

**539 – 543 TOPPING LANE
APARTMENTS
LONDON, ON
TRAFFIC IMPACT BRIEF**

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539 – 543 TOPPING LANE APARTMENTS, LONDON, ON
TRAFFIC IMPACT BRIEF (FEBRUARY 2024)

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Appendix A: Traffic Data Collection

- Eaton Park Drive at Topping Lane

Appendix B: ITE Trip Generation Manual – 11th Edition References

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- Proposed Site Development Trip Generation and Distribution

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- Site Access at Eaton Park Drive
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INTRODUCTION AND BACKGROUND

A residential redevelopment is proposed for the existing single-detached dwellings at 539 and 543 Topping Lane, in London, Ontario; the area plan is illustrated on Figure 1. Topping Lane is a short (450m), north / south neighbourhood collector street which connects Berkshire Drive at the north to the civic boulevard Commissioners Road West at the south. Eaton Park Drive is an east / west neighbourhood street which begins at Old Wonderland Road at the west and runs approximately 620m east, ending at Topping Lane. The project site is in the Southcrest Planning District (an established neighbourhood that is within the Primary Transit Area). The nearest bus stops are to the south (on the east side of Topping Lane), 40m north of Commissioners Road West and 160m from the site, and to the north on Berkshire Drive, approximately 25m east of Topping Lane. The surrounding land uses are primarily residential; however, there are commercial areas and other amenities within walking distance. A child-care centre is located on Topping Lane, south of Eaton Park Drive. Several school bus routes run through the intersection of Eaton Park Drive at Topping Lane; the majority are on Topping Lane, with current stops on Topping Lane (to pick up a student on the southwest corner) and on Eaton Park Drive, just west of Topping Lane (to pick up / drop off between five and ten students). The study area includes the intersection of Eaton Park Drive at Topping Lane and the proposed Eaton Park Drive site access.

The proposed site plan is illustrated on Figure 2; it consists of 46 dwelling units within a 4-storey apartment building. A single access at Eaton Park Road will service the development, but a separate access is provided solely for waste collection. Approximately 55 covered parking spaces are provided for the 4-storey apartment building.

TRAFFIC DATA COLLECTION

As provided in Appendix A, turning movement counts were collected by RC Spencer Associates Inc. on 1 February 2024 for the intersection of Eaton Park Drive at Topping Lane.

ON-SITE OBSERVATIONS

While on-site, it was observed that several eastbound vehicles failed to completely stop at the intersection. Faded lines are visible from a former “school crosswalk” across the south leg, but all supporting signage has been removed; the lines should be removed, as there is no legal status to this crossing. A motorist was observed performing an emergency brake maneuver to avoid hitting a pedestrian crossing at this location. Furthermore, it was observed that a pathway is provided to the east (through former school grounds), but it is posted with a “Walkway Not Maintained – Use at Own Risk” sign; pedestrians do make use of this pathway.

METHODOLOGY

The baseline traffic data provided the basis for industry-standard traffic operations analysis; the software package utilized for the analysis (Synchro 11) calculates various parameters of intersection performance, such as level of service (LOS), intersection capacity utilization (ICU), control delay, and queue lengths on individual approaches. The traffic modelling was based on the Highway Capacity Manual (6th Edition).

Unsignalized level of service results are reported based on the following industry standard:

Level of Service	Average Control Delay (sec/veh)
A	0 - 10
B	>10 - 15
C	>15 - 25
D	>25 - 35
E	>35 - 50
F	>50

TRIP GENERATION AND DISTRIBUTION

Trip generation for the proposed development was estimated from the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition). The dataset's average rate was used instead of the fitted curve because the value of the independent variable is in the lower range of the dataset; the fitted curve equation does not pass through the origin. As recommended by the ITE, only the weekday AM and PM peak hours were explored for the proposed residential land use.

ITE Land Use Code 221 (Multifamily Housing: Mid-Rise) is the most appropriate and conservative code for the 46 apartment units. Land Use Code 221 provides generation rates of 0.37 trips per unit in the AM peak hour, with 23% entering and 77% exiting, and 0.39 trips per unit in the PM peak hour, with 61% entering and 39% exiting. The details of the trip generation analysis are provided in Appendix B. The total trips generated by the proposed residential uses are estimated to be 4 entering and 13 exiting during the AM peak hour, and 11 entering and 7 exiting during the PM peak hour.

To be conservative, site generated traffic was distributed to and from the intersection of Eaton Park Drive at Topping Lane intersection, where it was then distributed according to the percentages of the northbound and southbound traffic volumes (as extracted from the collected turning movement counts).

CAPACITY AND LEVEL OF SERVICE ANALYSIS

Figure 3 illustrates the “Site Generated Traffic”, “Existing Traffic”, and “Existing + Site Generated Traffic” scenarios for the respective weekday peak hours. Detailed Synchro 11 analysis was carried out with respect to the “Existing Traffic” and “Existing + Site Generated Traffic” scenarios; the resulting reports are provided in Appendix C and are summarized below:

Eaton Park Drive at Topping Lane

The existing eastbound stop-controlled intersection of Eaton Park Drive at Topping Lane is comprised of shared lanes on all approaches. The road width on each leg is 7.3m. The speed limit on all approaches is 40 km/h. Sidewalks of 1.5m width are provided on both sides of Topping Lane and on the south side of Eaton Park Drive; the south leg is signed as a deaf child area. Parking is not permitted immediately adjacent to the site; however, it is permitted otherwise along Topping Lane and Eaton Park Drive.

The level of service results reported in Table 1 suggest that the addition of site generated traffic will have a nominal impact on traffic operations at this intersection. The Topping Lane traffic volumes are so low that the eastbound approach will not experience any delay in entering the “main street” traffic stream.

Table 1: Level of Service by Approach – Eaton Park Drive at Topping Lane

Scenario	Eaton Park Drive at Topping Lane							
	AM Peak Hour				PM Peak Hour			
	E/B	W/B	N/B	S/B	E/B	W/B	N/B	S/B
Existing Traffic	A	-	A	A	A	-	A	A
Existing + Site Generated Traffic	A	-	A	A	A	-	A	A

Site Access at Eaton Park Drive

The proposed tee intersection of the primary site access at Eaton Park Drive will be stop-controlled on the southbound approach; each respective approach will be comprised of a single shared lane. As reported in Table 2, the addition of site generated traffic will not significantly impact Eaton Park Drive traffic operations.

Table 2: Level of Service by Approach – Site Access at Eaton Park Drive

Scenario	Site Access at Eaton Park Drive							
	AM Peak Hour				PM Peak Hour			
	E/B	W/B	N/B	S/B	E/B	W/B	N/B	S/B
Existing + Site Gen. Traffic	A	A	-	A	A	A	-	A

GEOMETRIC AND TRAFFIC CONTROL IMPROVEMENTS

Left turn lane warrants were considered for the northbound approach to the intersection of Eaton Park Drive at Topping Lane. The speed limit on Topping Lane is 40 km/h. Based on the estimated turning movements in each scenario, although left turns in the peak hours are expected to be approximately 9.9% and 22.1% of the northbound approach volume (in the AM and PM peak hours respectively), the projected on-street traffic volumes fall well below the MTO's minimum volume threshold for implementation of a dedicated left turn lane; during the peak hours, under 200 vehicles approach from each direction. The projected traffic volumes do not warrant a dedicated northbound left turn lane. Therefore, no geometric or traffic control improvements are required to accommodate the subject development proposal.

SIGHT LINE ANALYSIS

As calculated in Appendix D, a sight line analysis was completed for the site accesses at Eaton Park Drive (in accordance with the TAC Geometric Design Guide for Canadian Roads – 2017). The speed limit on Eaton Park Drive is 40 km/h, so a 60 km/h design speed was applied (20 km/h above the posted speed limit); both a passenger car and a single-unit waste truck were selected as the design vehicles. Per the TAC, sight lines should be evaluated at 4.4m from the edge of the nearest travelled lane. For a passenger car, the minimum intersection sight distance is 125m for the worst-case left turn egress maneuver and 108m for the less-critical right turn egress maneuver. For a single-unit truck, the minimum intersection sight distance is 159m for the worst-case left turn egress maneuver and 142m for the less-critical right turn egress maneuver.

Based on the sight lines illustrated on Figure 4, it is the engineers' opinion that there is sufficient sight distance for safe egress from the site access; however, some existing obstructions were observed within the defined sight triangles, particularly at the proposed main entrance to the parking area.

A site visit was conducted on 1 February 2024; photographs were taken to evaluate the sight lines. At the proposed site access, the conflicting low brush and mature tree should be removed to ensure clear and unobstructed sight lines. The developer and the road authorities should ensure that the lines are clear upon buildout; the following photo is provided for context when clearing existing obstructions from within the right-of-way.



Looking West from Proposed Easterly Site Access

CONCLUSIONS AND RECOMMENDATIONS

A residential redevelopment is proposed for 539 and 543 Topping Lane, in London, Ontario. The development proposal consists of 46 dwelling units within a 4-storey apartment building; a single site access at Eaton Park Drive will service the development.

Using recently obtained turning movement counts and applying the best available trip generation and distribution methodologies, an analysis was completed to quantify and qualify the proposed development's potential traffic impact. Upon completion of the analysis, it was concluded that:

- The proposed eastbound stop-controlled tee intersection of Eaton Park Drive at Topping Lane will continue to operate favourably post-buildout; the proposed development will have a nominal impact on Eaton Park Drive and Topping Lane traffic operations;
- The site accesses at Eaton Park Drive will operate favourably;
- A northbound left turn lane is not warranted at the intersection of Topping Lane at Eaton Park Drive; no geometric or traffic control improvements are required to accommodate the subject development proposal;

- There is sufficient sight distance for safe egress from the proposed site access; however, the developer and the road authorities should ensure that the existing low-hanging brush and trees are removed to provide clear sight lines for good decision-making.

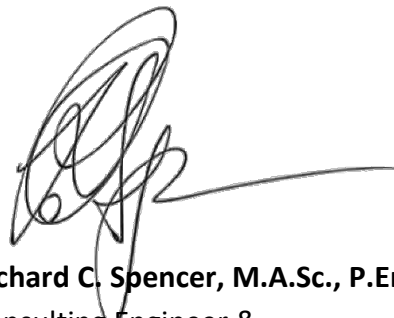
Therefore, based on the results of the technical work, it is the engineers' opinion that the proposed development will not adversely impact area traffic operations.

All of which is respectfully submitted,

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