1589 & 1579 FANSHAWE PARK ROAD EAST (RESIDENTIAL)

LONDON, ON

TRAFFIC IMPACT ASSESSMENT

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INTRODUCTION AND BACKGROUND

A residential development has been proposed for lands situated on the south side of Fanshawe Park Road East, at the northeast end of London, Ontario. The property is located at 1589 & 1579 Fanshawe Park Road East, between Highbury Avenue North and Cedarhollow Boulevard.

The area plan is illustrated on **Figure 1**, and the study area is depicted on **Figure 2**. Fanshawe Park Road East is a continuation of Fanshawe Park Road West (Highway 22); it is an east / west arterial roadway originating in Sarnia and terminating at Clarke Road in east London. Highbury Avenue North is an arterial road which runs north / south; it begins as County Road 23 at Highway 7 north of London, bisects the east end of the City, continues south of the City as Highbury Avenue South, and eventually becomes County Road 30 leading to the north end of St. Thomas. Cedarhollow Boulevard and all other roads in the vicinity of the study area are local roads. Fanshawe Park Road East is signalized at its intersection with Highbury Avenue North. The posted speed limit on Fanshawe Park Road East is 60 km/h.

The proposed site plan (Preliminary Draft Plan of Condominium) is provided on **Figure 3** and consists of 176 four-storey stacked townhomes and a six-storey, 60-unit apartment building. The mid-rise apartment complex and the stacked townhomes are to be supplemented with 42 and 123 parking spaces, respectively. The proposed development is to be serviced via a primary access at Fanshawe Park Road. A secondary (emergency) access point will be provided at Cedar Park Drive (at the southeast of the site). It is the engineers' understanding that this "private road" access will be used for emergency services only, with a gate erected to limit vehicular connectivity between the adjacent residential land uses; active transportation connectivity will still be maintained via this proposed right-of-way extension.

The purpose of this study is to examine the traffic implications of the proposed development on area traffic operations, particularly on Fanshawe Park Road East. For context, all pertinent correspondence with the road authorities is provided in **Appendix A**.

TRAFFIC DATA COLLECTION

As provided in **Appendix B**, turning movement counts were collected by RC Spencer Associates Inc. on 4 March 2025 for the following intersections:

- Highbury Avenue North at Fanshawe Park Road East;
- Proposed Site Access at Fanshawe Park Road East;
- Cedarhollow Boulevard at Fanshawe Park Road East.

METHODOLOGY

The baseline traffic counts provided the basis for industry-standard traffic operations analysis; the software package utilized for the analysis (Synchro 12) calculates various parameters of intersection performance, such as level of service (LOS), intersection capacity utilization (ICU), control delay, and queue lengths on individual approaches. Synchro 12 utilizes the Highway Capacity Manual, 7th Edition, to report the respective traffic operations metrics.

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

Level of Service	Average Control Delay (sec/veh)	General Description (Signalized Intersections)
A	≤10	Free Flow
B	>10 - 20	Stable Flow (slight delays)
C	>20 - 35	Stable flow (acceptable delays)
D	>35 - 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 - 80	Unstable flow (intolerable delay)
F	>80	Forced flow (jammed)

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 equation because the value of the independent variables is in the lower range of the dataset; the fitted curve equation does not pass through the origin. The detailed trip generation analysis results are provided in **Appendix C**, noting that separate estimates were developed for the respective AM and PM peak hours. No reduction was applied for internal capture or pass-by trips due to the nature and location of the proposed development.

ITE Land Use Code 221 Multifamily Housing (Mid-Rise) is the most appropriate code for the proposed six-storey, 60-unit apartment building. This land use code provides trip 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.

ITE Land Use Code 220 Multifamily Housing (Low-Rise) is the most appropriate and conservative code for the proposed 176 stacked townhome units. This land use code provides generation rates of 0.40 trips per unit in the AM peak hour, with 24% entering and 76% exiting, and 0.51 trips per unit in the PM peak hour, with 63% entering and 37% exiting.

Accordingly, the total trips generated by the proposed development are estimated to be 22 trips entering and 71 trips exiting during the weekday AM peak hour and 71 trips entering and 42 trips exiting during the weekday PM peak hour.

Site generated traffic was distributed to and from Fanshawe Park Road East at the primary site access based on the east / west directional flow of traffic, as taken from the collected turning movement counts. The westbound vehicles were distributed at Highbury Avenue South according to the directional distribution observed at the intersection. As previously mentioned, a secondary access point is provided via Cedar Park Drive (at the southeast of the site); this route will meander through the existing subdivisions between Fanshawe Park Road East to the north and Killarney Road to the south, so it is unlikely that site generated trips will choose to venture this route rather than obtaining road network access via Fanshawe Park Road East.

The resulting site generated turning movements are illustrated on **Figure 4**; the percentages attributed to and from each cardinal direction are provided in the table below:

Table 1: Trip Distribution

	AM Percentage		PM Percentage	
Origin / Destination	From	To	From	To
East (Fanshawe Park Rd. E.)	36	63	56	43
West (Fanshawe Park Rd. E.)	50	30	34	45
North (Highbury Ave. N.)	9	3	6	7
South (Highbury Ave. N.)	5	4	4	5

Some movements to / from the proposed site were observed during the traffic data collection. It was noted that the current vacant lot attracted some vehicles, including buses, which utilized the empty lot for parking or turnaround purposes. These volumes, though shown on the data collected in **Appendix B**, were deleted before adding the proposed site generated traffic volumes to the existing road network.

CAPACITY AND LEVEL OF SERVICE ANALYSIS

Detailed Synchro 12 analysis was carried out with respect to the following traffic scenarios:

- Existing Traffic;
- Background Traffic 2030;
- Total Traffic 2030 (Background Traffic 2030 + Site Generated Traffic);
- Background Traffic 2035; and
- Total Traffic 2035 (Background Traffic 2035 + Site Generated Traffic).

To be conservative, the analysis was carried out assuming full build-out conditions for the 2030 and 2035 horizon years. As confirmed with the City's transportation staff (in the submitted Terms of Reference), traffic was increased by 1.5% per year, compounded annually, for the 2030 and 2035 horizon forecasts.

Figures 5 to 9 summarize total traffic estimates that result from the addition of site generated traffic, as well as the 2030 and 2035 horizon year forecasts for background traffic within the study area. The effect of adding site generated traffic to horizon traffic volumes at each specific intersection can be found in **Appendix D**, and the resulting Synchro 12 simulation reports are provided in **Appendix E**; existing signal timings were provided by the City of London for the signalized intersection of Fanshawe Park Road East at Highbury Avenue North.

To quantify and qualify the effect of site generated traffic and potential background traffic growth on individual intersections within the study area, the Synchro results were summarized in the following sections:

Highbury Avenue North at Fanshawe Park Road East

The intersection of Highbury Avenue North at Fanshawe Park Road East is currently signalized. The eastbound, westbound and southbound approaches are comprised of two through lanes, a dedicated left turn lane and a dedicated right turn lane; the northbound approach is comprised of two left turn lanes, two through lanes and a dedicated right turn lane. All approaches include a dedicated bicycle lane between the through lane and the right turn lane. A centre median is provided on all approaches. The northbound double left turn is the only left turn approach that has a protected left turn phase incorporated into the signal timing plan. As observed from the below **Tables 2 to 6**, the intersection is expected to perform at a satisfactory LOS C in all peak hour scenarios. Levels of service are consistent between the background traffic and total traffic in each horizon year.

However, the eastbound approach experiences delays for left turns; this left turn movement operates at a LOS F in all existing and horizon PM peak hours. Even though the eastbound approach experiences significant PM peak hour delays for left turning vehicles within the studied horizon years (close to 120 seconds in the 2035 background and total horizon scenarios), the queue lengths for the left turn approach do not exceed 56.5m in the most critical total traffic peak hour horizon scenario. Similarly, the northbound left turn approach nears capacity (LOS E) in all future scenarios. It should be noted that the proposed development does not contribute additional volumes to these two critical turning movements.

Table 2: Overall Signalized Intersection Level of Service – Highbury Ave. N. at Fanshawe Park Rd. E.

Scenario	Highbury Avenue North at Fanshawe Park Road East	
	AM Peak Hour	PM Peak Hour
Existing Traffic	C	C
Background Traffic 2030	C	C
Total Traffic 2030	C	C
Background Traffic 2035	C	C
Total Traffic 2035	C	C

Table 3a: Level of Service by Approach – Highbury Ave. N. at Fanshawe Park Rd. E. (AM Peak Hour)

Scenario	Highbury Avenue North at Fanshawe Park Road East											
	AM Peak Hour – Level of Service											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing Traffic	D	D	A	D	D	A	E	A	A	B	B	A
Background Traffic 2030	D	D	B	D	D	A	E	A	A	C	C	A
Total Traffic 2030	D	D	B	D	D	A	E	A	A	C	B	A
Background Traffic 2035	D	D	B	D	D	A	E	A	A	C	C	A
Total Traffic 2035	D	D	B	D	D	A	E	A	A	C	C	A

Table 3b: Level of Service by Approach – Highbury Ave. N. at Fanshawe Park Rd. E. (PM Peak Hour)

Scenario	Highbury Avenue North at Fanshawe Park Road East											
	PM Peak Hour – Level of Service											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing Traffic	F	D	A	D	D	A	D	A	A	C	C	A
Background Traffic 2030	F	D	A	D	D	A	E	B	A	C	C	A
Total Traffic 2030	F	D	A	D	D	A	E	B	A	C	C	A
Background Traffic 2035	F	D	A	D	D	A	E	B	A	D	C	A
Total Traffic 2035	F	D	A	D	D	A	E	B	A	D	C	A

Table 4a: Control Delay by Approach – Highbury Ave. N. at Fanshawe Park Rd. E. (AM Peak Hour)

Scenario	Highbury Avenue North at Fanshawe Park Road East											
	AM Peak Hour – Control Delay (sec)											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing Traffic	44.5	49.4	9.3	48.0	42.9	0.5	57.2	7.6	2.2	19.6	19.7	4.6
Background Traffic 2030	43.9	48.3	12.4	48.5	41.7	0.5	57.1	8.3	2.6	21.6	21.8	4.8
Total Traffic 2030	44.3	48.1	12.2	50.0	41.9	0.7	57.1	8.4	2.7	22.0	22.1	4.8
Background Traffic 2035	41.7	45.8	15.3	46.0	39.6	0.6	56.8	9.5	3.4	24.9	25.1	5.4
Total Traffic 2035	42.2	45.8	15.1	48.4	39.8	1.1	56.8	9.6	3.4	25.2	25.3	5.4

Table 4b: Control Delay by Approach – Highbury Ave. N. at Fanshawe Park Rd. E. (PM Peak Hour)

Scenario	Highbury Avenue North at Fanshawe Park Road East											
	PM Peak Hour – Control Delay (sec)											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing Traffic	96.5	45.0	7.5	47.8	47.7	7.6	54.0	9.8	3.0	29.9	26.1	5.4
Background Traffic 2030	112.3	43.6	7.2	47.5	46.2	7.0	55.1	10.9	3.2	33.1	28.5	6.6
Total Traffic 2030	117.2	43.6	7.0	49.3	46.0	6.8	55.1	11.2	3.1	33.9	28.9	6.7
Background Traffic 2035	117.4	41.4	6.8	46.7	43.9	6.5	55.9	12.4	3.2	37.8	31.8	7.5
Total Traffic 2035	119.2	41.2	6.7	48.1	43.5	6.4	56.6	12.8	3.2	38.9	32.2	7.5

Table 5a: Queue Length by Approach – Highbury Ave. N. at Fanshawe Park Rd. E. (AM Peak Hour)

Scenario	Highbury Avenue North at Fanshawe Park Road East											
	AM Peak Hour – 95th Percentile Queuing (m)											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing Traffic	27.2	73.6	30.7	18.1	43.7	0.0	48.4	21.1	3.4	30.1	75.6	9.8
Background Traffic 2030	28.8	77.6	46.1	18.9	44.6	0.0	51.3	23.8	3.9	33.9	86.3	10.6
Total Traffic 2030	28.9	78.9	45.8	20.2	47.5	0.7	51.3	24.1	4.1	34.8	86.7	10.7
Background Traffic 2035	28.6	78.7	60.0	18.6	44.7	0.7	54.5	28.7	4.9	40.2	102.9	12.1
Total Traffic 2035	28.8	80.6	60.0	20.4	47.8	1.2	54.5	28.7	5.0	41.0	102.9	12.1

Table 5b: Queue Length by Approach – Highbury Ave. N. at Fanshawe Park Rd. E. (PM Peak Hour)

Scenario	Highbury Avenue North at Fanshawe Park Road East											
	PM Peak Hour – 95th Percentile Queuing (m)											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing Traffic	43.1	67.5	24.4	24.7	80.1	12.1	83.1	49.8	5.7	32.4	59.8	8.4
Background Traffic 2030	48.9	71.4	24.8	26.1	84.6	12.1	91.2	56.5	6.2	35.5	65.4	10.2
Total Traffic 2030	50.3	75.1	24.8	27.3	87.6	12.1	91.2	56.5	6.3	36.6	65.4	10.2
Background Traffic 2035	55.4	77.2	25.9	28.6	92.0	12.5	99.3	61.3	6.4	38.6	70.6	11.4
Total Traffic 2035	56.5	81.0	25.9	30.0	95.1	12.5	99.3	91.3	6.5	40.1	70.6	11.4

Table 6a: V/C Ratio by Approach – Highbury Ave. N. at Fanshawe Park Rd. E. (AM Peak Hour)

Scenario	Highbury Avenue North at Fanshawe Park Road East											
	AM Peak Hour – Volume / Capacity Ratio (%)											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing Traffic	0.35	0.70	0.70	0.34	0.43	0.08	0.67	0.13	0.03	0.20	0.36	0.10
Bkgd. Traffic 2030	0.37	0.70	0.75	0.37	0.43	0.08	0.69	0.14	0.04	0.22	0.41	0.11
Total Traffic 2030	0.38	0.71	0.74	0.40	0.46	0.09	0.69	0.15	0.04	0.23	0.41	0.12
Bkgd. Traffic 2035	0.37	0.69	0.78	0.38	0.42	0.09	0.71	0.16	0.04	0.26	0.46	0.13
Total Traffic 2035	0.39	0.70	0.78	0.42	0.45	0.09	0.71	0.16	0.04	0.27	0.47	0.13

Table 6b: V/C Ratio by Approach – Highbury Ave. N. at Fanshawe Park Rd. E. (PM Peak Hour)

Scenario	Highbury Avenue North at Fanshawe Park Road East											
	PM Peak Hour – Volume / Capacity Ratio (%)											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing Traffic	0.84	0.63	0.64	0.44	0.72	0.21	0.79	0.26	0.06	0.25	0.29	0.09
Bkgd. Traffic 2030	0.92	0.64	0.65	0.46	0.73	0.21	0.82	0.29	0.06	0.30	0.33	0.10
Total Traffic 2030	0.94	0.65	0.64	0.49	0.73	0.21	0.82	0.29	0.07	0.32	0.33	0.11
Bkgd. Traffic 2035	0.95	0.63	0.65	0.48	0.72	0.21	0.85	0.32	0.07	0.37	0.39	0.12
Total Traffic 2035	0.96	0.64	0.65	0.51	0.72	0.21	0.85	0.32	0.07	0.39	0.39	0.12

Proposed Site Access at Fanshawe Park Road East

The proposed site access at Fanshawe Park Road East will be stop-controlled on the northbound approach, which will consist of one shared egress lane. Fanshawe Park Road East is comprised of a two-lane cross-section at this location; however, a westbound left turn taper begins (to facilitate access from the east to the developments immediately west of the proposed site). Based on the level of service results provided in **Tables 7 to 10**, the combination of site generated traffic and background traffic growth will not adversely impact the levels of service on Fanshawe Park Road East. During the PM peak hour scenarios, the delay exceeds 30 seconds for vehicles egressing the site; however, the 95th percentile queue length is not expected to exceed 1.2 vehicle lengths during these times. Development-driven geometric and / or traffic control improvements for this intersection are discussed in the following section.

Table 7a: Level of Service by Approach – Site Access at Fanshawe Park Rd. E. (AM Peak Hour)

Scenario	Site Access at Fanshawe Park Road East											
	AM Peak Hour – Level of Service											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Traffic 2030	-	A	A	A	A	-	C	-	C	-	-	-
Total Traffic 2035	-	A	A	A	A	-	C	-	C	-	-	-

Table 7b: Level of Service by Approach – Site Access at Fanshawe Park Rd. E. (PM Peak Hour)

Scenario	Site Access at Fanshawe Park Road East											
	PM Peak Hour – Level of Service											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Traffic 2030	-	A	A	A	A	-	D	-	D	-	-	-
Total Traffic 2035	-	A	A	A	A	-	E	-	E	-	-	-

Table 8a: Control Delay by Approach – Site Access at Fanshawe Park Rd. E. (AM Peak Hour)

Scenario	Site Access at Fanshawe Park Road East											
	AM Peak Hour – Control Delay (sec)											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Traffic 2030	-	0.0	0.0	8.9	0.0	-	18.0	-	18.0	-	-	-
Total Traffic 2035	-	0.0	0.0	9.1	0.0	-	19.6	-	19.6	-	-	-

Table 8b: Control Delay by Approach – Site Access at Fanshawe Park Rd. E. (PM Peak Hour)

Scenario	Site Access at Fanshawe Park Road East											
	PM Peak Hour – Control Delay (sec)											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Traffic 2030	-	0.0	0.0	9.0	0.0	-	32.1	-	32.1	-	-	-
Total Traffic 2035	-	0.0	0.0	9.2	0.0	-	38.2	-	38.2	-	-	-

Table 9a: Queue Length by Approach – Site Access at Fanshawe Park Rd. E. (AM Peak Hour)

Scenario	Site Access at Fanshawe Park Road East											
	AM Peak Hour – 95th Percentile Queuing (veh)											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Traffic 2030	-	0.0	0.0	0.0	0.0	-	0.8	-	0.8	-	-	-
Total Traffic 2035	-	0.0	0.0	0.0	0.0	-	0.9	-	0.9	-	-	-

Table 9b: Queue Length by Approach – Site Access at Fanshawe Park Rd. E. (PM Peak Hour)

Scenario	Site Access at Fanshawe Park Road East											
	PM Peak Hour – 95th Percentile Queuing (veh)											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Traffic 2030	-	0.0	0.0	0.1	0.0	-	1.0	-	1.0	-	-	-
Total Traffic 2035	-	0.0	0.0	0.2	0.0	-	1.2	-	1.2	-	-	-

Table 10a: V/C Ratio by Approach – Site Access at Fanshawe Park Rd. E. (AM Peak Hour)

Scenario	Site Access at Fanshawe Park Road East											
	AM Peak Hour – Volume / Capacity Ratio (%)											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Traffic 2030	-	0.0	0.0	0.009	0.0	-	0.219	-	0.219	-	-	-
Total Traffic 2035	-	0.0	0.0	0.046	0.0	-	0.257	-	0.257	-	-	-

Table 10b: V/C Ratio by Approach – Site Access at Fanshawe Park Rd. E. (PM Peak Hour)

Scenario	Site Access at Fanshawe Park Road East											
	PM Peak Hour – Volume / Capacity Ratio (%)											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Traffic 2030	-	0.0	0.0	0.01	0.0	-	0.239	-	0.239	-	-	-
Total Traffic 2035	-	0.0	0.0	0.048	0.0	-	0.298	-	0.298	-	-	-

Cedarhollow Boulevard at Fanshawe Park Road East

The existing Cedarhollow Boulevard at Fanshawe Park Road East tee intersection is stop-controlled on the northbound approach. The minor street approach consists of dedicated left and right turn lanes. In addition to a through lane in each direction, Fanshawe Park Road East is comprised of an eastbound right turn lane and a westbound left turn lane. Based on the level of service results provided in **Tables 11 to 14**, the combination of site generated traffic and background traffic growth will not adversely impact the existing intersection level of service. Since there are dedicated turning lanes on the northbound approach, the right turns merge with main street traffic with very little delay; however, the left turning vehicles need to wait for a gap to cross the main street, and this is impeded by the high volume of westbound through traffic during the PM peak hour. The level of service for the northbound left turn is currently LOS F, with a V/C ratio of 0.70, a delay of 59 seconds, and a 95th percentile queue length of 4.5 vehicles. These metrics progressively worsen, largely due to the background traffic growth, with the V/C ratio increasing to 1.193, the delay to 203.5 seconds, and the 95th percentile queue length to 9.5 vehicles. Traffic on Fanshawe Park Road East consistently maintains a LOS A with very minor delays for all movements. The existing westbound left turn lane and eastbound right turn lane are adequately servicing the traffic volumes; however, the northbound left turns may reach or exceed the storage space provided. Therefore, it is the engineers' opinion that development-driven geometric and / or traffic control improvements are not required at this time, but the road authority should monitor this intersection.

Table 11a: Level of Service by Approach – Cedarhollow Blvd. at Fanshawe Park Rd. E. (AM Peak Hour)

Scenario	Cedarhollow Blvd. at Fanshawe Park Road East											
	AM Peak Hour – Level of Service											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing Traffic	-	A	A	A	A	-	C	-	B	-	-	-
Background Traffic 2030	-	A	A	A	A	-	C	-	B	-	-	-
Total Traffic 2030	-	A	A	A	A	-	C	-	B	-	-	-
Background Traffic 2035	-	A	A	A	A	-	D	-	B	-	-	-
Total Traffic 2035	-	A	A	A	A	-	D	-	B	-	-	-

Table 11b: Level of Service by Approach – Cedarhollow Blvd. at Fanshawe Park Rd. E. (PM Peak Hour)

Scenario	Cedarhollow Blvd. at Fanshawe Park Road East											
	PM Peak Hour – Level of Service											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing Traffic	-	A	A	A	A	-	F	-	B	-	-	-
Background Traffic 2030	-	A	A	A	A	-	F	-	B	-	-	-
Total Traffic 2030	-	A	A	A	A	-	F	-	B	-	-	-
Background Traffic 2035	-	A	A	A	A	-	F	-	B	-	-	-
Total Traffic 2035	-	A	A	A	A	-	F	-	B	-	-	-

Table 12a: Control Delay by Approach – Cedarhollow Blvd. at Fanshawe Park Rd. E. (AM Peak Hour)

Scenario	Cedarhollow Blvd. at Fanshawe Park Road East											
	AM Peak Hour – Control Delay (sec)											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing Traffic	-	0.0	0.0	8.9	0.0	-	19.9	-	11.8	-	-	-
Background Traffic 2030	-	0.0	0.0	9.1	0.0	-	22.5	-	12.2	-	-	-
Total Traffic 2030	-	0.0	0.0	9.3	0.0	-	24.8	-	12.7	-	-	-
Background Traffic 2035	-	0.0	0.0	9.3	0.0	-	26.3	-	12.7	-	-	-
Total Traffic 2035	-	0.0	0.0	9.5	0.0	-	29.5	-	13.3	-	-	-

Table 12b: Control Delay by Approach – Cedarhollow Blvd. at Fanshawe Park Rd. E. (PM Peak Hour)

Scenario	Cedarhollow Blvd. at Fanshawe Park Road East											
	PM Peak Hour – Control Delay (sec)											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing Traffic	-	0.0	0.0	8.9	0.0	-	59.0	-	10.9	-	-	-
Background Traffic 2030	-	0.0	0.0	9.1	0.0	-	94.4	-	11.2	-	-	-
Total Traffic 2030	-	0.0	0.0	9.1	0.0	-	119.8	-	11.3	-	-	-
Background Traffic 2035	-	0.0	0.0	9.3	0.0	-	161.8	-	11.5	-	-	-
Total Traffic 2035	-	0.0	0.0	9.4	0.0	-	203.5	-	11.7	-	-	-

Table 13a: Queue Length by Approach – Cedarhollow Blvd. at Fanshawe Park Rd. E. (AM Peak Hour)

Scenario	Cedarhollow Blvd. at Fanshawe Park Road East											
	AM Peak Hour – 95th Percentile Queuing (veh)											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing Traffic	-	0.0	0.0	0.1	0.0	-	1.2	-	0.3	-	-	-
Background Traffic 2030	-	0.0	0.0	0.1	0.0	-	1.5	-	0.4	-	-	-
Total Traffic 2030	-	0.0	0.0	0.1	0.0	-	1.7	-	0.4	-	-	-
Background Traffic 2035	-	0.0	0.0	0.1	0.0	-	2.0	-	0.4	-	-	-
Total Traffic 2035	-	0.0	0.0	0.2	0.0	-	2.2	-	0.4	-	-	-

Table 13b: Queue Length by Approach – Cedarhollow Blvd. at Fanshawe Park Rd. E. (PM Peak Hour)

Scenario	Cedarhollow Blvd. at Fanshawe Park Road East											
	PM Peak Hour – 95th Percentile Queuing (veh)											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing Traffic	-	0.0	0.0	0.3	0.0	-	4.5	-	0.2	-	-	-
Background Traffic 2030	-	0.0	0.0	0.3	0.0	-	6.3	-	0.2	-	-	-
Total Traffic 2030	-	0.0	0.0	0.3	0.0	-	7.1	-	0.2	-	-	-
Background Traffic 2035	-	0.0	0.0	0.3	0.0	-	8.6	-	0.2	-	-	-
Total Traffic 2035	-	0.0	0.0	0.4	0.0	-	9.5	-	0.2	-	-	-

Table 14a: V/C Ratio by Approach – Cedarhollow Blvd. at Fanshawe Park Rd. E. (AM Peak Hour)

Scenario	Cedarhollow Blvd. at Fanshawe Park Road East											
	AM Peak Hour – Volume / Capacity Ratio (%)											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing Traffic	-	0.0	0.0	0.036	0.0	-	0.298	-	0.094	-	-	-
Bkgd. Traffic 2030	-	0.0	0.0	0.04	0.0	-	0.349	-	0.107	-	-	-
Total Traffic 2030	-	0.0	0.0	0.042	0.0	-	0.379	-	0.114	-	-	-
Bkgd. Traffic 2035	-	0.0	0.0	0.046	0.0	-	0.416	-	0.121	-	-	-
Total Traffic 2035	-	0.0	0.0	0.048	0.0	-	0.451	-	0.129	-	-	-

Table 14b: V/C Ratio by Approach – Cedarhollow Blvd. at Fanshawe Park Rd. E. (PM Peak Hour)

Scenario	Cedarhollow Blvd. at Fanshawe Park Road East											
	PM Peak Hour – Volume / Capacity Ratio (%)											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing Traffic	-	0.0	0.0	0.083	0.0	-	0.707	-	0.058	-	-	-
Bkgd. Traffic 2030	-	0.0	0.0	0.093	0.0	-	0.876	-	0.093	-	-	-
Total Traffic 2030	-	0.0	0.0	0.094	0.0	-	0.959	-	0.068	-	-	-
Bkgd. Traffic 2035	-	0.0	0.0	0.103	0.0	-	1.09	-	0.074	-	-	-
Total Traffic 2035	-	0.0	0.0	0.105	0.0	-	1.193	-	0.076	-	-	-

Proposed Private Road / Aukett Drive at Cedarpark Drive

The proposed "Private Road" connection will align with Aukett Drive to become a four-legged intersection; theoretically, this intersection will be stop-controlled on the eastbound and westbound approaches, with all approaches consisting of shared lanes. It is the engineers' understanding that this "private road" access will be used for emergency services only, with a gate erected to limit vehicular connectivity between the adjacent residential land uses; active transportation connectivity will still be maintained via this proposed right-of-way extension. Since no vehicular connectivity is accommodated via this node, this intersection was not modelled; however, even if a gate is erected to limit vehicular connectivity, an eastbound stop control condition should still be introduced at the newly created four-legged intersection.

GEOMETRIC / TRAFFIC CONTROL IMPROVEMENTS

As previously mentioned, there are no capacity issues at the studied signalized intersection; the provided signal timings and lane configurations will sufficiently accommodate the ten-year horizon peak hour traffic scenarios. Furthermore, the modelling results indicate that the minor street volumes at both the proposed site access and Cedarhollow Boulevard at Fanshawe Park Road East are well below the recommended thresholds for signalization. The signal warrants for these two intersections are provided in **Appendix F**.

Left turn lane warrants were assessed for the proposed site access at Fanshawe Park Road East. As provided in **Appendix G**, the provincial reference charts were based on the warrant for unsignalized two-lane undivided highways with a design speed of 80 km/h. It is anticipated that between 4.8% and 5.2% of the westbound traffic will perform a left turn at this location. According to the reference, a westbound left turn lane (with a storage length of more than 25m) is warranted to adequately service the critical PM peak hour site generated traffic. Therefore, it is the engineers' opinion that the existing left turn lane servicing the adjoining properties to the west should be extended to accommodate the proposed site access. Detailed design of the westbound left turn lane, along with the supplementary line painting, signage, etc., should be prepared by a certified Professional Traffic Operations Engineer (PTOE).

SIGHT LINE ANALYSIS

Based on the TAC Geometric Design Guide for Canadian Roads (2017), a sight line analysis was completed for the proposed Fanshawe Park Road East access. The speed limit on Fanshawe Park Road East is 60 km/h, so an 80 km/h design speed was applied; a passenger car was selected as the design vehicle. According to the TAC, sight lines should be evaluated at 4.4m from the edge of the nearest travelled lane. The minimum intersection sight distance is 178m for the worst-case left turn egress maneuver (due to the extra distance required to cross the left turn lane taper) and 145m for the less-critical right turn egress maneuver. Based on the calculations in **Appendix H** and the sight triangles illustrated on **Figure 7**, it is the engineers' opinion that there is sufficient sight distance for safe egress from the proposed site access.

A sight line analysis was also completed for the proposed private access to Cedarpark Drive. The speed limit within the subdivision is 40 km/h, so a 50 km/h design speed was applied; a passenger car was selected as the design vehicle. The minimum intersection sight distance is 105m for the left turn egress maneuver and 91m for the right turn egress maneuver. Based on the calculations in **Appendix H** and the sight triangles illustrated on **Figure 8**, it is the engineers' opinion that there is sufficient sight distance for safe egress from the proposed site access.

SUMMARY AND CONCLUSIONS

A residential development has been proposed for lands situated on the south side of Fanshawe Park Road East, at the northeast end of London, Ontario. The property is located at 1589 & 1579 Fanshawe Park Road East, between Highbury Avenue North and Cedarhollow Boulevard. The study area includes the intersections of Highbury Avenue North, the proposed site access and Cedarhollow Boulevard at Fanshawe Park Road East. The site plan consists of 176 four-storey stacked townhomes and a six-storey, 60-unit apartment building. The mid-rise apartment complex and the stacked townhomes are to be supplemented with 42 and 123 parking spaces, respectively. The proposed development is to be serviced via a primary access at Fanshawe Park Road. A secondary (emergency) access point will be provided at Cedar Park Drive (at the southeast of the site). It is the engineers' understanding that this "private road" access will be used for emergency services only, with a gate erected to limit vehicular connectivity between the adjacent residential land uses; active transportation connectivity will still be maintained via this proposed right-of-way extension.

Using recently obtained turning movement counts and applying the best available trip generation and distribution methodologies, an analysis was completed to measure the subject development's potential impact on area traffic operations. Upon completion of the ten-year horizon analysis, it was concluded that:

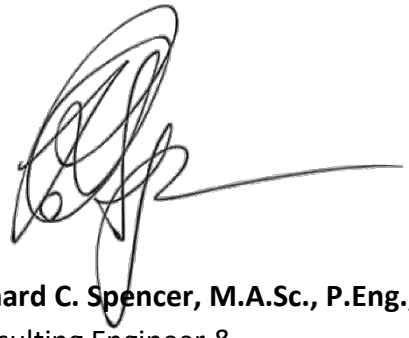
- The existing signalized intersection of Highbury Avenue North at Fanshawe Park Road East will continue to operate at satisfactory overall levels of service; even though the eastbound and northbound left turns currently experience some delays, the subject development proposal will not increase volumes for these critical turning movements;
- The proposed tee intersection of the site access at Fanshawe Park Road East is anticipated to operate at satisfactory levels of service;
- The existing stop-controlled intersection of Cedarhollow Boulevard at Fanshawe Park Road East will continue to operate at satisfactory levels of service; however, the northbound left turning traffic will experience compounding delays during the critical PM peak hour;
- The proposed tee intersection of the site access at Cedarpark Drive is expected to operate as a gated "emergency" access and should exhibit no operational issues;
- Signalization is not warranted at the site access or at the intersection of Cedarhollow Boulevard at Fanshawe Park Road East; the subject development proposal does not warrant traffic control improvements at any area intersections;

- At the proposed Fanshawe Park Road East site access, a westbound left turn lane (with storage length greater than 25m) is warranted to adequately service the peak hour traffic demand; accordingly, the existing westbound left turn lane (purposed for the westerly adjacent properties) should be extended past the site to accommodate the required storage and taper lengths;
- Detailed design of the Fanshawe Park Road East site access improvements, along with the supplementary line painting, signage, etc., should be prepared by a certified Professional Traffic Operations Engineer (PTOE);
- There is sufficient sight distance for safe egress from the proposed site accesses; visibility is good in each direction, and there are no vertical or horizontal sight line constraints that must be remedied.

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. Except for introduction of a westbound left turn lane at the proposed Fanshawe Park Road East site access, no geometric and / or traffic control improvements are required to accommodate the proposed residential development.

All of which is respectfully submitted,

RC Spencer Associates Inc.



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