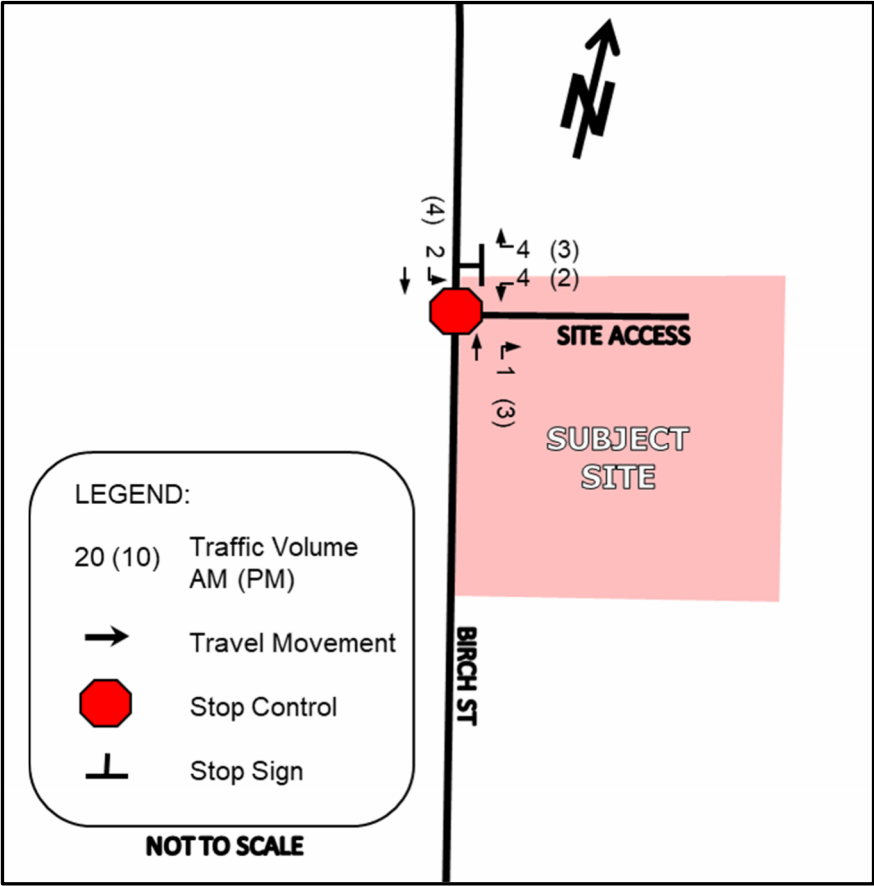
Table 5 - Proposed Development Traffic Distribution

Travel Direction (to/from)	Percentage of Total Traffic Generation
North on Birch Street	50%
South on Birch Street	50%
Total	100%

Using the traffic distributions pattern noted above, **Figure 5** illustrates the site traffic assignment for the proposed development, during the AM and PM peak hour.

² The traffic zone is based on the 2022 GTA zoning. It is noted, the 2022 GTA zoning for the Subject Site (traffic zone 17195) had minimal trip data available. The adjacent 2022 GTA zones 17189, 17194 and 17196 were used to review a greater set of trip data available to determine the trip distribution.

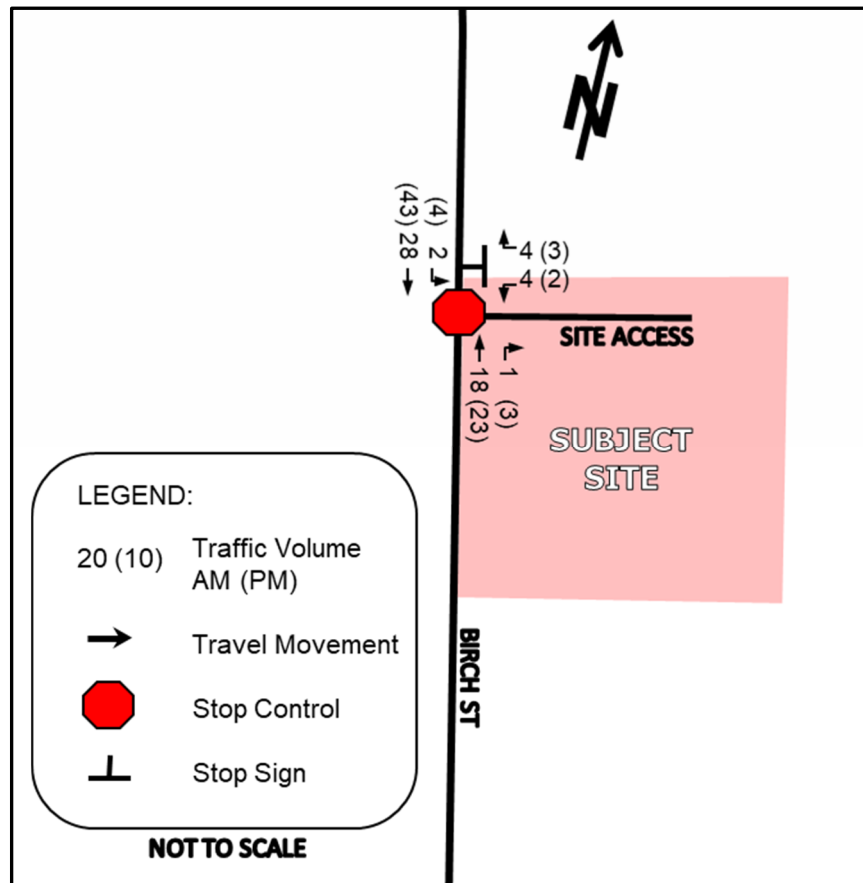
Figure 5 – Proposed Development Traffic Assignment



4.3 Total Horizon Year Traffic Volumes with the Proposed Development

For the total (2030) horizon year traffic volumes, the existing traffic from the driveway was removed and the proposed development traffic was added to the background (2030) traffic volumes. The resulting total (2030) horizon year traffic volume for the AM and PM peak hour are illustrated in **Figure 6**.

Figure 6 – Total (2030) Traffic Volumes



5 Intersection Operation with Proposed Development

5.1 Total (2030) Intersection Operation

The results of the LOS analysis under total (2030) traffic volumes during the AM and PM peak hour can be found below in **Table 6**. 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 6 – Total (2030) LOS

Location (N-S Street / E-W 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)	
				Model	Storage				Model	Storage
Birch Street / Site Access (unsignalized)	-	1.3	A	-	-	-	0.7	A	-	-
WB	0.00	8.6	A	1	-	0.00	8.7	A	1	-

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

There are no issues with the anticipated queuing in the study area.

An analysis was completed for left turn movements at the unsignalized intersections in the study area, based on the criteria outlined in Appendix 9A of the MTO DS (results are provided in **Appendix E**). Based on the above noted criteria, an auxiliary left-turn lane is not warranted at the Birch Street / Site Access intersection.

A review of the need for additional auxiliary right turn lanes 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 at the Birch Street / Site Access intersection.

Based on the Ontario Traffic Manual Book 12 *Signal Justification*, traffic signals are not warranted at the Birch Street / Site Access intersection (results are provided in **Appendix F**).

No infrastructure improvements are required for the total (2030) scenario.

5.2 Site Access

The Site Access will operate efficiently with one-way stop control for westbound. One lane for egress traffic and one lane for ingress traffic at the Site Access will provide the necessary capacity for the proposed development.

The proposed spacing between the Site Access and existing office driveway to the north (18 metres measured edge to edge of driveways) and the existing residential driveway to the south (55 metres measured edge to edge of driveways) meets the minimum driveway spacing requirements as per the Transportation Association of Canada Design Guide for Canadian Roads (2017) [TAC Guidelines] – Figure 8.9.2 (Driveway Spacing Guidelines – Locals and Collectors) – 7 metres for the residential condition.

5.3 Sight Distance Review

A review of the available sight distance for the proposed Site Access driveway was completed as part of this analysis.

The sight distance north (390 metres) and south (greater than 350 metres) of the Site Access are greater than the stopping sight distance and intersection sight distance requirements as identified in the TAC Guidelines for a design speed of 60km/h (85 and 110 metres).

The Birch Street / First Street intersection is north of the Site Access (67 metres) which is located closer than the stopping sight distance requirement as identified in the TAC Guidelines for a design speed of 60km/h (85 metres); however, vehicles will be turning onto Birch Street at much slower speeds, consequently there is no issue with the sight distance at the West Access.

In summary, there are no issues regarding the sight distance at the Site Access.

5.4 Active Transportation

Birch Street, First Street and Second Street have sidewalks on both sides of the road in the study area.

The north side of First Street has a 3.0-metre-wide multi-use path. There is no other bicycle infrastructure in the study area.

The Town is working on the Master Mobility and Transportation Plan [MMTP] which will provide the long-range planning necessary to identify needs, establish priorities between vehicles, active transportation modes and transit, and provide a planning framework for future infrastructure improvements and network development. Preliminary documents for the Town's MMTP identify proposed cycling infrastructure on Birch Street (from First Street to Cameron Street) and Second Street (from High Street to Hurontario Street), planned in the medium-term. It is recommended that the Town continue to prioritize active transportation along these corridors, in order to provide the necessary transportation network capacity to accommodate the anticipated future transportation demands in the study area.

The proposed development includes a sidewalk connection from the main building entrance to the existing sidewalk on the east side of Birch Street. The sidewalk on Birch Street connects into the existing sidewalk network within the Town and provides access to a variety of amenities on First Street, Hurontario Street and High Street.

5.5 Swept Path Analysis

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

- Waste Connections of Canada – Front Load Truck
- Loading Vehicle (TAC MSU Truck); and
- Passenger Vehicle.

6 Parking Analysis

6.1 Scope

The purpose of this analysis is to confirm that the proposed parking supply (21 spaces) is sufficient to service the proposed development.

6.2 Study Area Parking Infrastructure

On-street parking is permitted on the north side of Second Street west of Oak Street and on the south side of Second Street west of Maple Street.

On-street parking is permitted on both sides of the road on Birch Street, Oak Street and Beech Street.

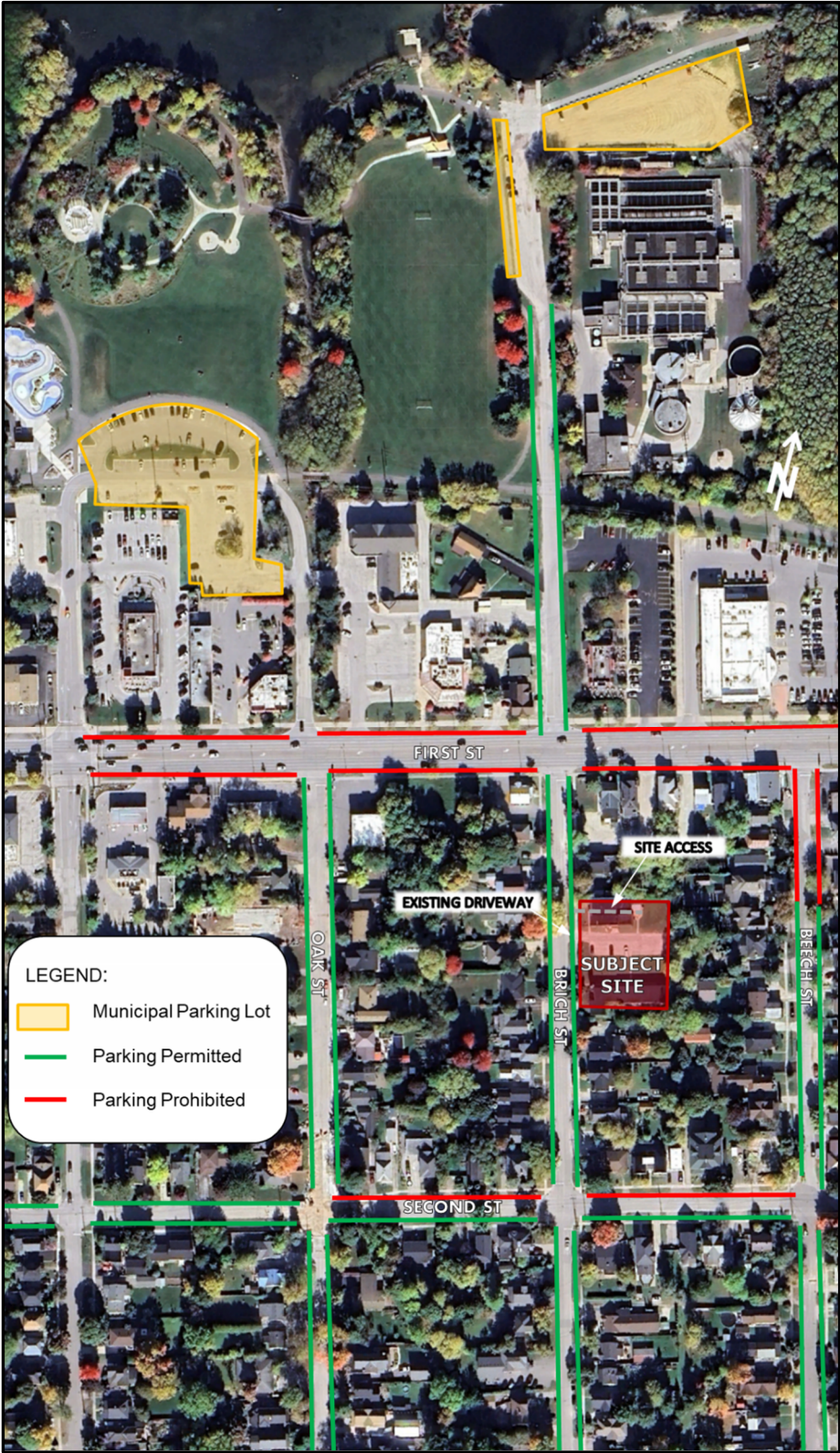
On-street parking is prohibited on First Street.

Municipal parking areas are available north of the study area, in the parking area located at the northern limits Birch Street and in the parking lot for Harbourview Park, between Oak Street and Cedar Street.

All on-street parking is prohibited between 01:00 – 07:00. Vehicles can park within an approved municipal parking area between 01:00 – 07:00 from December 1st each year until March 31st in the following year, if they have a valid overnight parking permit issued by the Town.

Figure 7 illustrates the location of the above-noted existing parking in the study area.

Figure 7 – Existing Local Parking Supply



6.3 Municipal By-law

The proposed parking supply for the subject site is lower than the parking requirements specified in Town's Comprehensive Zoning By-law Number 2010-040 [ZBL]. The proposed parking breakdown is provided in **Table 7**. The proposed parking supply falls below the visitor parking requirement by 2 spaces and meets the resident, accessible and bicycle parking requirement.

Table 7 - Zoning By-law Parking Requirements

Category	Zoning By-Law Section	Parking Standard	Size	Parking		
				Required	Provided	Net
Dwelling, Apartment (Resident)	5.15.1	0.5 spaces per unit	30 units	15 spaces	15 spaces	-
Dwelling, Apartment (Visitor)	5.15.1	0.25 spaces per unit	30 units	8 spaces	6 spaces	-2 space
TOTAL PARKING SPACES				23 spaces	21 spaces	-2 space
Accessible Parking	5.11.1	1 space for spaces required between 1 to 25 spaces	-	1 space	1 spaces	-
Bicycle Space Requirements	5.13.1	0.5 bicycle spaces per dwelling unit	30 units	15 spaces	15 spaces	-

6.4 Parking Justification

The following justification is provided in support of the visitor parking supply for the proposed affordable apartment units.

6.4.1 Site Characteristics

A review of the site has been undertaken to consider the various characteristics of the site and local area that may influence the parking generation of the site.

As noted in Section 2.3, Collingwood Transit Crosstown East bus route provides service on First Street and Oak Street near the study area. Currently, a bus stop is located adjacent to the subject site on First Street (westbound route) and Second Street (eastbound route).

In consideration of the existing access to transit and active transportation, there is an opportunity for reduced reliance on the private automobile trips for visitors for the proposed apartment units. Consequently, a reduced visitor parking supply is justified.

6.4.2 Affordable – Residential Visitor Parking

6.4.2.1 Proxy Parking Data – Visitor Parking

In order to establish the expected visitor parking demand for the proposed development, parking data was reviewed at three proxy parking sites. Three proxy sites were selected based on similar building size and transportation characteristics to the proposed development. Two parking counts were reviewed at each proxy location in order to determine the maximum visitor parking demand. Typically, the peak visitor parking demand occurs on a Friday / Saturday evening and the peak resident parking demand occurs overnight on a weeknight (Monday – Thursday). For the purpose of this study, the maximum visitor parking demand was based on a two-hour parking count completed on a Friday or Saturday between 19:00 and 21:00.

In all cases, the visitor parking supply exceeded the demand; consequently, the demand for visitor parking is not impacted by the availability of parking.

Table 8 illustrates the peak visitor parking demand for the proxy sites.

Table 8 – Proxy Visitor Parking Data Details

Building Number	Location	Units	Visitor Parking Demand		
			Weeknight Count	Friday/Saturday Evening Count	Peak Parking Demand Rate
1	Previn Court, 247 King Street North Alliston, Ontario	53 Apartments	2 spaces	5 spaces	0.09 spaces / unit
2	Nottawasaga Co-op, 219 King Street North Alliston, Ontario	53 Apartments	2 spaces	5 spaces	0.09 spaces / unit
3	Alliston Gardens, 219 King Street North Alliston, Ontario	61 Apartments	1 spaces	2 spaces	0.03 spaces / unit
Total		167 units	5 spaces	12 spaces	-
Parking Unit Rate			0.03 spaces / unit	0.07 spaces / unit	-

The peak visitor parking demand rate for the proxy sites is 0.09 spaces per unit. In all cases, the parking supply was notably greater than the observed parking demand. This confirms that the parking supply did not constrain the parking demand at the proxy sites.

6.4.2.2 Affordable - Residential Visitor Parking Demand

The peak visitor parking demand for the proxy sites is relatively low (approximately five parking spaces for 53 units – 0.09 spaces / unit) and can be accommodated by proposed six visitor parking spaces (0.20 spaces / unit).

In the rare event the visitor parking spaces in the proposed development are occupied, overflow parking can be accommodated via existing public parking supply in the immediate area surrounding the Subject Site on Birch Street, Second Street, Oak Street, Beech Street and the municipal parking areas to the north on First Street north of Birch Street. The impact of the additional visitor parking in the area would be negligible.

6.4.3 Parking Analysis

As previously noted, the proposed development will provide 21 parking spaces which translates to a parking supply of 0.7 spaces per unit, with 6 dedicated visitor parking stalls and 15 dedicated resident parking stalls.

The residential parking supply of 0.5 spaces per unit meets the minimum requirements specified in the Town's ZBL and the residential visitor parking supply of 0.2 parking spaces per unit meets the anticipated peak parking demand as identified by the residential visitor proxy counts. As such, the proposed provision of 0.7 spaces per unit is considered sufficient to support the expected peak parking demand for the proposed development.

The County has confirmed that there will be one part-time and one occasional staff members at the subject site, between 08:30 and 16:30 on weekdays. Since residential visitor parking peaks on weekday evenings and weekends, the additional parking demand generated by staff will not impact the peak

residential visitor parking calculation. Staff will be able to park in the empty visitor parking spaces within the subject site.

6.4.4 Recommendations

The proposed parking supply (15 resident spaces and six visitor spaces including one accessible parking spaces and 15 bicycle parking spaces) is adequate for the proposed development.

7 Summary

County of Simcoe retained **JD Engineering** to prepare this traffic brief and parking study in support of the proposed development on a site municipally known as 29 & 45 Birch Street, in the Town of Collingwood. The proposed Site Plan is shown in **Appendix A**. This chapter summarizes the conclusions and recommendations from the study.

Traffic Study

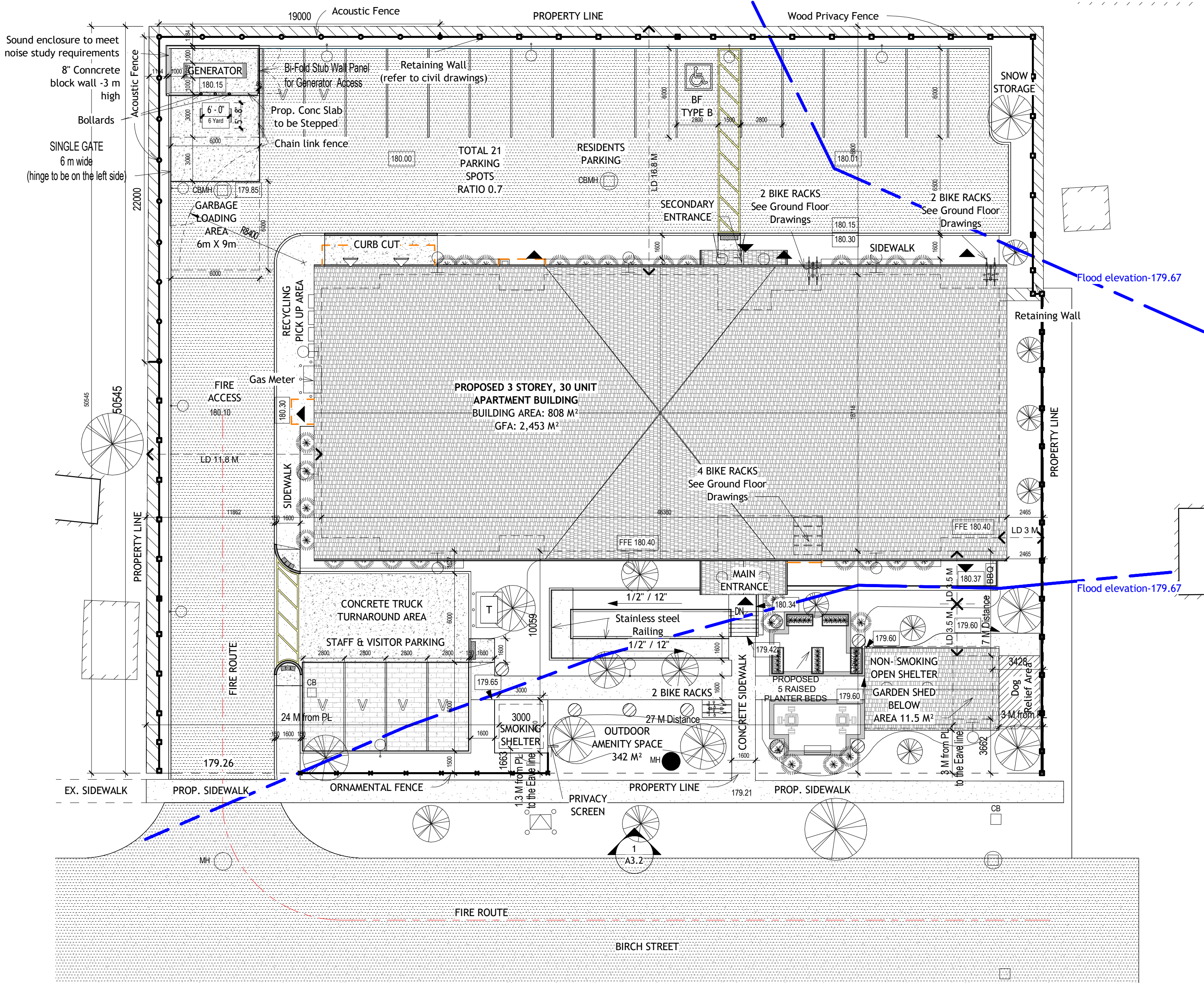
1. The proposed development is expected to generate a total of 11 AM and 12 PM peak hour trips.
2. Detailed intersection counts were conducted at the Existing Driveway on Birch Street on Wednesday May 28th, 2025.
3. An intersection operation analysis was completed at the study area intersections, using the existing (2025) traffic volumes. 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 within the study area.
4. An estimate of the amount of traffic that would be generated by the Subject Site was prepared and assigned to the study area street and intersection.
5. An intersection operation analysis was completed under total (2030) traffic volumes with the existing development removed and the proposed development operational at the study area intersections. No improvements are recommended within the study area with respect to intersection operations.
6. The proposed Site Access will operate efficiently with one-way stop control for westbound egress movements. One lane for egress traffic and one lane for ingress traffic at the Site Access will provide the necessary capacity for the proposed development.
7. In summary the proposed development will not cause any operational issues and will not add significant delay or congestion to the local roadway network.

Parking Study

8. The proposed parking supply meets the minimum parking requirements for resident, accessible and bicycle parking, as identified in the Town's ZBL.
9. The proposed residential visitor parking supply is 0.20 parking spaces / unit, which is less than the minimum residential visitor parking requirement identified in the Town's ZBL (0.25 parking spaces / unit).
10. Based on the peak residential visitor parking demand at the proxy parking sites the proposed visitor parking supply is sufficient for the intended use.
11. The proposed parking supply (15 resident spaces and six visitor spaces including one accessible parking space and 15 bicycle parking spaces) will accommodate the anticipated peak parking demand for the proposed development.

12. In the rare event that the visitor parking spaces in the proposed development are occupied, overflow parking can be accommodated via the existing public parking supply on Birch Street, Second Street, Oak Street, Beech Street and the municipal parking areas to the north on First Street north of Birch Street. The temporary impact of the additional visitor parking in the area would be negligible.

Appendix A – Site Plan

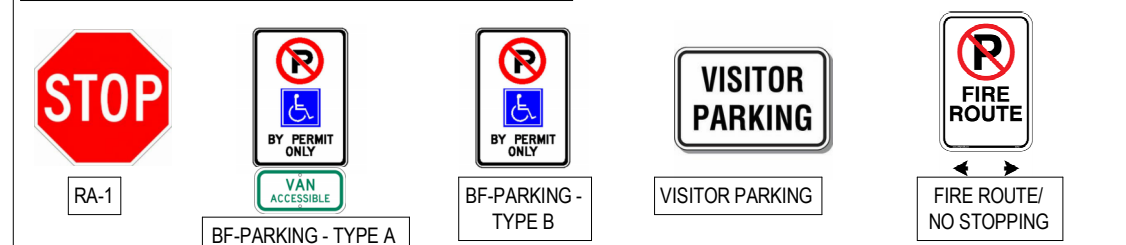


1 Site Plan
1 : 200

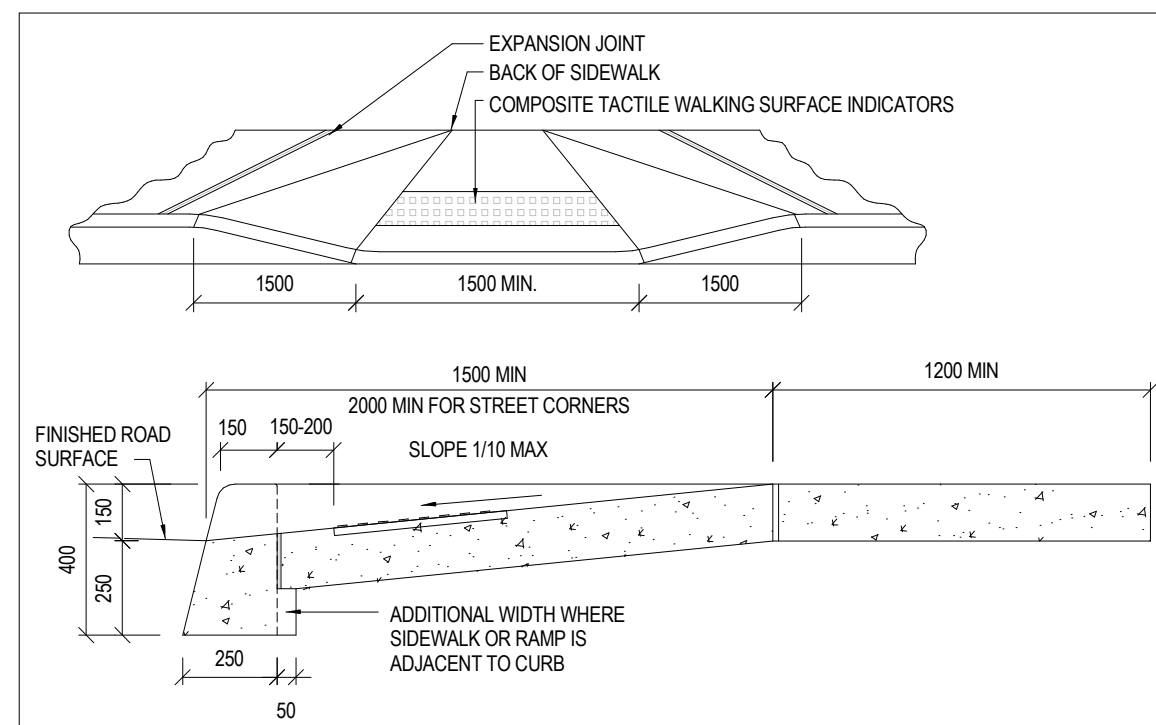


REFER TO THE ONTARIO TRAFFIC MANUAL FOR ALL SIGNAGE AND PAVEMENT MARKINGS DETAILS UNLESS NOTED OTHERWISE.

PROPOSED SIGN & DESIGNATION



- NOTE:
- ALL PAVEMENT MARKINGS AND TRAFFIC SIGNS SHALL CONFORM TO THE ONTARIO TRAFFIC MANUAL.
 - PAVEMENT MARKINGS FOR PARKING STALLS SHALL BE PAINTED WHITE AND CONFORM TO OPSS 1712.
 - PAINT COLOR SPECIFIED ON DRAWING. PAINT TO BE QUICK DRYING WATER BASED LATEX PAINT (WITHOUT GLASS BEADS)



FLUSH CURB

1 : 20

ZONING MATRIX		
ZONING PROVISIONS	REQUIRED - R3	PROPOSED
LOT AREA	-	3064 M ²
MIN LOT FRONTAGE	30 M	60 M
MAX LOT COVERAGE	40 %	26%
MIN FRONT YARD	7.5 M	15 M
MIN INTERIOR SIDE YARD (NORTH)	7.5 M	11.8 M
MIN INTERIOR SIDE YARD (SOUTH)	7.5 M	3 M
MIN INTERIOR SIDE YARD - EAVE (SOUTH)	6.9 M	2.4 M
MIN REAR YARD	7.5 M	16.8 M
MAX BUILDING HEIGHT	15 M	14.6 m
MIN LANDSCAPE SPACE	40%	35%
AH PARKING	0.5 Space/Unit + 0.25 Spaces/Units for visitors=23 spaces Min 1 accessible parking space	0.5 Space/Unit + 0.20 Spaces/Units for visitors=21 spaces (including accessible parking space) 1
BICYCLE PARKING	0.5 Bicycle spaces per dwelling unit to a total max of 20 =15	15 (10 Outdoor - 5 Indoor)
BUILDING AREA	NA	808 M ²
BUILDING TOTAL GFA	NA	2,453 M ²
OUT DOOR AMENITY SPACE AREA	10 M ² PER UNIT-300 M ²	342 M ²

DETACHED ACCESSORY BUILDINGS	REQUIRED	PROPOSED
MIN FRONT YARD SETBACK	7.5 M	3.6 M (for 2 detached accessory buildings)
MIN FRONT YARD SETBACK	7.5 M	1.6 M (for 1 detached accessory buildings)
MIN FRONT YARD SETBACK FOR AN EAVE	6.9 M	3 M (for 1 detached accessory buildings)
MIN FRONT YARD SETBACK FOR AN EAVE	6.9 M	1.3 M (for 1 detached accessory buildings)
MAX HEIGHT	7.0 M	4.6 M
MAX LOT COVERAGE	15%	11.5 M ² - 0.3%

Firm Name: McKnight Charron Limited Architects
48 Alliance Blvd. Unit 110, Barrie, Ontario
Tel: (705) 722-6739 Fax: (705) 726-5418

Name of Project: PROPOSED 3 STOREY APARTMENT BUILDING
Location: 29 BIRCH ST. COLLINGWOOD, ON

Certificate of Practice Number: 4206
The Certificate of Practice Number of the holder is the holder's BCDN.

The Architect noted above has exercised responsible control with respect to design activities. The Architect's seal number is the Architect's BCDN.

Item		Ontario 2012 Building Code Data Matrix Parts 3 & 9		OBC Reference Reference are to Division B unless noted [A] for Division A or [C] for Division C.	
1	Project Description	☒ New ☐ Addition ☐ Change Of Use ☐ Alteration	☐ Part 11 11.1 to 11.4	☒ Part 3 1.1.2. [A]	☐ Part 9 1.1.2. [A] & 9.10.1.3
2	Major Occupancy(s)	Group C		3.1.2.1.(1)	9.10.2.
3	Building Area (m ²)	Total: 805 m ²		1.4.1.2. [A]	1.4.1.2. [A]
4	Gross Area (m ²)	Total: 2,453 m ²		1.4.1.2. [A]	1.4.1.2. [A]
5	Number of Storeys	Above Grade: 3 Below Grade: 0		1.4.1.2. [A] & 3.2.1.1.	1.4.1.2. [A] & 9.10.4
6	Number of Streets/Fire Fighter Access:	1		3.2.2.10. & 3.2.5.	9.10.20.
7	Building Classification:	3.2.2.5.3 - GROUP C, UP TO 3 STOREYS, INCREASED AREA		3.2.2.20.-83	9.10.2.
8	Sprinkler System Proposed	☒ Entire Building ☐ Selected Compartments ☐ Selected Floor Areas ☐ Basement Only ☐ In Lieu Of Roof Rating ☐ Not Required		3.2.2.20.-83 3.2.1.5 3.2.2.17 Index	9.10.8.2 Index Index
9	Standpipe Required	☐ Yes ☒ No		3.2.9	N/A
10	Fire Alarm Required	☐ Yes ☒ No		3.2.4	9.10.18
11	Water Service/Supply is Adequate	☒ Yes ☐ No		3.2.5.7	N/A
12	High Building	☐ Yes ☒ No		3.2.6	N/A
13	Construction Restrictions	☐ Combustible ☒ Non-combustible ☐ Both		3.2.2.20.-83	9.10.6
14	Mezzanine(s) Area (m sq)	N/A		3.2.1.1.(3)-(8)	9.10.4.1
15	Occupant Load Based On	☐ M Sq/person ☒ Design Of Building		3.1.17	9.9.1.3
16	Barrier-free Design	☒ Yes ☐ No (explain)		3.8	9.5.2
17	Barrier-free Suites: 7 UNITS TOTAL GROUND FLOOR: 4 Studios , 1 One Bedroom , 1 Two Bedroom , 1 Three Bedroom SECOND FLOOR: 1 One Bedroom				
18	Hazardous Substances	☐ Yes ☒ No		3.3.1.2 & 3.3.1.19	9.10.1.3 (4)
19	Required Fire Resistance Rating (FRR)	Horizontal Assemblies FRR (Hours) Floors: 45 Min Roof: N/A Hours Mezzanine: N/A Hours FRR Of Supporting Members Floors: 45 Min Roof: N/A Hours Mezzanine: N/A Hours	Listed Design No. Or Description (SG-2) Listed Design No. Or Description (SG-2)	3.2.2.20.-83 & 3.2.1.4 3.2.2.37	9.10.8 9.10.9
Spatial Separation - Construction Of Exterior Walls (Taken From Largest Fire Compartment)				3.2.3	9.10.14
Wall	Area Of EBP (M ²)	L.D. (m) L/H Or H/L Permitted Max. % Of Openings	Proposed % Of Openings FRR (Hours)	Listed Design Or Description	Comb. Constr. Non-Comb. Cladding Non-Comb. Constr.
North	24 m ²	11.8 m 3 m N/A	100% 46% N/A	16% 14% N/A	X X X
East	30 m ²	16.8 m 3.5 m N/A	100% 52% N/A	20% 30% N/A	X X X
West	22 m ²	3.5 m N/A	52% N/A	30% N/A	X X

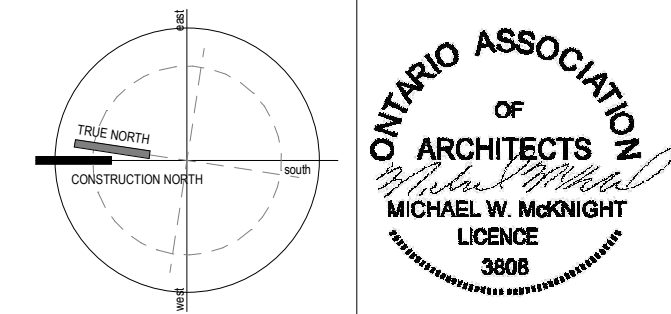
APPROVAL

SITE PLAN LEGEND	
	EXISTING SPOT GRADE
	NEW FINISH GRADE
	BORE HOLE (BH)
	TEST PIT (TP)
	CATCH BASIN
	SANITARY MANHOLE
	STORM MANHOLE
	PEDESTRIAN ENTRY DOOR LOCATION
	SERVICE/OVERHEAD DOOR LOCATION
	B.F. PARKING STALL
	B.F. CURB CUT - WITH DETECTABLE GROOVES
	SIAMESE CONNECTION
	POLE MOUNTED LIGHT
	WALL MOUNTED LIGHT
	BOLLARD LIGHT
	RECESSED LIGHT
	TACTILE INDICATOR
	ASPHALT
	CONCRETE
	PERMEABLE PAVERS
	PROP. HYDRANT
	TRANSFORMER
	SITE FURNITURE
	PROPERTY LINE
	FIRE ROUTE
	FLOOD ZONE LIMIT
	PRIVACY FENCE
	ACOUSTIC FENCE
	ORNAMENTAL FENCE

2	SITE PLAN RESUBMISSION	Feb-27-26
1	SITE PLAN APPLICATION	Nov-21-25

REVISIONS

ALL DIMENSIONS TO BE CHECKED AND VERIFIED ON SITE. DISCREPANCIES TO BE REPORTED TO THE ARCHITECT. LATEST APPROVED STAMPED DRAWINGS ONLY TO BE USED FOR CONSTRUCTION.



MCLARCHITECTS
MCKNIGHT CHARRON LIMITED

48 ALLIANCE BLVD. UNIT 110
BARRIE, ONTARIO L4M 9K3
WWW.MCLARCHITECTS.CA

T. 705.722.6739
F. 705.726.5418

DRAWING TITLE:
SITE PLAN

PROJECT NAME:
COLLINGWOOD MODULAR
AFFORDABLE HOUSING
29 BIRCH ST COLLINGWOOD ON

COUNTY OF SIMCOE

DATE: MAR-02-26
DRAWN BY: SA
SCALE: As indicated

PROJECT #
Project Number

SHEET #
A1.1

Appendix B – Traffic Count Data

Accu-Traffic Inc.

Morning Peak Diagram	Specified Period From: 7:00:00 To: 9:00:00	One Hour Peak From: 7:45:00 To: 8:45:00
Municipality: Collingwood Site #: 2507100001 Intersection: Birch St & Driveway for 29 & 45 Birch St TFR File #: 1 Count date: 28-May-25	Weather conditions: Person counted: Person prepared: Person checked:	
** Non-Signalized Intersection **	Major Road: Birch St runs N/S	

North Leg Total: 39 North Entering: 23 North Peds: 0 Peds Cross:	<table style="margin: auto;"> <tr> <td style="text-align: right;">Heavys</td> <td style="text-align: center;">4</td> <td style="text-align: center;">0</td> <td style="border-left: 1px solid black; text-align: center;">4</td> <td rowspan="4" style="width: 50px; text-align: center; vertical-align: middle;"> </td> <td style="text-align: left;">Heavys</td> <td style="text-align: center;">4</td> </tr> <tr> <td style="text-align: right;">Trucks</td> <td style="text-align: center;">2</td> <td style="text-align: center;">0</td> <td style="border-left: 1px solid black; text-align: center;">2</td> <td style="text-align: left;">Trucks</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: right;">Cars</td> <td style="text-align: center;">17</td> <td style="text-align: center;">0</td> <td style="border-left: 1px solid black; text-align: center;">17</td> <td style="text-align: left;">Cars</td> <td style="text-align: center;">11</td> </tr> <tr> <td style="text-align: right;">Totals</td> <td style="text-align: center;">23</td> <td style="text-align: center;">0</td> <td style="border-left: 1px solid black; text-align: center;">23</td> <td style="text-align: left;">Totals</td> <td style="text-align: center;">16</td> </tr> </table> Birch St Cars 18 Trucks 2 Heavys 4 Totals 24 Cars 10 1 11 Trucks 1 0 1 Heavys 4 0 4 Totals 15 1	Heavys	4	0	4		Heavys	4	Trucks	2	0	2	Trucks	1	Cars	17	0	17	Cars	11	Totals	23	0	23	Totals	16	<table style="margin: auto;"> <tr> <td style="text-align: right;">East Leg Total:</td> <td style="text-align: center;">3</td> </tr> <tr> <td style="text-align: right;">East Entering:</td> <td style="text-align: center;">2</td> </tr> <tr> <td style="text-align: right;">East Peds:</td> <td style="text-align: center;">5</td> </tr> <tr> <td style="text-align: right;">Peds Cross:</td> <td style="text-align: center;"></td> </tr> </table> <table style="margin: auto; margin-top: 10px;"> <tr> <td style="text-align: right;">Cars</td> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="border-left: 1px solid black; text-align: center;">1</td> </tr> <tr> <td style="text-align: right;">Trucks</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="border-left: 1px solid black; text-align: center;">0</td> </tr> <tr> <td style="text-align: right;">Heavys</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="border-left: 1px solid black; text-align: center;">0</td> </tr> <tr> <td style="text-align: right;">Totals</td> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="border-left: 1px solid black; text-align: center;">1</td> </tr> </table> <table style="margin: auto; margin-top: 10px;"> <tr> <td style="text-align: right;">Cars</td> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: right;">Trucks</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="text-align: right;">Heavys</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="text-align: right;">Totals</td> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">1</td> </tr> </table> Driveway for 29 & 45 Birch St 	East Leg Total:	3	East Entering:	2	East Peds:	5	Peds Cross:		Cars	1	0	0	1	Trucks	0	0	0	0	Heavys	0	0	0	0	Totals	1	0	0	1	Cars	1	0	0	1	Trucks	0	0	0	0	Heavys	0	0	0	0	Totals	1	0	0	1
Heavys	4	0	4		Heavys		4																																																																				
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Totals	1	0	0	1																																																																							

Comments

Accu-Traffic Inc.

Afternoon Peak Diagram		Specified Period From: 16:00:00 To: 19:00:00	One Hour Peak From: 17:15:00 To: 18:15:00																																																																																																																																																																																																																																																																																										
Municipality: Collingwood Site #: 2507100001 Intersection: Birch St & Driveway for 29 & 45 Birch St TFR File #: 1 Count date: 28-May-25		Weather conditions: Person counted: Person prepared: Person checked:																																																																																																																																																																																																																																																																																											
** Non-Signalized Intersection **		Major Road: Birch St runs N/S																																																																																																																																																																																																																																																																																											
North Leg Total: 56 North Entering: 36 North Peds: 0 Peds Cross:	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Heavys</td> <td style="width: 10%;">0</td> <td style="width: 10%;">0</td> <td style="width: 10%;">0</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td>Trucks</td> <td>0</td> <td>0</td> <td>0</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Cars</td> <td>35</td> <td>1</td> <td>36</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Totals</td> <td>35</td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> Birch St Birch St <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Cars</td> <td style="width: 10%;">36</td> <td style="width: 10%;">0</td> <td style="width: 10%;">0</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td>Trucks</td> <td>0</td> <td>0</td> <td>0</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Heavys</td> <td>0</td> <td>0</td> <td>0</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Totals</td> <td>36</td> <td>0</td> <td>0</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <table style="width: 100%; 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Accu-Traffic Inc.

Total Count Diagram

Municipality: Collingwood
Site #: 2507100001
Intersection: Birch St & Driveway for 29 & 45 Birch
TFR File #: 1
Count date: 28-May-25

Weather conditions:

Person counted:
Person prepared:
Person checked:

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

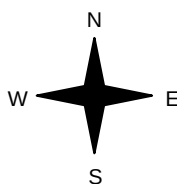
Major Road: Birch St runs N/S

North Leg Total: 197
 North Entering: 115
 North Peds: 2
 Peds Cross: 

Heavys	4	0	4
Trucks	2	0	2
Cars	106	3	109
Totals	112	3	

Heavys	4
Trucks	1
Cars	77
Totals	82

East Leg Total: 11
 East Entering: 5
 East Peds: 11
 Peds Cross: 



	Cars	Trucks	Heavys	Totals
	2	0	0	2
	3	0	0	3
	5	0	0	

Driveway for 29 & 45 Birch St



	Cars	Trucks	Heavys	Totals
	6	0	0	6

Cars	109
Trucks	2
Heavys	4
Totals	115

Cars	75	3	78
Trucks	1	0	1
Heavys	4	0	4
Totals	80	3	

Peds Cross: 
 South Peds: 2
 South Entering: 83
 South Leg Total: 198

Comments

Accu-Traffic Inc.

Traffic Count Summary

Intersection: Birch St & Driveway for 29 & 45 Bi						Count Date: 28-May-25		Municipality: Collingwood					
North Approach Totals						North/South Total Approaches	South Approach Totals						
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds	
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total		
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0	
8:00:00	0	11	0	11	0	26	8:00:00	0	15	0	15	0	
9:00:00	0	24	0	24	0	37	9:00:00	0	12	1	13	0	
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0	
17:00:00	1	23	0	24	2	39	17:00:00	0	15	0	15	2	
18:00:00	0	33	0	33	0	57	18:00:00	0	22	2	24	0	
19:00:00	2	21	0	23	0	39	19:00:00	0	16	0	16	0	
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Appendix C – Synchro Analysis Output – Existing Traffic Volumes

29 Birch St.
1: Site Access & Birch St

HCM Unsignalized Intersection Capacity Analysis
Existing 2025 PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	1	1	19	2	1	35
Future Volume (Veh/h)	1	1	19	2	1	35
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74
Hourly flow rate (vph)	1	1	26	3	1	47
Pedestrians	3					
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	80	31			32	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	80	31			32	
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)	925	1047			1589	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	2	29	48			
Volume Left	1	0	1			
Volume Right	1	3	0			
cSH	982	1700	1589			
Volume to Capacity	0.00*	0.02	0.00*			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s/veh)	8.7	0.0	0.2			
Lane LOS	A		A			
Approach Delay (s/veh)	8.7	0.0	0.2			
Approach LOS	A					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			14.3%	ICU Level of Service		A
Analysis Period (min)			15			

* Value less than 0.01.

29 Birch St.
1: Site Access & Birch St

HCM Unsignalized Intersection Capacity Analysis
Existing 2025 AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	1	1	15	1	0	23
Future Volume (Veh/h)	1	1	15	1	0	23
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	1	1	18	1	0	27
Pedestrians	3					
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	49	22			22	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	49	22			22	
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)	964	1059			1603	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	2	19	27			
Volume Left	1	0	0			
Volume Right	1	1	0			
cSH	1009	1700	1603			
Volume to Capacity	0.00*	0.01	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s/veh)	8.6	0.0	0.0			
Lane LOS	A					
Approach Delay (s/veh)	8.6	0.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay		0.4				
Intersection Capacity Utilization		14.3%		ICU Level of Service		A
Analysis Period (min)		15				

* Value less than 0.01.

Appendix D – Synchro Analysis Output – Total Traffic Volumes

29 Birch St.
1: Site Access & Birch St

HCM Unsignalized Intersection Capacity Analysis
Total 2030 AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	4	18	1	2	28
Future Volume (Veh/h)	4	4	18	1	2	28
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.85	0.92	0.92	0.85
Hourly flow rate (vph)	4	4	21	1	2	33
Pedestrians	3					
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	62	25			25	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	62	25			25	
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)	946	1055			1599	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	8	22	35			
Volume Left	4	0	2			
Volume Right	4	1	0			
cSH	998	1700	1599			
Volume to Capacity	0.00*	0.01	0.00*			
Queue Length 95th (m)	0.2	0.0	0.0			
Control Delay (s/veh)	8.6	0.0	0.4			
Lane LOS	A		A			
Approach Delay (s/veh)	8.6	0.0	0.4			
Approach LOS	A					
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization			14.3%	ICU Level of Service	A	
Analysis Period (min)			15			

* Value less than 0.01.

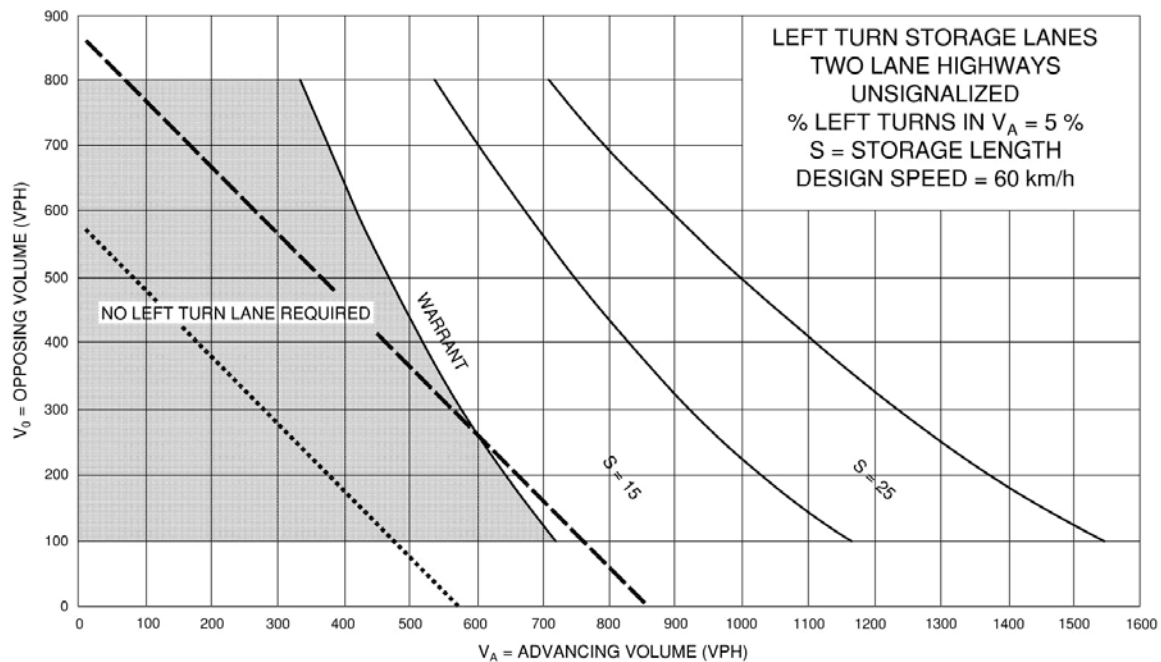
29 Birch St.
1: Site Access & Birch St

HCM Unsignalized Intersection Capacity Analysis
Total 2030 PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	3	23	3	4	43
Future Volume (Veh/h)	2	3	23	3	4	43
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.74	0.92	0.92	0.74
Hourly flow rate (vph)	2	3	31	3	4	58
Pedestrians	3					
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	102	36			37	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	102	36			37	
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)	897	1040			1583	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	5	34	62			
Volume Left	2	0	4			
Volume Right	3	3	0			
cSH	978	1700	1583			
Volume to Capacity	0.00*	0.02	0.00*			
Queue Length 95th (m)	0.1	0.0	0.1			
Control Delay (s/veh)	8.7	0.0	0.5			
Lane LOS	A		A			
Approach Delay (s/veh)	8.7	0.0	0.5			
Approach LOS	A					
Intersection Summary						
Average Delay		0.7				
Intersection Capacity Utilization		15.6%		ICU Level of Service	A	
Analysis Period (min)		15				

* Value less than 0.01.

Appendix E – MTO Left Turn Analysis

Exhibit 9A-6

Birch Street / Site Access
 2025 Existing - Southbound
 Critical Case - PM Peak Hour

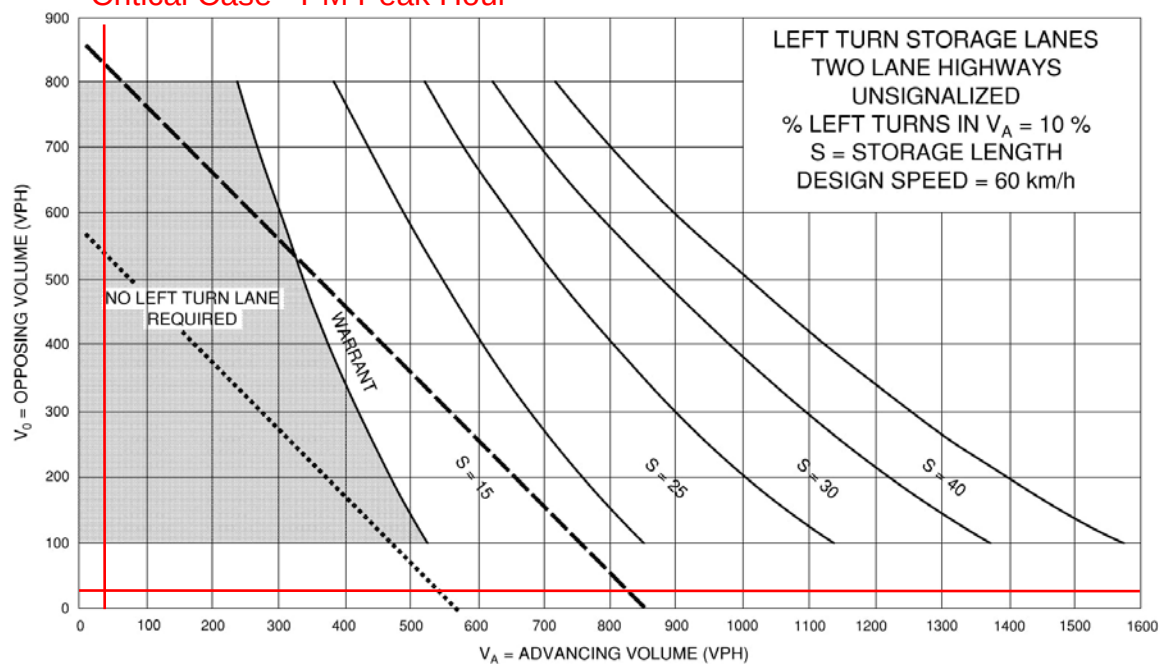
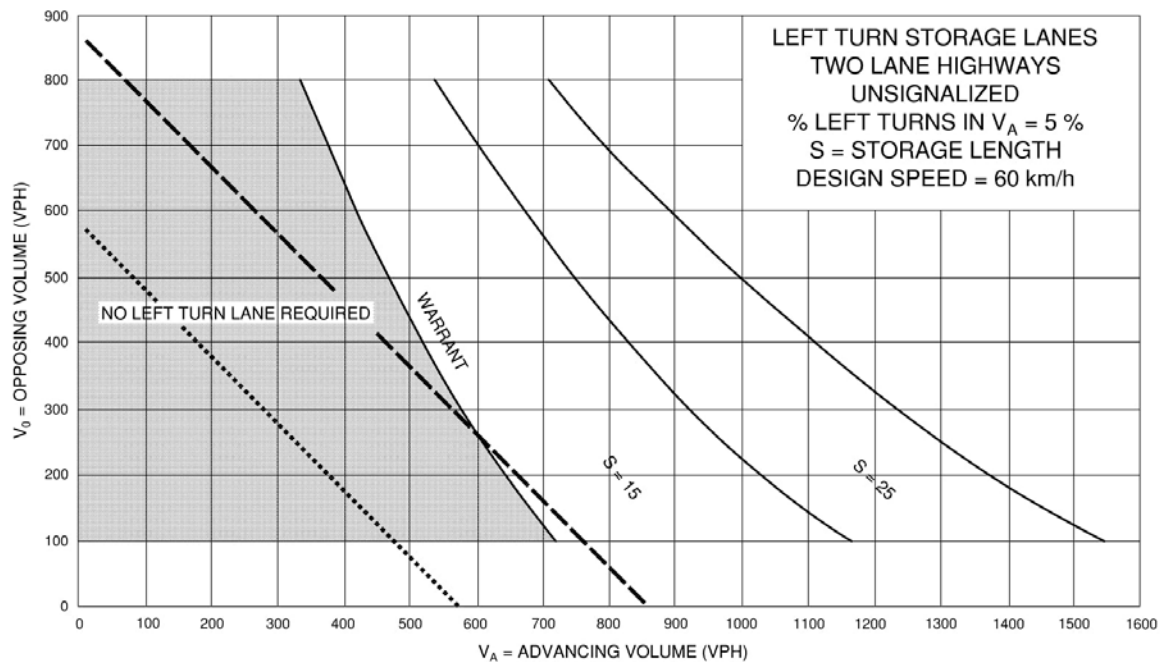
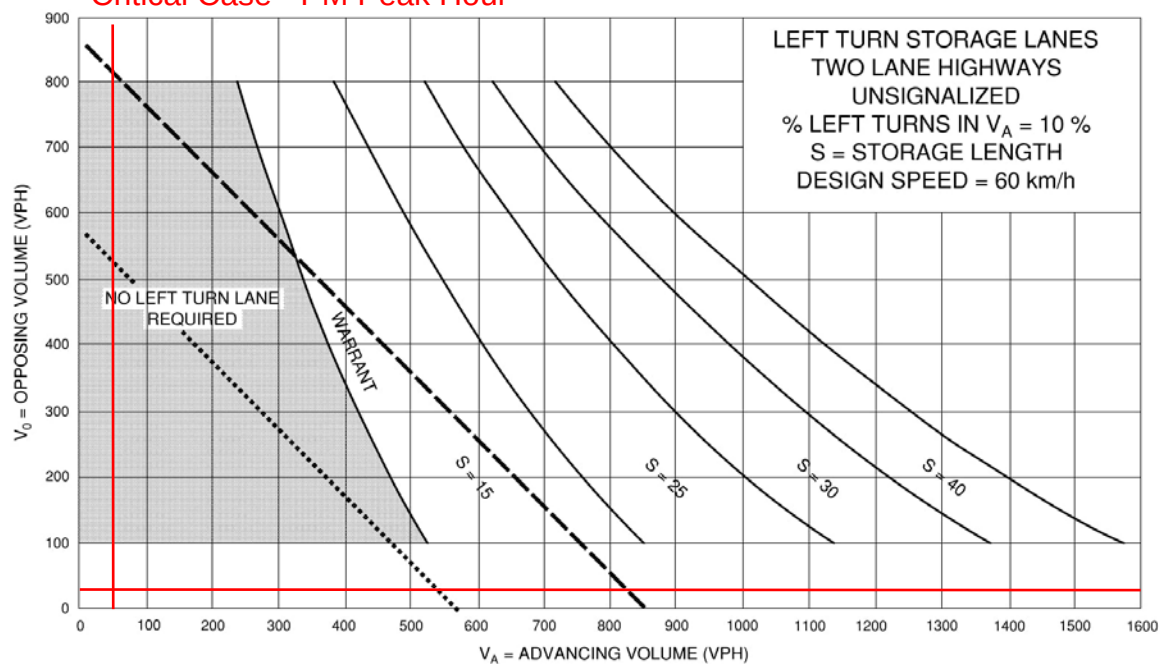


Exhibit 9A-6**Birch Street / Site Access**

2030 Total - Southbound

Critical Case - PM Peak Hour



Appendix F – OTM Signal Justification Sheets

Justification No. 7 - 2025 Existing Traffic

Birch Street / Site Access

Justification	Description		Compliance			Signal Warrant	Underground Provisions Warrant
			Sectional		Entire %		
			Rest. Flow	Numerical			
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	720	25	3%	0%	NO	NO
	B. Vehicle volume, along minor streets (average hour)	255	1	0%		NO	NO
2. Delay to cross traffic	A. Vehicle volume, major street (average hour)	720	23	3%	0%	NO	NO
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	75	1	1%		NO	NO

Justification No. 7 - 2030 Total Traffic (Critical Case)

Birch Street / Site Access

Justification	Description		Compliance			Signal Warrant	Underground Provisions Warrant
			Sectional		Entire %		
			Rest. Flow	Numerical			
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	720	34	5%	1%	NO	NO
	B. Vehicle volume, along minor streets (average hour)	255	3	1%		NO	NO
2. Delay to cross traffic	A. Vehicle volume, major street (average hour)	720	29	4%	1%	NO	NO
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	75	2	2%		NO	NO

Appendix G – 2022 Transportation Tomorrow Survey Output

TTS Cross Tabulation

Cross Tabulation Query Form - Trip - 2022

Filter Variables

Planning district of desti... ✕ ▾ 2022 TTS zone of hous... ✕ ▾ (Optional) Table Attribute ▾

Group Attributes

Row Grouping Column Grouping Table Grouping

Grouping file: Choose File No file chosen

Filter Selection +

☐ 2022 TTS zone of household ▾ In ▾ 17195, 17189, 17196, 17194

And ▾

☐ Start time of trip ▾ In ▾ 700 - 900

And ▾

☐ 2022 Trip purpose of destination ▾ In ▾ 10, 11

Add Delete

Output

☒ Comma-delimited table ☐ Column format Expansion Factor On Click to Select Load Load

Execute Query Select All Save As

Mon Aug 18 2025 15:33:28 GMT-0400 (Eastern Daylight Time) - Run Time: 3270ms

Cross Tabulation Query Form - Trip - 2022

Row: Planning district of destination - pd_dest

Column: 2022 TTS zone of household - tts22_hhld

Filters:

2022 TTS zone of household - tts22_hhld In 17195, 17189, 17196, 17194

and

Start time of trip - start_time In 700 - 900

and

2022 Trip purpose of destination - purp_dest2022 In 10, 11

Trip 2022

Table:

,17189,17194,17195,17196
PD 11 of Toronto,22,0,0,0
Uxbridge,21,0,0,0
Collingwood,9,430,0,13
Blue Mountains ,0,14,34,24

TTS Cross Tabulation

Cross Tabulation Query Form - Trip - 2022

Filter Variables

2022 TTS zone of desti... x v

2022 TTS zone of hous... x v

(Optional) Table Attribute v

Group Attributes

Row Grouping

Column Grouping

Table Grouping

Grouping file: Choose File No file chosen

Filter Selection +

☐ 2022 TTS zone of household v In v 17195, 17189, 17196, 17194

And v

☐ Start time of trip v In v 700 - 900

And v

☐ 2022 Trip purpose of destination v In v 10, 11

And v

☐ Planning district of destination v In v 127,

Add

Delete

Output

☒ Comma-delimited table ☐ Column format Expansion Factor On Click to Select Load Load

Execute Query

Select All

Save As

Mon Aug 18 2025 15:35:14 GMT-0400 (Eastern Daylight Time) - Run Time: 3266ms

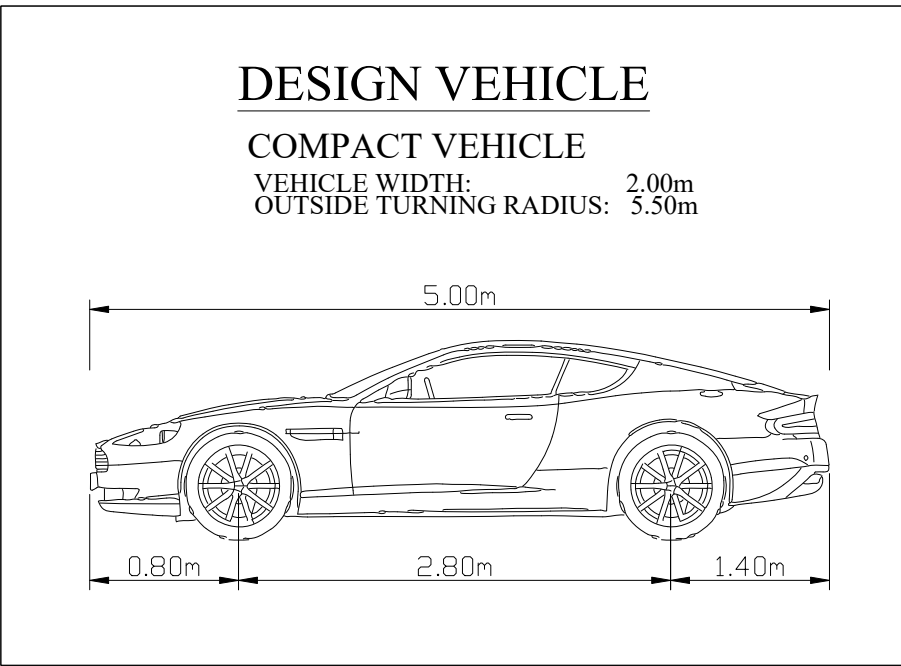
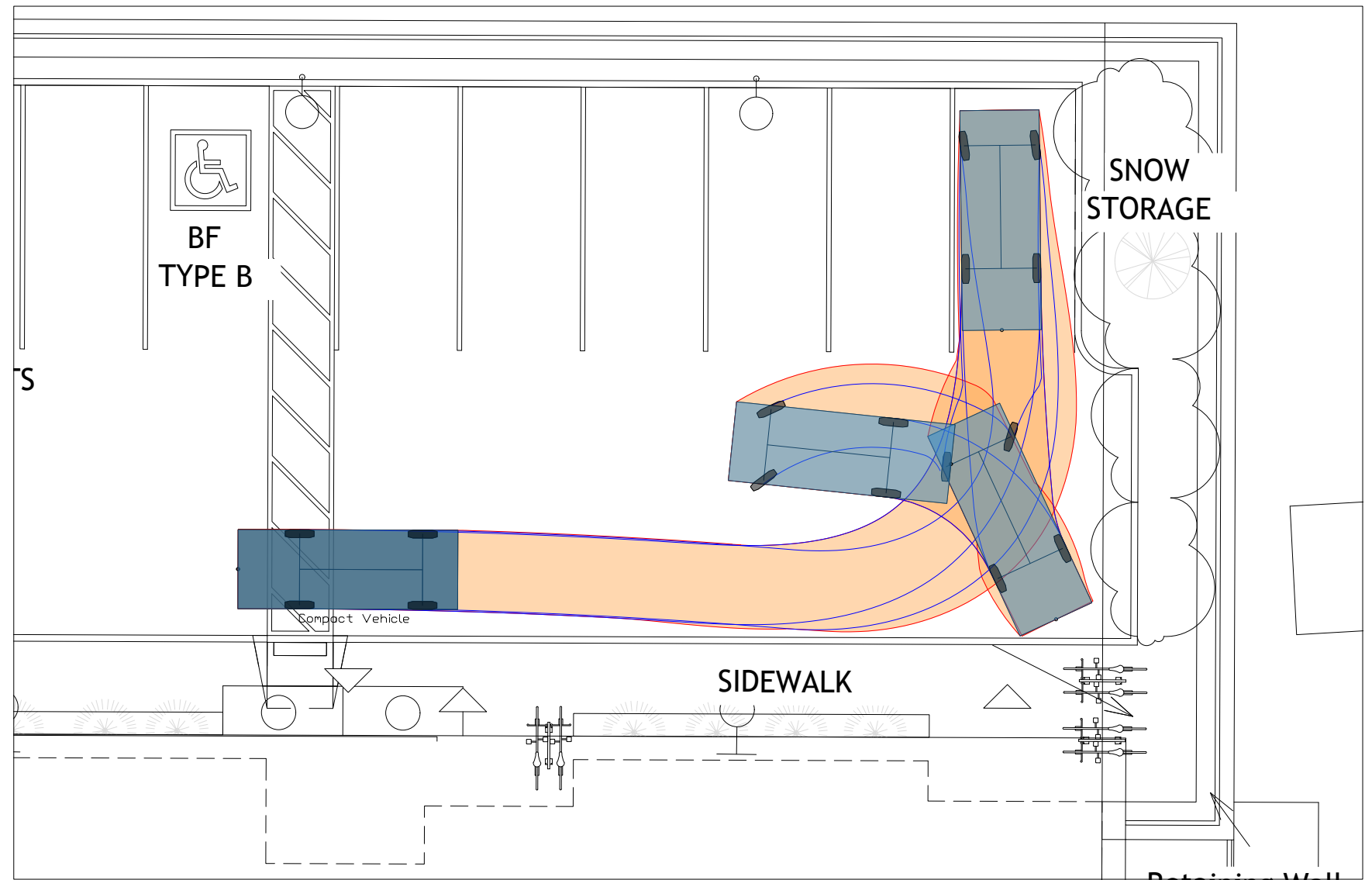
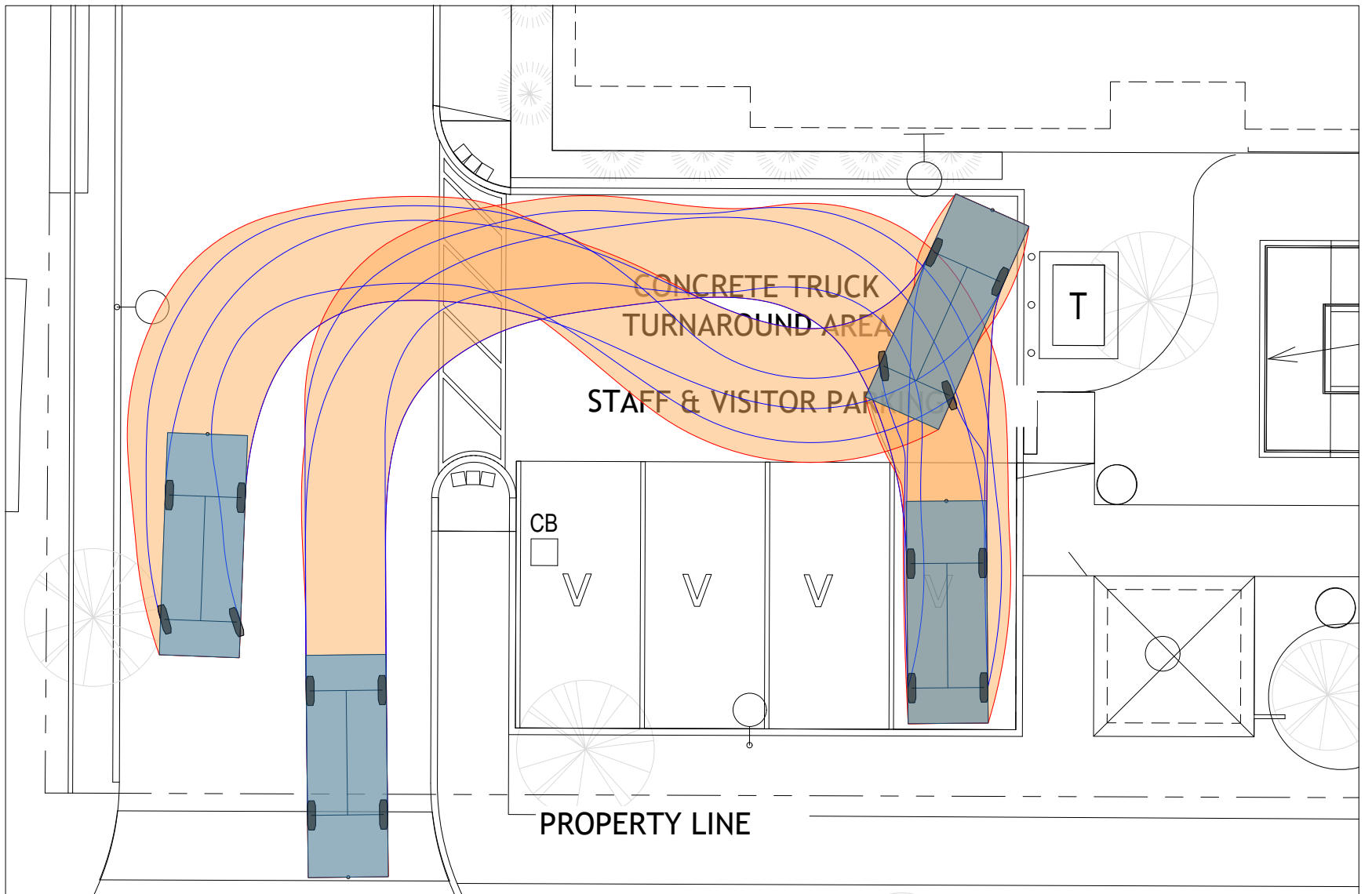
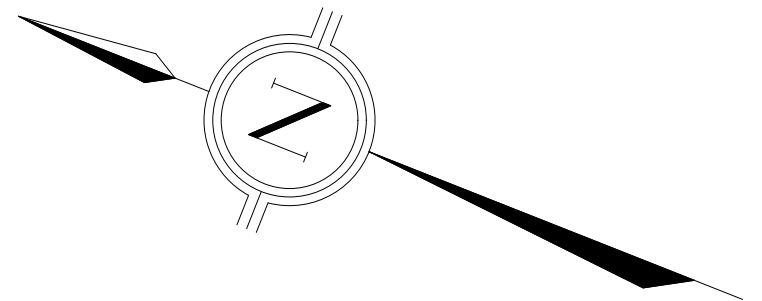
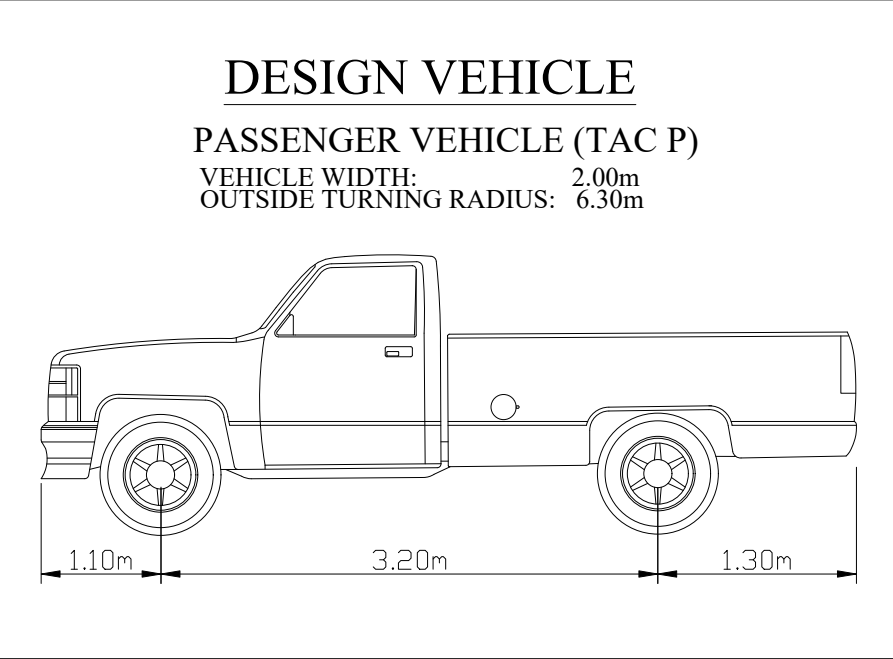
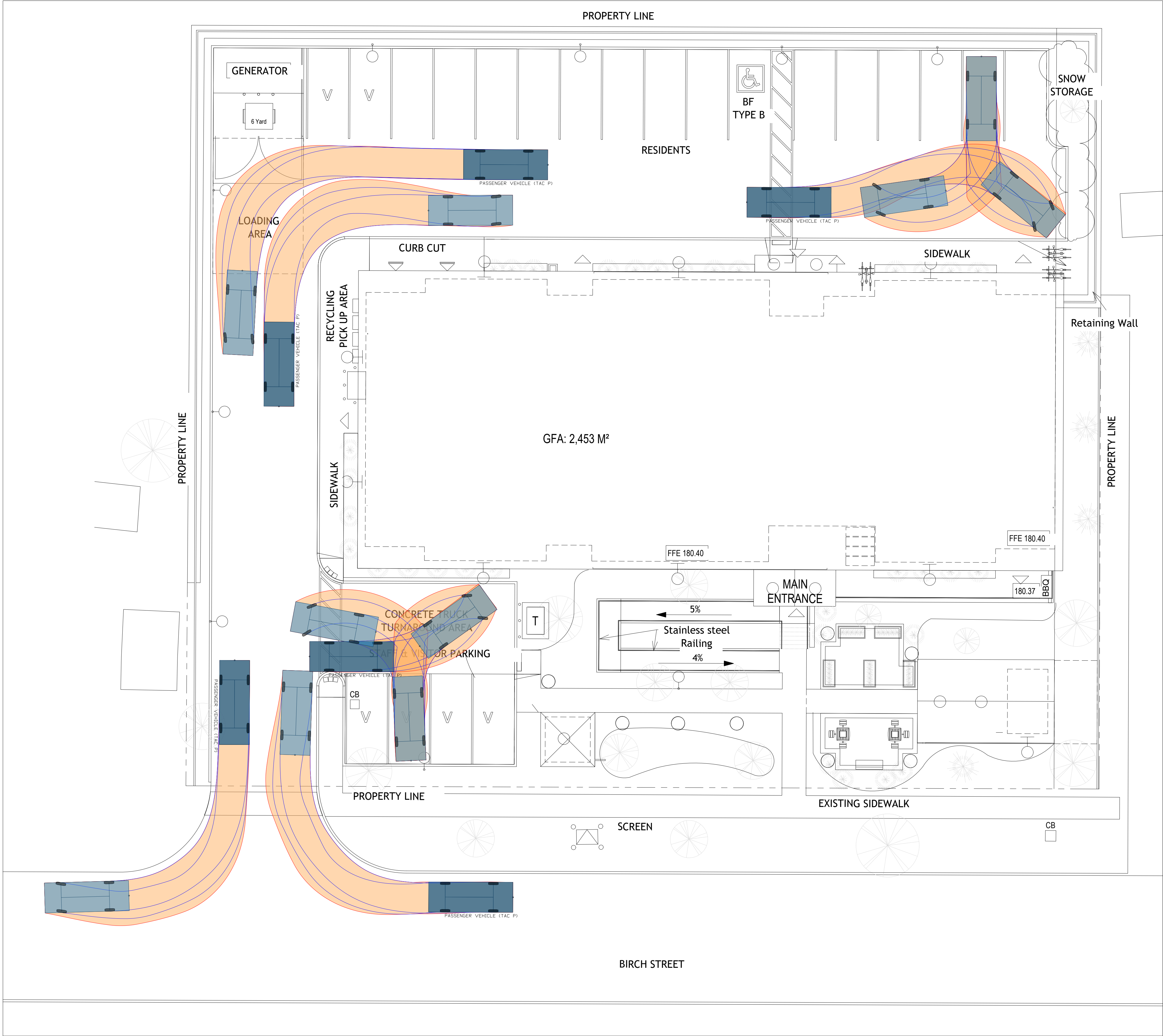
Cross Tabulation Query Form - Trip - 2022

Row: 2022 TTS zone of destination - tts22_dest
Column: 2022 TTS zone of household - tts22_hhld

Filters:
2022 TTS zone of household - tts22_hhld In 17195, 17189, 17196, 17194
and
Start time of trip - start_time In 700 - 900
and
2022 Trip purpose of destination - purp_dest2022 In 10, 11
and
Planning district of destination - pd_dest In 127,

Trip 2022
Table:
,17189,17194,17196
17187,0,22,0
17189,0,39,0
17195,9,12,0
17198,0,124,0
17199,0,233,13

Appendix H – Swept Path Analysis



GENERAL NOTES
1. THIS DRAWING IS NOT INTENDED FOR CONSTRUCTION.
2. DO NOT SCALE DRAWINGS.
3. THE DRAWINGS ARE THE PROPERTY OF JD ENGINEERING AND MUST BE RETURNED ON COMPLETION OF THE PROJECT.
4. BASE DRAWING PROVIDED BY MCL ARCHITECTS ON NOVEMBER 13, 2025.

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



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

PROJECT

29 BIRCH STREET

CLIENT

COUNTY OF SIMCOE

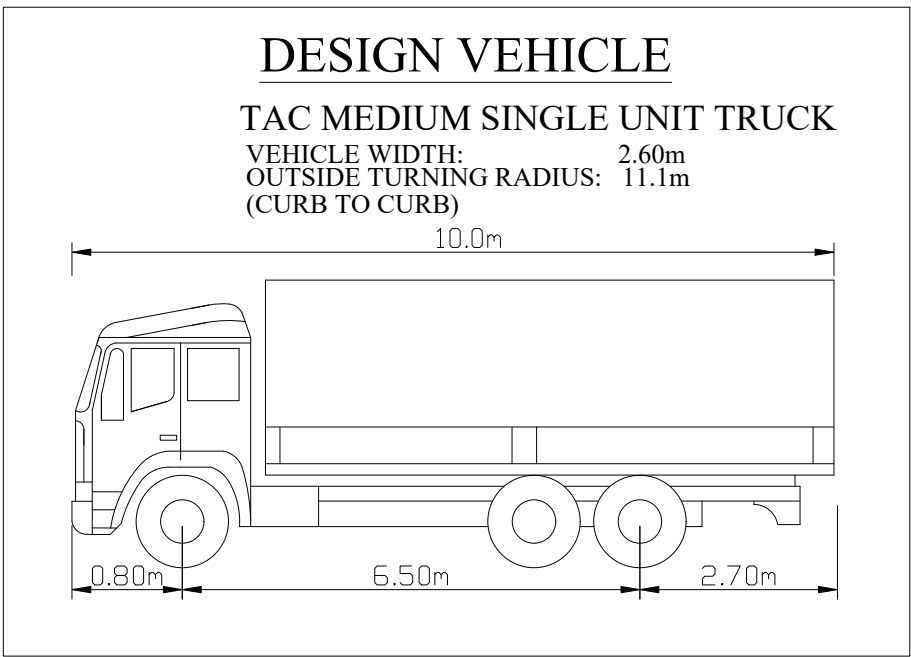
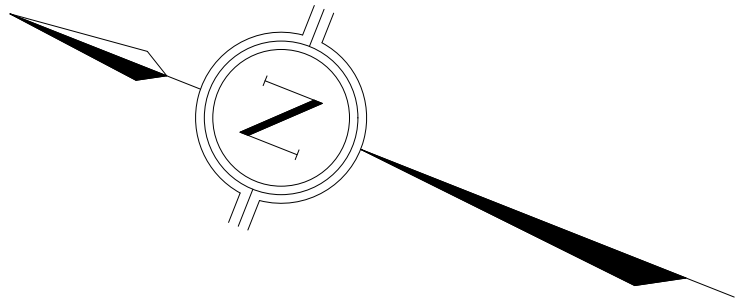
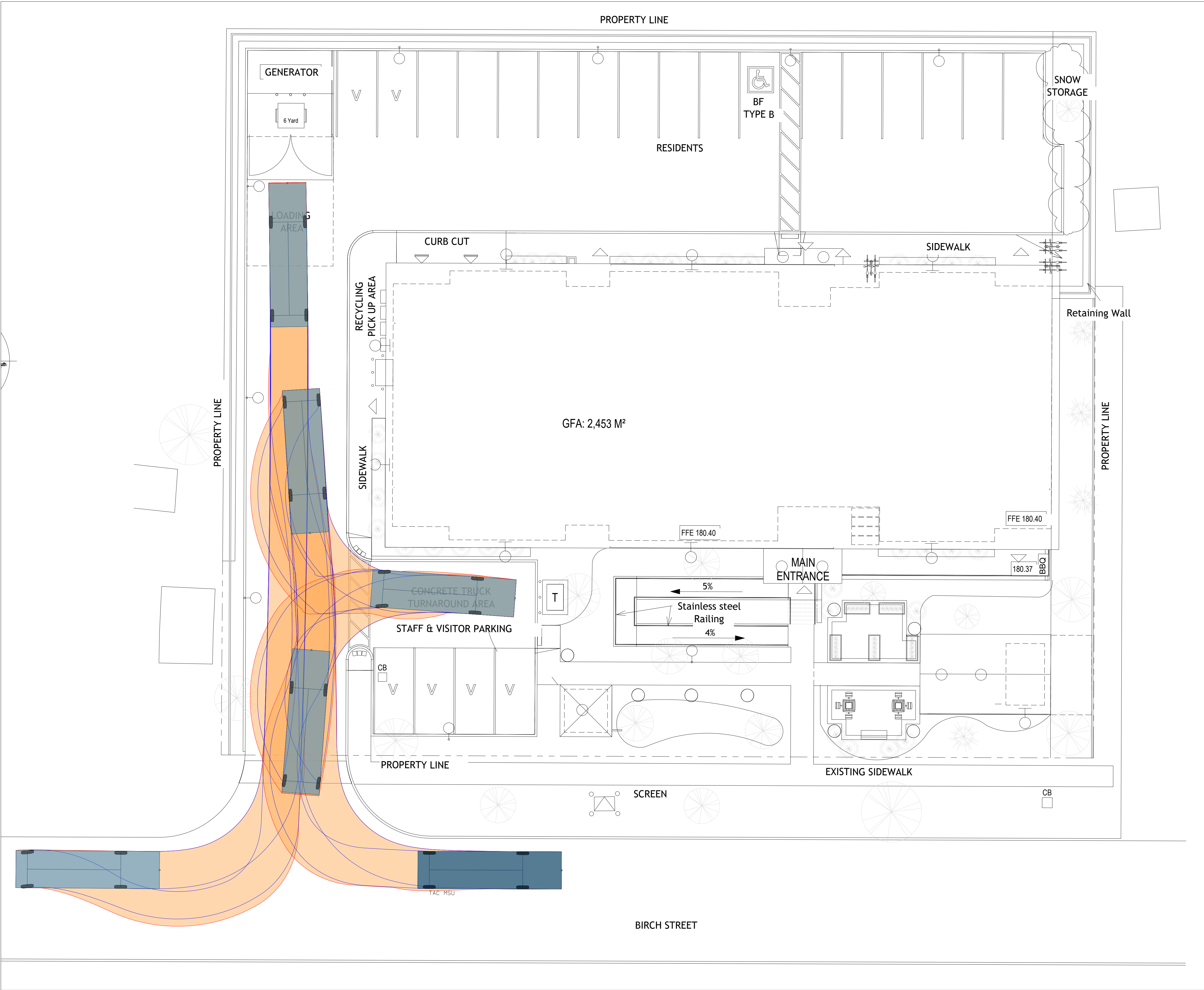
DRAWING TITLE

PASSENGER VEHICLE
TAC P (PASSENGER VEHICLE)

SUBTITLE

VEHICLE TURNING MOVEMENT ANALYSIS

DESIGN: RH	DATE: 11/25
DRAWN: RH	DATE: 11/25
REVIEWED: JN	DATE: 11/25
SCALE HOR. 1:750	SCALE VERT. N/A
SHEET NO. 25019 - TURN-1	



GENERAL NOTES
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4. BASE DRAWING PROVIDED BY MCL ARCHITECTS ON NOVEMBER 13, 2025.

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



PROJECT
29 BIRCH STREET
CLIENT
COUNTY OF SIMCOE

DRAWING TITLE
**PPRIVATE WASTE COLLECTION
RECYCLING TRUCK**
SUBTITLE
VEHICLE TURNING MOVEMENT ANALYSIS

DESIGN: RH	DATE: 11/25
DRAWN: RH	DATE: 11/25
REVIEWED: JN	DATE: 11/25
SCALE HOR. 1:750	SCALE VERT. N/A
SHEET NO. 25019 - TURN-2	