5A-150 Pinebush Road
Cambridge ON N1R 8J8
p: 519.896.3163
905.381.2229
416.479.9684

www.ptsl.com

2024-03-07
Project: 240105

Shaun Larkin
S. Larkin Developments Inc.
5435 Old Brock Road
Pickering, ON L1Y 1A1

Dear Mr. Larkin:

RE: CLAREMONT NORTH BUSINESS PARK (5435, 5455, AND 5475 OLD BROCK ROAD) TRAFFIC IMPACT STUDY, JUNE 2019, PARADIGM TRANSPORTATION SOLUTIONS LIMITED – RESPONSE TO AGENCY COMMENTS

The purpose of this letter is to provide responses to the comments made by City of Pickering and Durham Region staff in review of the subject Traffic Impact Study (TIS).

City of Pickering

Comment: *Section 4.1 states that the access on Old Brock Road meets sight distance requirements for a design speed of 50 km/hr. Please provide the calculations completed for the sight lines for the City's review.*

Response: The proposed development would be served by three accesses along the east side of Old Brock Road. It should be noted that the two southernmost site accesses are the existing accesses to the subject site. The northernmost access is new and would be in proximity to an existing access serving 5474 Old Brock Road.

Since the initial site visits for this study were conducted between 2016 and 2018, a site visit was undertaken on 22 February 2024 to confirm current field conditions and sight distances. Photos, videos, and field measurements were undertaken along the subject section of Old Brock Road. This section is relatively flat and straight and has a posted speed limit of 40 km/h. In the field it was noted that the slight changes in either the horizontal or vertical alignment of Old Brock Road do not significantly affect the available sight lines.

The available sight distance has been compared to TAC intersection sight distance criteria (ISD)[1] for a 50 km/h design speed (10 km/h over the 40 km/h posted maximum speed limit). Table 1 provides a summary of the analysis results, which shows that the available sight distance exceeds the TAC 50 km/h design speed criteria for the turning movements that have opposing traffic flows (Left Out, Right Out, and Left In) at the two existing accesses and the one proposed access. Figure 1, Figure 2, and Figure 3 (attached) provide supporting photographs of the sight lines at the North (proposed), Central (existing), and South (existing) accesses, respectively.

TABLE 1: OLD BROCK ROAD INTERSECTION SIGHT DISTANCE ANALYSIS

Site Access Location	Traffic Movement	Sight Distance Available	TAC ISD for 50 km/h Design Speed	50 km/h Sight Distance Met?	Actual Design Speed Met
North Access (proposed)	Left Out[1]	130 m	105 m	Yes	60 km/h
	Right Out[2]	330 m	95 m	Yes	>70 km/h
	Left In[3]	130 m	80 m	Yes	>70 km/h
Central Access (existing)	Left Out[1]	230 m	105 m	Yes	>70 km/h
	Right Out[2]	235 m	95 m	Yes	>70 km/h
	Left In[3]	230 m	80 m	Yes	>70 km/h
South Access (existing)	Left Out[1]	310 m	105 m	Yes	>70 km/h
	Right Out[2]	150 m	95 m	Yes	>70 km/h
	Left In[3]	310 m	80 m	Yes	>70 km/h

Notes:

1. The sight distance for outbound left turn movements reflects that of a driver looking to the right. The sight distance looking to the left would be the same as that shown for the outbound right turn, which in each case also exceeds the TAC criteria (105 m) for the outbound left turn movement.
2. The sight distance for outbound right turn movements reflects that of a driver looking only to the left.
3. The sight distance for inbound left-turn movements reflects that of a driver looking ahead at opposing traffic.

[1] Reference: 2017 Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads, Table 9.9.4 (Left Out), Table 9.9.6 (Right Out), and Table 9.9.12 (Left In). It should be noted that stopping sight distance (SSD) for a 50 km/h design speed has not been included in the analysis results since ISD exceeds SSD for design speeds of 20 km/h to 120 km/h for a Left Out, 20 km/h to 90 km/h for a Right Out, and 20 km/h to 70 km/h for a Left In.

Comment: *Table 5.1 Trip Generation shows the pass by trips for am and pm traffic. Please confirm how the trip percentage was calculated.*

Response: As noted in the paragraph preceding Table 5.1, the reference for the pass-by trip estimates is the 3rd edition of the ITE Trip Generation Handbook. There is a typo in the TIS where the year of publication is shown as 2014 whereas it was published in 2017. The average pass-by trip percentages for ITE Land Use Codes 934 (Fast-Food Restaurant with Drive-Through, 49% AM peak and 50% PM peak) and 945 (Gas Station with Convenience, 62% AM peak and 56% PM peak) were applied to the total trip generation for each use and split 50/50 for inbound and outbound trips (approximates the in/out trip generation split for each use).

Comment: *The proposed functional design lane widths for the proposed Brock Road access should be shown on the Site Plan and confirmed with the Region as Brock Road is under the jurisdiction of the Region of Durham.*

Response: This comment will be addressed by the project team's architect and civil engineer as part of the Site Plan review and approval process.

Comment: *Show the proposed slow down and merging shoulder lengths on the Site Plan. Please confirm which guidelines were used to design these shoulders.*

Response: While clarification is required for a better understanding of the terms used in this comment, road design details will be addressed by the project team's civil engineer as part of the Site Plan review and approval process.

Comment: *Please confirm if a dedicated left turn lane is required on Old Brock Road for the truck traffic. Provide the calculations for the City's review.*

Response: The traffic forecasts, including site trip generation, represent vehicle traffic, which includes cars, trucks, and other types of motorized vehicles. Assessing the need for dedicated left turn lanes is based on MTO left turn lane charts (see Figure 4.1 of the TIS for examples), which are commonly referred to as left turn lane warrants. The traffic volumes used in this type of analysis represent vehicles not trucks. As noted in Section 4.2 of the TIS, a left turn lane warrant analysis was not conducted for the site accesses on Old Brock Road due to the low overall volume of through and turning traffic.

For further clarification, the MTO left turn lane charts compare the advancing volume (travel direction of vehicle traffic that includes the left turn volume under

consideration) and the opposing volume (travel direction of vehicle traffic opposing a driver making a left turn) for various percentages of left turns in the advancing volume (range of 5% to 40%) and for various design speeds for the major road (range of 50 km/h to 110 km/h). The highest volumes at any of the three accesses on Old Brock as shown in the 2028 AM and PM peak hour total traffic forecasts are 48 vehicles for the advancing volume (southbound direction) and 76 vehicles for the opposing volume (northbound direction). In comparison, the MTO left turn lane charts for a 50 km/h design speed (10 km/h above the posted maximum speed limit on Old Brock Road) and the highest left turn percentage chart for the advancing volume (40%) show that a minimum of 160 vehicles for the advancing volume and 800 vehicles for the opposing volume or a minimum of 330 vehicles for the advancing volume and 100 vehicles for the opposing volume are required to warrant a left turn lane.[2]

As part of the analysis and application of engineering judgment in the original TIS, the Old Brock Road traffic volume forecasts were examined and determined to be much lower than the MTO left turn lane warrant criteria as outlined above. At that point it was concluded that dedicated left turn lanes on Old Brock Road would not be required at the site accesses. This conclusion was also supported by the operational analysis of the 2028 AM and PM peak hour traffic forecasts where the level of service for all southbound left turns to the site accesses was "A" (minimal average vehicle delay of four seconds or less), the volume to capacity ratio was nominal (0.01 indicating that only 1% of the available capacity would be used), and southbound queuing was virtually non-existent (95th percentile queues less than one metre, well below one car length).

Comment: *Show the existing and proposed access widths on Old Brock Road. Also show all the proposed radii.*

Response: This will be addressed by the project team's architect and civil engineer as part of the Site Plan review and approval process.

Comment: *There appears to be a lack of Transportation Demand Management (TDM) content in the development and the Traffic Impact Study prepared by Paradigm Transportation Solutions Limited, dated June 2019, based on the size and uses for this development. We suggest the following sections should be included:*

[2] Reference: TAC Geometric Design Guide for Canadian Roads, June 2017, MTO Design Supplement, Exhibit 9A-5. The values stated represent the coordinates of the two ends of the dividing line in the chart that defines whether a left turn lane is warranted or not.

- *Transit Overview – Include mapping and a description of the closest existing transit for the site (even if it is not within a 400m walking distance) and its connecting services and nodes. Also consider looking into potential future routes, and ensure the site has sufficient pedestrian facilities to access main roads (such as the Claremont By-Pass).*

Response: Given the site's rural location and the proposed type of development (primarily smaller scale industrial), TDM in general or public transit specifically were not key considerations in establishing the scope of the TIS as confirmed through consultation with Durham Region staff at the outset of the study.

To address the comment regarding transit, we note that the community of Claremont is currently outside the Durham Region Transit (DRT) regular service area. As a rural area it is only served by DRT's On Demand service for eligible customers[3]. Similarly, it is not directly served by GO Transit. The nearest GO Transit bus routes are approximately six and 10 kilometres away, specifically Highway 407 to the south and Stouffville to the west, respectively.

The Durham Region Transportation Master Plan Update (2017) shows "Other Transit Spine" (described as a combination of DRT and GO Bus service) along Brock Road (Regional Road 1) between Highway 407 and Uxbridge as part of a 2031 Higher-Order Transit Network. The future Brock Road transit spine runs along the east side of the subject site and provides a transit opportunity sometime in the future.

The provision of pedestrian facilities to access main roads will be addressed by the project team's architect as part of the Site Plan review and approval process.

Durham Region

Comment: *The Region agrees with Brock Road Access Option 3 Right in/Right out/Left in via Separate Left-Turn Auxiliary Lane located 280 metres north of the at-grade rail crossing. A southbound right turn lane, as noted in the TIS, is also required at the proposed access on Brock Road. The left turns out movement will be restricted by a channelized island in the throat of the access. The concept design shown in the report is acceptable. The design should not restrict the sight distance to the north for vehicles exiting to the south.*

Response: Acknowledged.

[3] According to the DRT website: "Durham Region Transit (DRT) Specialized Services provides public transit service for eligible persons with disabilities who are unable to use conventional transit services for all or part of their ride. Public transit services delivered through Specialized Services comply with the requirements of the Accessibility for Ontarians with Disabilities Act (AODA) and are consistent with industry best practices."

Comment: *We agree with the geometric design dimensions provided in the report for the proposed southbound right turn lane and northbound left turn lane on Brock Road.*

Response: Acknowledged.

Comment: *We agree with the concept of the channelized island in the throat of the access and will provide comments on the design during the review of the Brock Road engineering drawings. An additional right-of-way on Brock Road is not required from this property.*

Response: Acknowledged.

Comment: *Please provide justification that the proposed drive-through facility associated with the restaurant use provides for sufficient vehicle stacking.*

Response: As shown in the concept Site Plan contained in the TIS (Figure 2.1), the drive-through would serve a relatively small, quick serve restaurant of approximately 650 SF gross floor area (GFA). This size compares to a kiosk-style drive-through (typically less than 1,000 SF GFA, limited or no dine-in) and is much smaller than a typical coffee-oriented restaurant with drive-through (typically 3-4,000 SF GFA with dine-in).

The concept Site Plan illustrates nine vehicles in queue from the pick-up window to the end of the queue. Beyond that point, there is additional space to the south of the depicted queue and along the east side of the site that could accommodate at least another three vehicles without affecting circulation within the site. This would bring the total stacking to 12 vehicles. In our experience, the typical stacking space requirement in municipal zoning by-laws for full-size restaurants with drive-throughs is in the range of 10 to 15 vehicles. It should be noted that the demand experienced at drive-through restaurants varies by brand, to some extent by location, and by several other variables. Given that the proposed use would be a smaller scale operation in a rural location, it is our opinion that the proposed stacking space is more than adequate.

Supporting the conclusion above, the City of Pickering's report, "Shaping Your City, City of Pickering Zoning By-law Review, Discussion Paper #7: Parking, Active Transportation and Loading, Final, February 2021", states that, "In terms of the length of drive-through lane, queue lengths can vary widely depending on the location, popularity and service speed of the business. For example, a drive-through located conveniently at or near a highway ramp is likely to get more business than another branch of the same business located on a quieter street". Due to this variability in the demand for stacking space, the discussion paper

does not recommend specifying the number of stacking spaces in the Zoning By-law but rather it is noted that the use of Site Plan Control has more merit since it provides flexibility in site layout for different contexts.

Based on our experience, the nine stacking spaces illustrated on the site plan would be sufficient for the proposed small-scale, kiosk-type of drive-through restaurant. In the event of any occasional and temporary surge in demand for the drive-through, the site plan could accommodate at least three additional vehicles behind a nine-vehicle queue without affecting on-site circulation. To be consistent with the direction provided in the previously cited City of Pickering Discussion Paper on this subject, the final drive-through design and number of stacking spaces should be confirmed as part of the Site Plan review and approval process.

Comment: *25% of the traffic generated from the proposed development is expected to go south from the site on Old Brock through the residential community. Speed is already a problem. What traffic calming measures are proposed? Will the additional truck traffic generated from the site be permitted to go through the village?*

Response: The 25% distribution of traffic to/from the south on Old Brock Road would include some local traffic, including trucks, with origins and destinations within the community of Claremont and some regional traffic with origins and destinations beyond the community that would be served by Central Street-Concession 9 (Regional Road 5). Therefore, some of the truck traffic generated by this development could be expected to use Old Brock Road and travel through the adjacent residential community unless prohibited by a municipal By-law.

No traffic calming measures are proposed as related to this development. For this site location, an off-site issue like speeding in a residential area approximately 1.5 km from the site is beyond the typical scope of a traffic impact study, and to our recollection, was not raised as an issue during pre-consultation. Addressing an existing speeding problem on Old Brock Road through the residential area of Claremont is the responsibility of the City of Pickering.

Please contact either of the undersigned if you have any questions or comments related to the responses above.

Yours very truly,

PARADIGM TRANSPORTATION SOLUTIONS LIMITED

Garry Pappin
LEL
Senior Consultant

Gene Chartier
M.A.Sc., P.Eng.
Vice President and Chief Development Officer, Principal

At North Access location looking south (view to the left)

At North Access location looking north (view to the right)

Old Brock Road at Proposed North Access Sight Distance Assessment

At Central Access looking south (view to the left)

At Central Access looking north (view to the right)

At South Entrance looking south (view to the left)

At South Entrance looking north (view to the right)