5567 Ontario Avenue - Traffic and Parking Brief

September 10, 2024

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Subject	Traffic and Parking Brief for Proposed Development South of 5567 Ontario Avenue in Niagara Falls		

1. Introduction

GHD completed a traffic and parking brief to demonstrate that the single lane proposed driveway access will have adequate safety once the site development is completed. The parking demand and utilization of the existing site at 5567 Ontario Avenue, Niagara Falls, Ontario was observed to justify the reduction in parking supply proposed under full build-out conditions. The full build-out conditions occur after the completion of the new building and will consist of a shared driveway entrance and parking for both apartment buildings. The existing parking lot will be redeveloped with a single driveway entrance and shared parking for both buildings.

This technical memorandum includes the following components for the traffic brief:

- Utilization of the Institute of Transportation Engineers (ITE) *Trip Generation Manual* to forecast the number of trips generated by the existing and proposed dwelling units that would be entering and exiting the proposed driveway access during the morning (AM) and afternoon (PM) peak hours under full build-out conditions.
- Assessment of the proposed access design with the Transportation Association of Canada (TAC) Geometric *Design Guide for Canadian Roads (GDGCR). S*pecific attention was given to the elements presented in Section 8.9 Driveways including, but not limited to sight distance, width, and clear throat lengths.
- Discussion of the potential and frequency of vehicular conflict within and at the proposed driveway access under full build-out conditions and recommend any mitigation measures, if necessary.

The parking brief includes the following components:

- Proposed parking supply and Niagara Zoning By-Law parking requirements.
- Utilization of the Institute of Transportation Engineers (ITE) Parking Generation Manual to forecast the number of parked vehicles under full build-out conditions.
- Assessment of parking demand based on observed data from the existing parking supply, collected from August 8 to August 11, between 6 AM and 10 PM on both a typical weekday and weekend day.
- Development of an aggregate parking utilization rate based on the number of existing dwelling units and the observed parking demand.
- Evaluation of the proposed parking supply's adequacy as depicted in the site plan for the intended development, based on the aggregate parking utilization rate.

2. Proposed Development

The subject site is situated adjacent to an existing building at 5567 Ontario Avenue in Niagara Falls, Ontario. Ontario Avenue is a local road, with one lane per direction and a posted speed limit of 50 km/h. DSV Capital Management Corporation intends to build a residential building with 3-storeys and 11 dwelling units. The proposed site plan is illustrated in Figure 1.

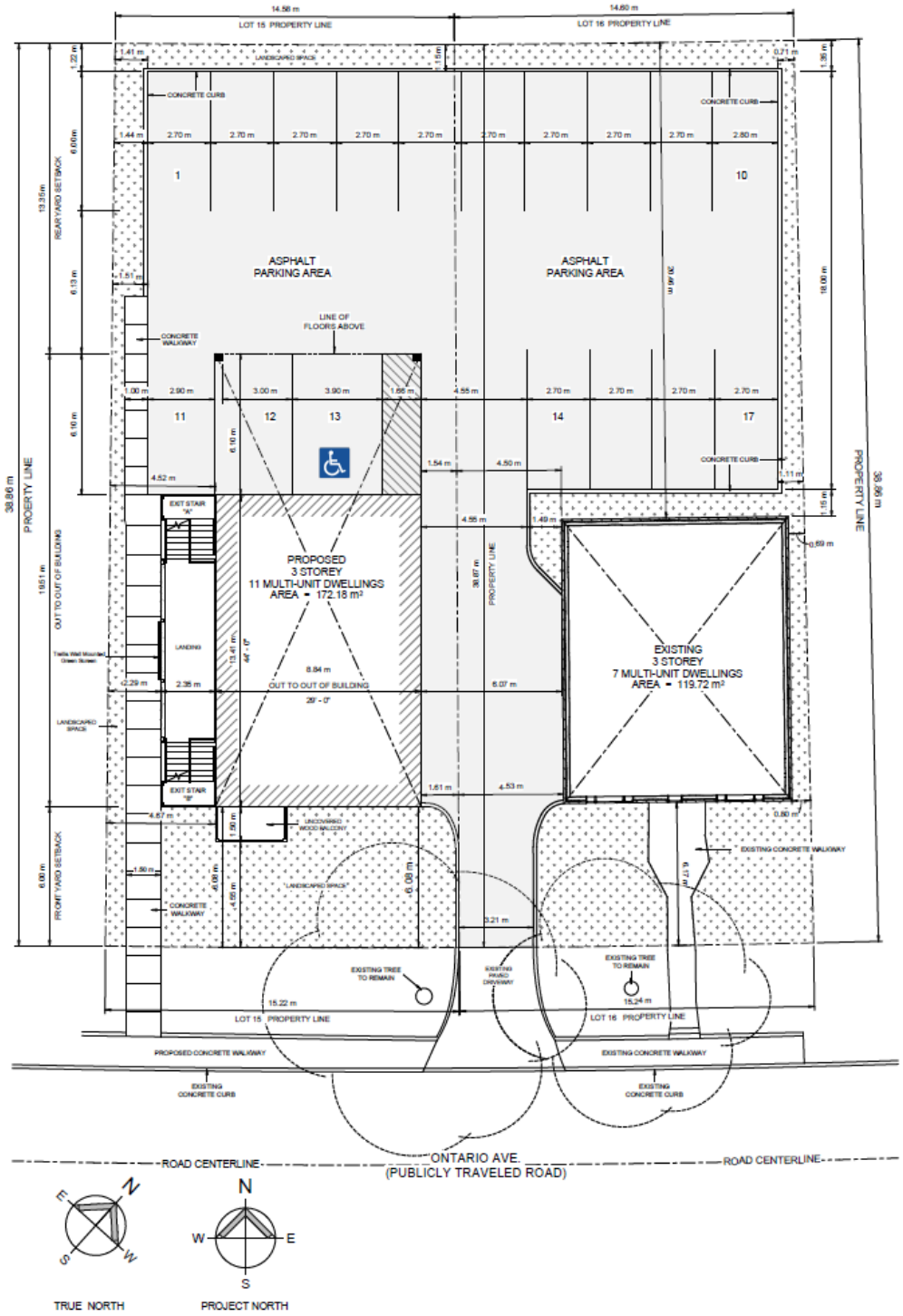

Figure 1 *Proposed Site Plan*

3. Trips Generated

The ITE Trip Generation Manual was used to forecast the number of trips generated by the existing and proposed dwelling units that would be entering and exiting the proposed driveway access during the

morning (AM) and afternoon (PM) peak hours under fully occupied conditions. The values from the 11th Edition of Trip Generation Manual for the two residential apartment building are presented in **Table 1**. Land Use Code 220, which represents low-rise multifamily housing, in a dense multi-use urban area not close to rail transit, was used to determine the average trip generation rate, directional distribution, and total trips. The average rate was chosen over the fitted curve equation because it better correlates with the low number of dwelling units proposed in this development. The two buildings will have a combined total of 18 dwelling units: the proposed building will have 11 units, and the existing building will have 7 units.

Table 1 AM and PM Peak Period Trip Generation for Two Residential Apartments

Land Use Code	Land Use Description	Independent Variable	Time Period	Units	Average Rate	Directional Distribution		Calculated Trip Ends		
						Enter	Exit	Total Trips	Entry	Exit
220	Multifamily Housing (Low-Rise)	Number of dwelling units	AM	18	0.30	10%	90%	5	1	4
			PM	18	0.25	90%	10%	5	4	1

The trip generation calculation indicates a total of 5 trips during the morning (AM) period, with 1 trip entering and 4 trips exiting the property. Similarly, there are 5 trips during the evening (PM) period, with 4 trips entering and 1 trip exiting the property.

4. Sight Distance Assessment

The minimum required stopping sight distance was compared to the observed stopping sight distances for the eastbound and westbound direction of travel along Ontario Avenue approaching 5567 Ontario Avenue.

As per TAC GDGCR, stopping sight distance is based upon driver eye height, vehicle tail or brake light height, design speed, and roadway geometry. Ontario Avenue has a regulatory posted speed limit of 50 km/h within the vicinity of 5567 Ontario Avenue. The assumed operational speed of the road is 10 km/h higher than the posted speed limit.

Table 2 presents the required minimum stopping sight distance variables and the associated values for Ontario Avenue.

Table 2 Required Minimum Stopping Sight Distance and Associated Values

Variable	TAC GDGCR Reference	Associated Value
Driver Eye Height	Section 2.4.2.3 Driver Eye Height	1.08 metres
Vehicle Tail or Brake Light Height	Section 2.5.2.1 Object Height	0.60 metres
Posted Speed	Not Applicable	50 kilometres/hour
Design Speed	Not Applicable	60 kilometres/hour
Minimum Required Stopping Sight Distance based on Design Speed	Table 2.5.2. Stopping Sight Distance on Level Roadways for Automobiles	85 metres

The minimum required stopping sight distance for the eastbound and westbound vehicles travelling along Ontario Avenue is 85 metres.

Stopping sight distances were measured on a map for the eastbound and westbound direction of travel along Ontario Avenue from the driveway at 5567 Ontario Avenue and are presented in **Table 3**.

Table 3 Observed Stopping Sight Distances from Google Earth Streetview

Direction of Travel	Measured Stopping Sight Distance
Eastbound	150 m
Westbound	100 m

Based on the minimum required stopping sight distance of 85 meters, the eastbound direction of travel is adequate at 150 meters, and the westbound direction is also adequate at 100 meters. The intersection of Ontario Avenue and Hiram Street has an all-way stop sign.

5. Driveway Access Location and Design

The proposed site plan illustrates an entry driveway width of 3.2 metres. Based on TAC *GDGCR* Table 8.9.1: Typical Driveway Dimensions, a two-way residential driveway should have a width between 2.0 and 7.3 metres. The proposed driveway meets the requirements of the TAC GDGCR guidelines.

Table 8.9.1: Typical Driveway[c] Dimensions

Dimension (m)	Land Use		
	Residential	Commercial	Industrial
Width (W)			
- One way	3.0[a] – 4.3	4.5[a] – 7.5	5.0 – 9.0
- Two way	2.0[a] – 7.3	7.2[a] – 12.0[b]	9.0[a] – 15.0[b]
Right turn radius (R)	3.0 – 4.5	4.5 – 12.0	9.0 – 15.0

Notes:

a. Minimum widths are normally used with radii at or near the upper end of the specified range

b. Increased widths may be considered for capacity purposes; where up to 3 exit lanes and 2 entry lanes are employed, 17.0 m is the maximum width exclusive of any median

c. Applicable to driveways only, not road intersections

The maximum width of driveway or parking area in the front yard of a lot as specified in Section 4.19 Parking in Yards 2008-148 of the City of Niagara Falls By-Law 79-200 (Zoning By-Law) is 60% of the frontage to a maximum of 9.0 metres for a 3-storey residential apartment within the Residential Two Zone (R2). Based on the site plan, the requirement for maximum width is satisfied.

6. Vehicular Conflict Under Full Build Conditions at Proposed Driveway

A vehicle exiting the parking lot of the property will be able to stop to make way for vehicle entering the parking lot from Ontario Avenue. Likewise, the vehicle entering the property from Ontario Avenue will be able to stop to make way for the vehicle getting out of the parking lot of the property.

Vehicles traveling on Ontario Avenue will be moving at reduced speed in this area because it's near a stop sign at Hiram Street. This reduced speed will increase the overall safety of the site access. The vehicles might be either slowing down for the stop sign or just starting to accelerate after stopping.

During the morning (AM) peak period, 5 trips are expected, with 1 entering and 4 exiting the property. In the evening (PM) peak period, 5 trips are also expected, with 4 entering and 1 exiting the property. There are anticipated to be no issues with vehicular conflicts along the driveway under full build-out conditions.

7. Parking

7.1 Proposed Parking Supply

According to the site plan, 17 parking spaces are proposed for the 18 dwelling units combined.

7.2 Niagara Zoning By-Law Parking Requirements

The parking rate for Zone R2 in the City of Niagara Falls is 1.10 parking spaces per unit. Based on this rate, 8 parking spaces are required for the existing building and 12 for the proposed building. However, the proposed site plan includes 16 non-accessible and 1 accessible parking space for the two buildings, which does not meet the zoning by-law requirements. This results in a shortfall of 3 parking spaces. It is important to note that the subject site is located within the downtown region of Niagara Falls.

8. Estimated Parking Demand

8.1 ITE Rates

The ITE Parking Generation Manual (6th Edition) provides data on surveys across the USA and Canada of peak parking demand of different land uses.

The parking demand for the subject site has been estimated using the average rates for Land Use Code (LUC) 217, Multifamily Housing (Low Rise). Similar to the trip generation estimates in **Section 3**, the location/setting of a dense multi-use urban area (not close to rail transit) was used for LUC 217, as the development is situated in an area with access to active transportation facilities and frequent transit service.

Table 4 summarizes the forecast parking demand based on ITE rates.

Table 4 AM and PM Peak Period Parking Generation for Two Residential Apartments

Land Use Code	Number of Units	Parking	
		Rate	Demand
220 - Multifamily Housing (Low-Rise)	18	0.55	10

The estimated parking demand based on ITE rates is 10 spaces. According to ITE, the average parking rate for these 18 dwelling units is 0.55.

8.2 Current parking use

To better understand the expected parking demand for the development, GHD conducted a parking demand survey at the existing apartment building located at 5567 Ontario Avenue. This site, which is adjacent to the proposed new building, was surveyed during the following days and times:

- Thursday August 8, 2024, from 6:00 AM to 10:00 PM
- Friday August 9, 2024, from 6:00 AM to 10:00 PM
- Saturday August 10, 2024, from 6:00 AM to 10:00 PM
- Sunday August 11, 2024, from 6:00 AM to 10:00 PM

The apartment building was fully occupied during the time of the survey. There are 7 dwelling units in the existing apartment building at 5567 Ontario Avenue with a maximum parking capacity of 7 vehicles.

To determine the peak parking demand, the occupied parking spaces were observed at 15-minute intervals, which are shown in Figure 2. The detailed survey records and calculations are provided in the Appendix. **Table 5** shows the results of the maximum occupied parking space for each day during the survey period.

Table 5 Occupied Parking Spaces and Peak Parking Rate in 5567 Ontario Avenue

Parking Time Zone	Maximum # of Occupied Parking Spaces	Peak Parking Rate
Thursday August 8, 2024, from 6:00 AM to 10:00 PM	3 Spaces	0.43
Friday August 9, 2024, from 6:00 AM to 10:00 PM	4 Spaces	0.57
Saturday August 10, 2024, from 6:00 AM to 10:00 PM	3 Spaces	0.43
Sunday August 11, 2024, from 6:00 AM to 10:00 PM	4 Spaces	0.57

The observed peak parking demand occurred on Friday and Sunday, with four parking spaces occupied. On Friday, peak demand was observed at 7:45 AM and 2:15 PM. On Sunday, peak demand occurred at 2:30 PM and 2:45 PM. On Thursday and Saturday, peak demand reached 3 parking spaces multiple times throughout the day.

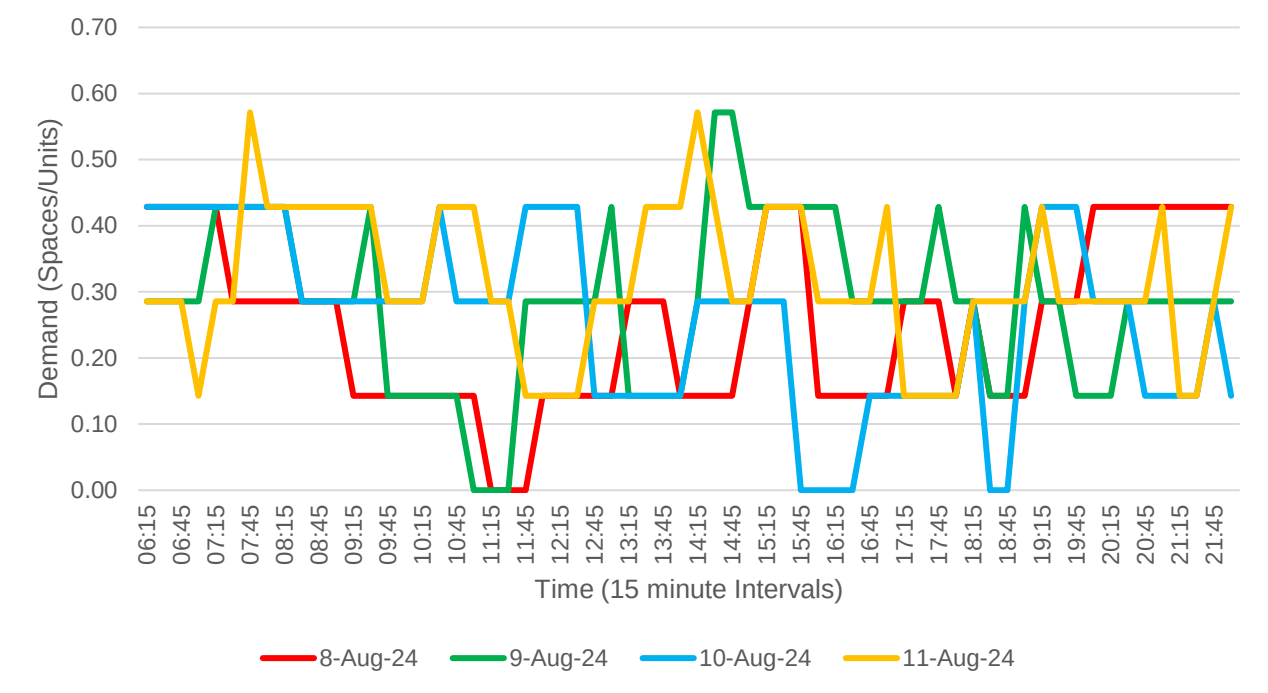

Figure 2 Existing Apartment Building Parking Demand

The peak occupancy rate is 0.57 spaces per dwelling unit on Friday and Sunday, and 0.43 spaces per dwelling unit on Thursday and Saturday. Therefore, based on the existing use of the parking area and the number of units in the building, the peak parking demand rate is 0.57 spaces per dwelling unit.

8.3 Future Parking Needs

The proposed building will have 11 dwelling units, bringing the total to 18 dwelling units when combined with the existing building. The 17 parking spaces for both buildings represent a rate of 0.94 parking spaces per dwelling unit. Based on the parking demand calculations, this rate of 0.94 spaces per dwelling unit is sufficient. Therefore, the parking spaces provided, as shown on the site plan, will be adequate to serve both buildings.

9. Travel Demand Management

Travel Demand Management (TDM) refers to a variety of strategies to reduce congestion, minimize the number of single-occupant vehicles, encourage non-auto modes of travel, and reduce vehicle dependency to create a sustainable transportation system. TDM strategies have multiple benefits including the following:

- Reduced auto-related emissions to improve air quality.
- Decreased traffic congestion to reduce travel time.
- Increased travel options for businesses and commuters.
- Reduced personal transportation costs and energy consumptions; and
- Support Provincial smart growth objectives.

The combined benefits listed above will assist in creating a more active and liveable community through improvements to overall active transportation standards for the local businesses and surrounding community.

9.1 Existing Strategies

The following strategies and tools already exist in the surrounding area, including existing pedestrian and transit facilities, or can be implemented into the site design to support reduced parking supply and encourage the use of alternative modes of transportation.

9.2 Walking

Pedestrian accessibility is crucial for ensuring that those who can walk have access to pedestrian connections. Sidewalks are available on both sides of Hiram Street and on the east side of Ontario Avenue. The site is within walking distance of many restaurants, retail shops, and employment areas.

9.3 Transit

Convenient and desirable transit options can reduce the number of automobile trips. Local public transportation is provided by Niagara Region Transit via Routes #104 and #204. The nearest bus stops are located 290 meters (a one-to-two-minute walk) from the site, with sidewalks connecting to these stops.

The routes offer good connectivity to the broader network and key destinations within the region, including malls, Downtown Niagara, and local colleges and universities (e.g., Transitions College of Business and Career Studies, University of Niagara Falls Canada). Additionally, the route provides access to the GO Train, allowing travel to various destinations.

9.4 Parking Management

Most apartment buildings and condominium complexes include parking in the rent or purchase price, a practice known as bundled parking. This approach assumes all residents have the same parking needs and spreads the cost across everyone. However, it does not benefit those who do not own a car and contribute to social benefits by choosing not to drive. Unbundling parking separates the cost of parking from the rent or purchase price, allowing residents to pay only for the parking they use. With unbundled parking, spaces are rented or sold separately rather than automatically included with the unit.

10. Conclusion

Through an assessment of trip generation, sight distance, driveway access location and design, zoning and parking requirements, the following conclusions can be drawn:

- When the site is fully operational with all 18 units occupied, there will be 5 trips during the AM peak hour (1 entering and 4 exiting) and 5 trips during the PM peak hour (4 entering and 1 exiting).
- There are no issues with site access, sight lines, driveway access location and design and vehicular conflict.
- The 4-day parking survey indicated a maximum parking demand of 0.57 spaces per dwelling unit, requiring 11 parking spaces. The site plan includes 17 parking spaces, which corresponds to 0.94 spaces per dwelling unit. Thus, 17 spaces will be sufficient for the 18 apartment units.

Regards

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