10608 LONGWOODS ROAD

MIDDLESEX CENTRE, ON

TRAFFIC IMPACT BRIEF

Prepared by:

RC SPENCER ASSOCIATES INC.
Consulting Engineers
Tecumseh: 1610 Sylvestre Drive - Tecumseh ON N9K 0B9
Leamington: 18 Talbot Street W. - Leamington ON N8H 1M4
Chatham-Kent: 49 Raleigh Street - Chatham ON N7M 2M6

File No.: 26-1977

September 2026

10608 LONGWOODS ROAD, MIDDLESEX CENTRE, ON

TRAFFIC IMPACT BRIEF (SEPTEMBER 2026)

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- Proposed Site Development Trip Generation and Distribution

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INTRODUCTION AND BACKGROUND

A redevelopment is proposed for 10608 Longwoods Road (County Road 2), Middlesex Centre, Ontario, just east of Delaware. The area plan is illustrated on **Figure 1**. Longwoods Road is an east / west arterial roadway that begins in Tilbury, west of Chatham, passes through Delaware (where it intersects with Highway 402), and continues through London, Woodstock, Paris, and beyond.

The preliminary concept plan is illustrated on **Figure 2.** The proposed development utilizes a portion of the existing building at the front of the site for a medical clinic. Approximately 2,207 sq. ft. of the 3,380 sq. ft. existing building will be utilized as the medical clinic. Up to three staff will be employed in the clinic. The building will continue to be accessible via the existing access that intersects Longwoods Road. The property is heavily forested and has multiple existing water features, such as ponds and the Thames River that runs along the back of the property.

The Record of Pre-Consultation comments note the requirement for a Traffic Impact Brief; the purpose of this brief is to examine the proposed redevelopment's potential impact on area traffic operations, particularly at the tee intersection of the site access at Longwoods Road (County Road 2). In the pre-consultation letter, Middlesex County requested that the Longwoods Road site access be upgraded to accommodate a left turn slip around lane and right turn lane taper (from the edge of the right-of-way to the property line) and widened as required. The necessity of these requested improvements will be examined within the context of this brief.

All correspondence pertaining to the report's Terms of Reference 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 June 2026 for the tee intersection of the existing site access at Longwoods Road (County Road 2).

METHODOLOGY

The collected turning movements 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. Unsignalized level of service results are reported based on the Highway Capacity Manual (7th Edition), which is summarized as follows:

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

As referenced in **Appendix C**, trip generation for the proposed development was estimated from the Institute of Transportation Engineers (ITE) Trip Generation Manual (12th 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.

ITE Land Use Code 720 – Medical-Dental Office Building – Stand-Alone is the most appropriate code for the proposed redevelopment. This land use code provides trip generation rates of 3.21 trips per 1000 Sq. Ft. GFA in the AM peak hour, with 78% entering and 22% exiting, and 3.42 trips per 1000 Sq. Ft. GFA in the PM peak hour, with 30% entering and 70% exiting. Based on the 2,207 sq. ft. area which will be utilized for the medical clinic, applying these rates to the proposed development results in a total of 7 trips (6 entering and 1 exiting) during the AM peak hour and a total of 8 trips (2 entering and 6 exiting) during the PM peak hour.

The medical clinic will employ up to three people, with at most two patients being attended during any given hour; of note, this development proposal is patterned after a comparable, existing medical clinic operated by the proponent in Stratford. ITE Land Use Code 720 – Medical-Dental Office Building – Stand-Alone also provides trip generation rates on a "per employee" basis. The trip generation rate is 1.24 trips per employee during the AM peak hour, with 70% entering and 30% exiting, and 0.94 trips per employee during the PM peak hour, with 45% entering and 55% exiting. Applying these rates results in a total of 4 trips (3 entering and 1 exiting) during the AM peak hour and a total of 3 trips (1 entering and 2 exiting) during the PM peak hour.

If the site generated trips are estimated by utilizing the rate provided for the square footage of occupied gross floor area (GFA), Longwoods Road at the site access is projected to experience about one new on-street trip generated every eight minutes; if the trips are estimated by utilizing the rate provided per employee, Longwoods Road at the site access is projected to experience about one new trip generated every 15 minutes.

Although the trips estimated per employee more accurately align with the specific plans for the redevelopment, the more conservative estimates (based on the square footage of the usable space) were used as the basis for evaluating the potential post-development traffic operations.

Since there is one existing site access, the site generated traffic was distributed to and from Longwoods Road based on the observed directional distribution of the existing traffic.

CAPACITY AND LEVEL OF SERVICE ANALYSIS

Detailed Synchro 12 analysis was carried out with respect to the "Existing Traffic" and "Existing + Site Generated Traffic" scenarios. **Figure 3** illustrates the existing, site generated, and existing + site generated traffic scenarios for the respective AM and PM peak hours.

The resulting Synchro 12 simulation reports are provided in **Appendix D**. The intersection's level of service results are summarized as follows:

Site Access at Longwoods Road (County Road 2)

The tee intersection of the site access at Longwoods Road is currently stop-controlled on the southbound approach. The speed limit is posted at 80 km/h on Longwoods Road (which is comprised of a two-lane cross-section). No vehicles were observed entering or exiting the existing site during the AM and PM peak hours, but with the addition of site generated traffic, the delay experienced by stop-controlled southbound vehicles is about 13 seconds during both peak hours (corresponding to a LOS B and no 95th percentile queue length). Therefore, it can be concluded that the proposed development will have a nominal impact on area traffic operations.

Table 1: Level of Service by Approach – Site Access at Longwoods Road (County Road 2)

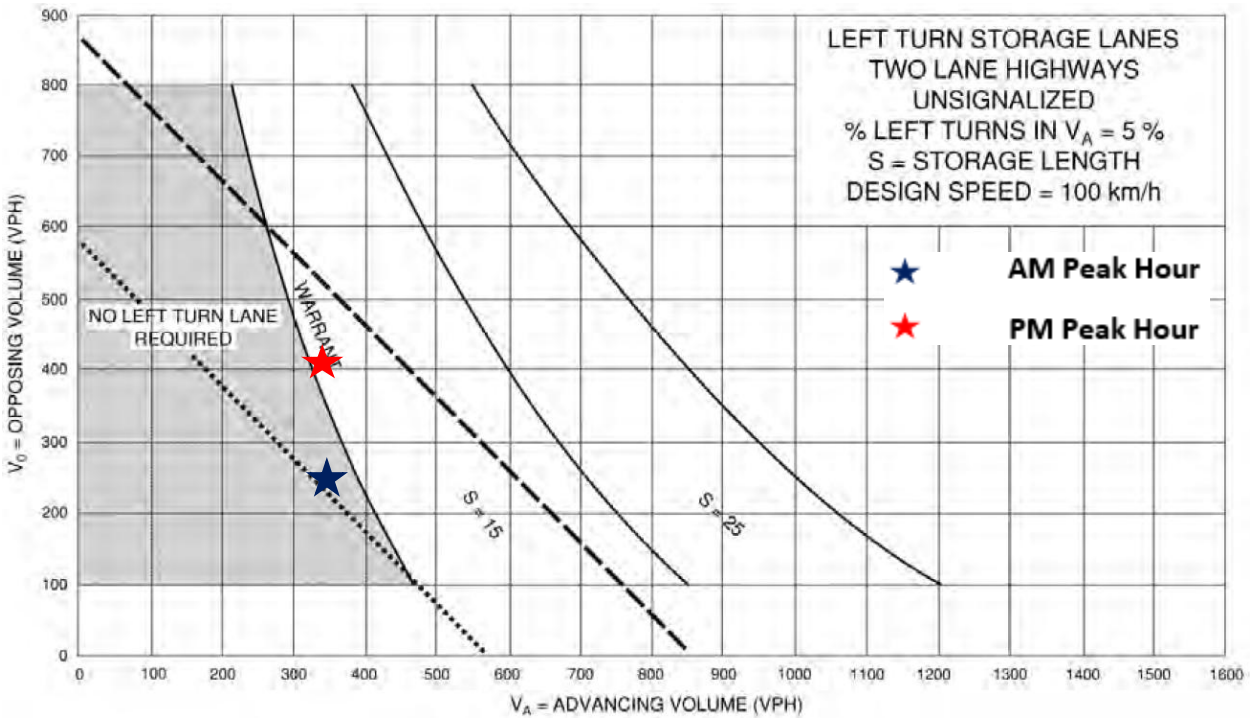
Scenario	Site Access at Longwoods Road (County Road 2)							
	AM Peak Hour				PM Peak Hour			
	E/B	W/B	N/B	S/B	E/B	W/B	N/B	S/B
Existing Traffic	A	A	-	A	A	A	-	A
Existing + Site Generated Traffic	A	A	-	B	A	A	-	B

POTENTIAL GEOMETRIC IMPROVEMENTS

Applying the trip generation estimates, the percentages of eastbound left turns are about 0.9% (3 left turns of the 346 approaching vehicles) of the approaching AM peak hour traffic and 0.03% (1 left turn of the 348 approaching vehicles) of the PM peak hour traffic.

The below Exhibit 9A-23 from the MTO Supplement to the TAC Geometric Design Guide for Canadian Roads was referenced in evaluating the left turn lane warrant at the site access at Longwoods Road. Assuming a design speed of 100 km/h (for a posted speed limit of 80 km/h), in the AM peak hour, the advancing and opposing traffic volumes (346 / 248) fall below the warrant threshold for implementation of a dedicated eastbound left turn lane; while the PM peak hour volumes (348 / 411) indicate that an eastbound left turn lane could be warranted, it should be noted that there is only one left turn projected for the PM peak hour.

The anticipated low percentage of left turns (three or less per peak hour) indicates that a left turn lane is not required. Historically, the MTO has not required a dedicated left turn lane for percentages that are below 2.5%, and the results of the Synchro 12 analysis show that there are no delay or queueing issues anticipated on Longwoods Road at the site access. As such, it is the engineers' professional opinion that a dedicated left turn lane is not operationally justified in accommodating the nominal amount of traffic generated by the subject development proposal.



Approximately 1.2% and 0.24% of westbound vehicles (during the respective AM and PM peak hours) are estimated to make a right turn into the site; the number of westbound right turns is far below the recommended volume of right turns to warrant a dedicated right turn taper lane. Therefore, it is the engineers' opinion that a right turn taper to the site is not required.

Hypothetically, if the trip estimates derived from utilizing the trip generation rate per employee were applied, the percentages of left turns to the site would fall even further below the 2.5% minimum utilized by the MTO, and the right turns would be less than 1.0%, well below the provincially recommended volume for implementation of a right turn taper. In this instance, it is the engineers' professional opinion that a right turn taper lane is not operationally justified.

SIGHT LINE ANALYSIS

The proposed development will use the existing driveway that meets Longwoods Road. Since the existing driveway will be retained, the sight line distances were not calculated nor evaluated. Sight line photos were collected by RC Spencer Associates Inc. on 3 June 2026 while visiting the site. The site visit confirmed that there are no horizontal or vertical curves, and the sight lines are clear for good decision-making at the existing egress.

Sight Line Analysis – Looking Left (East) from the Proposed Access at Longwoods Road

Sight Line Analysis – Looking Right (West) from the Proposed Access at Longwoods Road

CONCLUSIONS AND RECOMMENDATIONS

A redevelopment is proposed for 10608 Longwoods Road (County Road 2), in Middlesex Centre, Ontario, just east of Delaware. The proposed development utilizes a portion of the existing building at the front of the site for a medical clinic. The proposed use in the existing building will continue to be accessed via the existing Longwoods Road site access.

The traffic modelling results indicate that the intersection of the site access at Longwoods Road will operate well; no queueing issues are expected.

Although Middlesex County requested, as part of the pre-consultation process, that the Longwoods Road site access be upgraded to accommodate a “left turn slip around lane” and “right turn lane taper”, it is the engineers’ professional opinion that the very low projected traffic volumes (of three or less trips generated during the respective peak hours) do not justify implementation of a dedicated left turn lane, nor a dedicated right turn taper lane, at the proposed development’s site access.

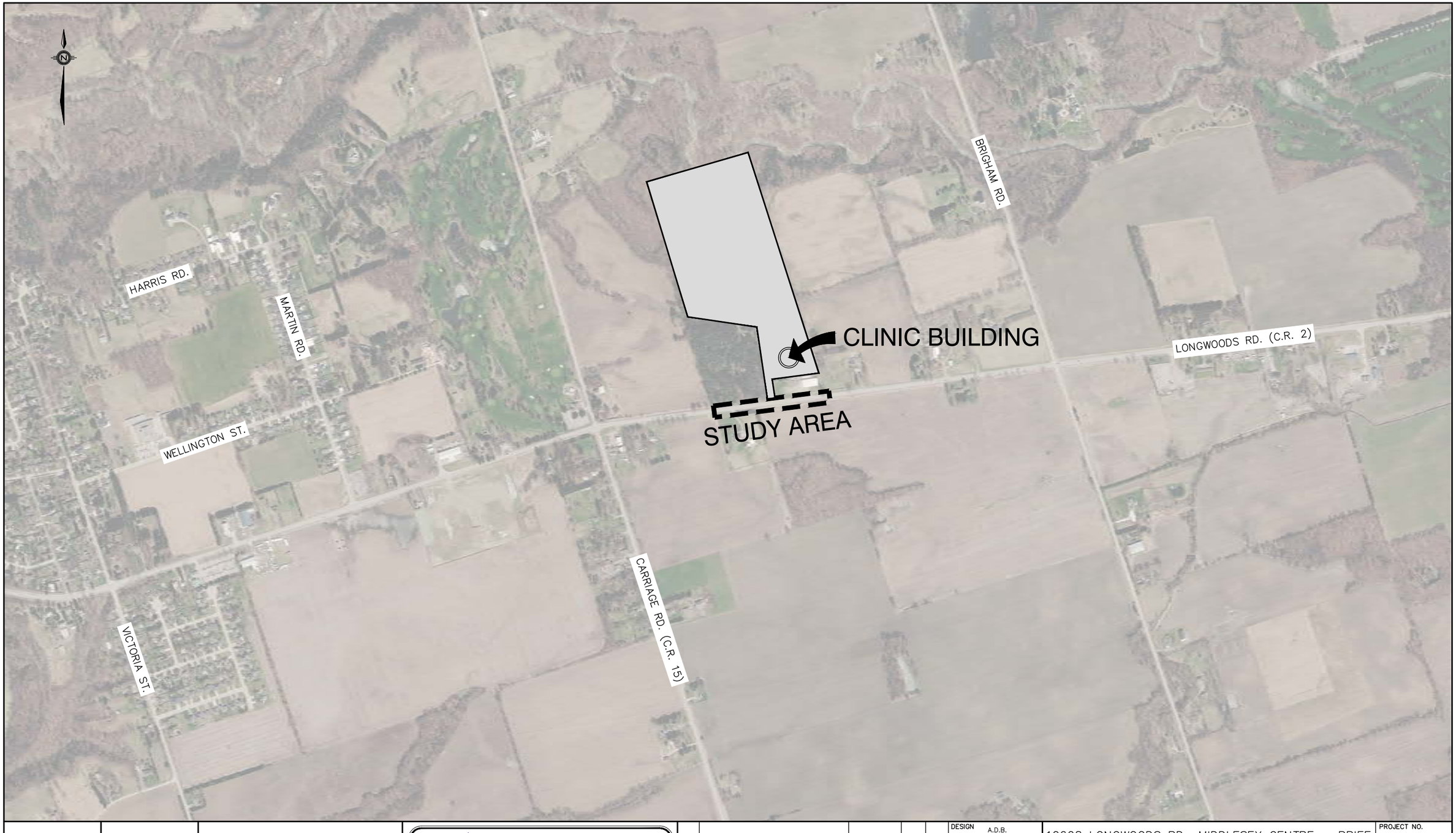
Therefore, based on the results of the technical work, it is the engineers' opinion that the proposed development will not adversely impact area traffic operations, and no development-driven geometric or traffic control improvements are required to mitigate the anticipated site generated traffic impact.

All of which is respectfully submitted,

RC Spencer Associates Inc.

Aaron D. Blata, M.Eng., P.Eng., PTOE, RSP1
Consulting Engineer, Road Safety Professional &
Professional Traffic Operations Engineer
Associate / Leamington Office Manager

Richard C. Spencer, M.A.Sc., P.Eng., PE
Consulting Engineer &
Fellow ITE Member
President / Tecumseh Office Manager



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Professional Engineers Ontario

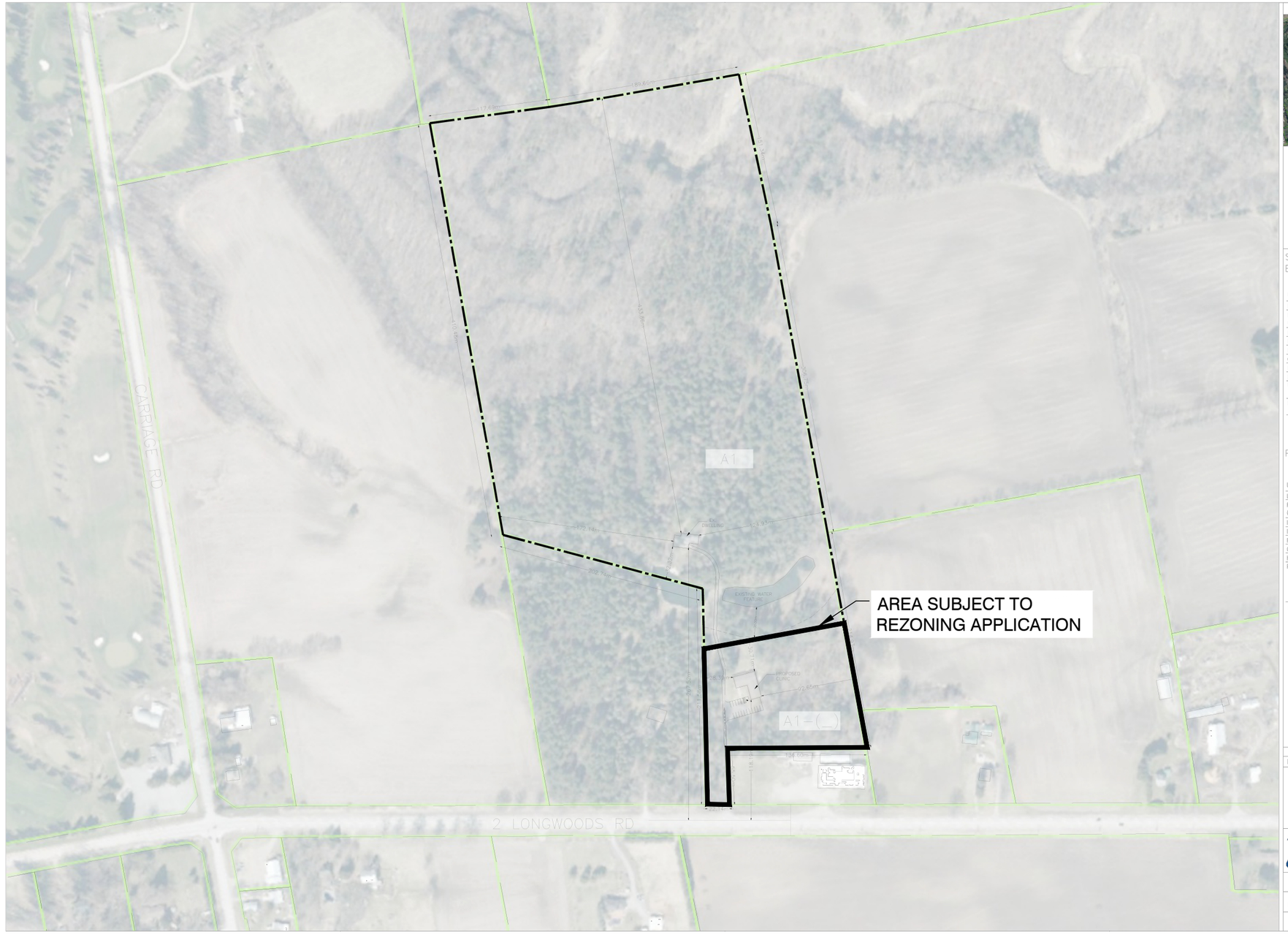
NO.	REVISION	DATE	BY	APP
4.	UPDATED REPORT FIGURES	01 SEPT 2026	M.C.A.	A.D.B.
3.	UPDATED REPORT FIGURES	25 AUG 2026	Z.P.	A.D.B.
2.	UPDATED REPORT FIGURES	16 JUN 2026	N.M.	A.D.B.
1.	CREATED REPORT FIGURES	28 MAY 2026	N.M.	A.D.B.

DESIGN A.D.B.
CHECKED A.D.B.
DRAWN N.M.
CHECKED A.D.B.
DATE MAY 2026
SCALE N.T.S.

10608 LONGWOODS RD., MIDDLESEX CENTRE – BRIEF

AREA PLAN

PROJECT NO. 26–1977
FIGURE NO. 1
OF 3



KEY PLAN

CONCEPT PLAN

OF

CON 2 PT LOTS 5,6 RCP 428 PT
LOTS 26 & 28 RP 34R1440
PARTS 1 TO 3

MIDDLESEX CENTRE
MIDDLESEX COUNTY

SITE STATISTICS
EXISTING ZONE: A1

	REQUIRED	PROPOSED
LOT AREA (MIN)	40.0 ha	15.4 ha*
LOT FRONTAGE (MIN)	300.0 m	0.00 m*
FRONT YARD SETBACK (MIN) (From the C/L of the road)	38.0 m	267.52 m
INT. SIDE YARD (E)(MIN)	3.0 m	124.93 m
INT. SIDE YARD (S)(MIN)	3.0 m	32.32 m
REAR YARD SETBACK (MIN)	8.0 m	433.86 m
COVERAGE (MAX)	20%	<1.0 %
FLOOR AREA (MAX)	90 m^2	278.3 m^2*
HEIGHT (MAX)	12.0 m	<12.0 m
DWELLING NUMBER (MAX)	1 Principal + 2 ARU	1 Principal
PARKING (MIN)	2 spaces per unit	2 spaces per unit

PROPOSED ZONE: A1-(_)

	REQUIRED	PROPOSED
LOT AREA (MIN)	40.0 ha	1.76 ha*
LOT FRONTAGE (MIN)	300.0 m	22.14 m*
FRONT YARD SETBACK (MIN) (From the C/L of the road)	38.0 m	118.19 m
INT. SIDE YARD (E)(MIN)	4.5 m	92.85 m
INT. SIDE YARD (W)(MIN)	4.5 m	28.39 m
REAR YARD SETBACK (MIN)	8.0 m	30.71 m
COVERAGE (MAX)	20%	<1.0 %
HEIGHT (MAX)	12.0 m	<12.0 m
PARKING (MIN)	14 Spaces + 1 Accesible Parking Space 1 space per 30 m^2 for clinic uses	16 spaces + 1 Accesible Parking Space

*Denotes special revision

NO.	REVISION	DATE	INITIAL

Derek Fitzpatrick

10608 Longwoods Rd
– Middlesex Centre

Zelinka Priamo Ltd.
LAND USE PLANNERS
318 Wellington Road, London, Ontario N6C 4P4
Tel: (519) 474-7137 Fax: (519) 474-2284 email: zp@zpplan.com

DRAWN BY	PROJECT NO.
LGS	FTZ/MXC/26-01
DATE	SCALE
MARCH 2026	N.T.S.

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SCALE	N.T.S.

10608 LONGWOODS RD., MIDDLESEX CENTRE – BRIEF

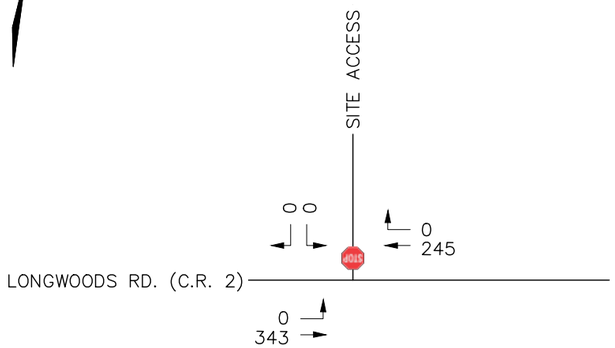
CONCEPT PLAN

PROJECT NO. 26-1977

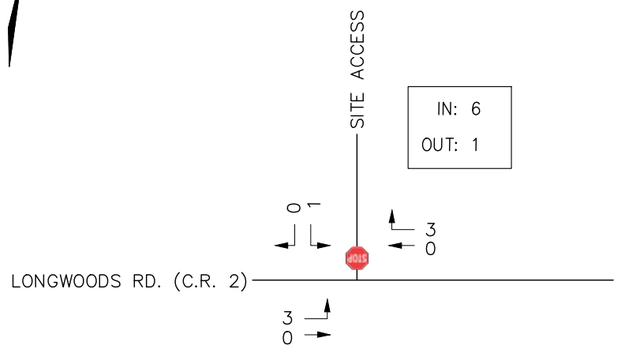
FIGURE NO. 2

OF 3

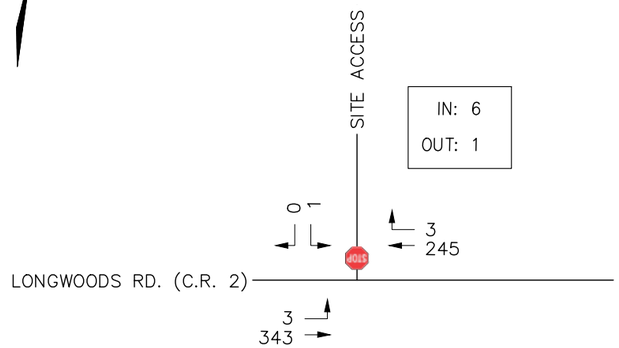
EXISTING TRAFFIC (AM PEAK HOUR)



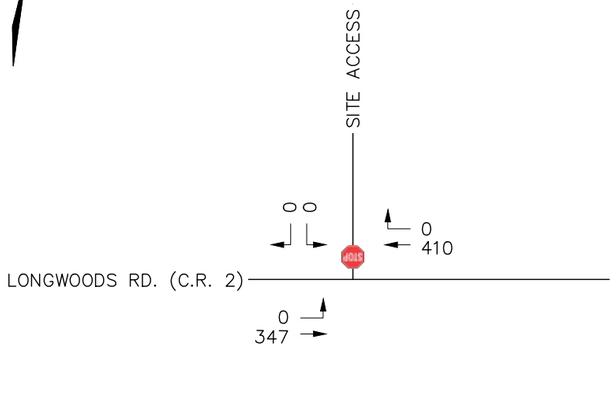
SITE GENERATED TRAFFIC (AM PEAK HOUR)



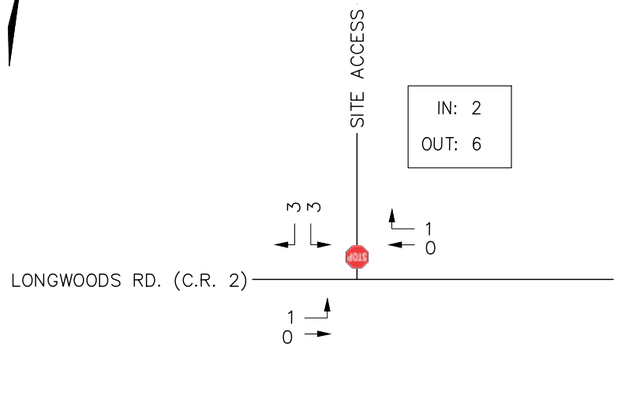
EXISTING + SITE GENERATED TRAFFIC (AM PEAK HOUR)



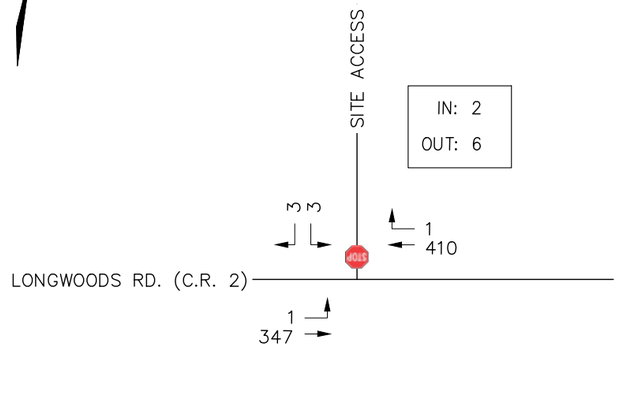
EXISTING TRAFFIC (PM PEAK HOUR)



SITE GENERATED TRAFFIC (PM PEAK HOUR)



EXISTING + SITE GENERATED TRAFFIC (PM PEAK HOUR)



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10608 LONGWOODS RD., MIDDLESEX CENTRE – BRIEF

SITE TURNING MOVEMENTS (AM/PM PEAK HOUR)

PROJECT NO. 26-1977
FIGURE NO. 3
OF 3

Appendix A

CORRESPONDENCE WITH ROAD AUTHORITY

From: cmorden@rcspencer.ca
To: "Marion-Frances Ramos Cabral"
Cc: "ablata@rcspencer.ca"; "rcspencer@rcspencer.ca"; "rcspencer@rcspencer.ca"
Subject: RE: 10608 Longwoods Road, Delaware Redevelopment
Date: May 29, 2026 1:01:00 PM
Attachments: image001.png

Thaks you for the quick response, Marion.

We will proceed with the Traffic Impact Brief according to the Terms of Reference below, incorporating the required left turn slip lane and right taper into our modelling.

Cheryl Morden
Executive Assistant to Aaron D. Blata
RC SPENCER ASSOCIATES INC.
18 Talbot St. W. | Leamington, ON N8H 1M4
Office: (519) 324-0606 ext. 1143

From: Marion-Frances Ramos Cabral <mcabral@middlesex.ca>
Sent: May 29, 2026 12:49 PM
To: cmorden@rcspencer.ca
Cc: ablata@rcspencer.ca; rcspencer@rcspencer.ca
Subject: Re: 10608 Longwoods Road, Delaware Redevelopment

Hi Cheryl,

The County Engineer reviewed the information and attachments and provided the following comments:

- The proponent will be required to include the left turn slip around and right turn taper as a requirement for the development and as such that should be reflected on the engineering drawings for the entrance. I've attached a copy of the County standard for information.
- Please note that a permit issued by the County Engineer's office will be required prior to undertaking any works within the road allowance. The permit is valid for one year from date of issue so you will have some flexibility with regards to the construction of these improvements.

Please let me know if you have any additional questions.

Thanks
Marion

Marion-Frances Ramos Cabral, RPP, MCIP, MPLAN, BURPL
Planner II

Middlesex County
399 Ridout St. North | London, ON N6A 2P1
Tel. 519-930-1006 | mcabral@middlesex.ca
www.middlesex.ca

From: cmorden@rcspencer.ca <cmorden@rcspencer.ca>
Sent: Friday, May 29, 2026 9:57 AM
To: Marion-Frances Ramos Cabral <mcabral@middlesex.ca>
Cc: ablata@rcspencer.ca <ablata@rcspencer.ca>; rcspencer@rcspencer.ca <rcspencer@rcspencer.ca>
Subject: 10608 Longwoods Road, Delaware Redevelopment

Good morning.

RC Spencer Associates Inc. has been retained to prepare a Traffic Impact Brief for the above-mentioned site. The Record of Pre-Consultation notes (attached) state that the brief must be scoped with the road authority and is to identify traffic generation to the County Road from the proposed use.

Our preliminary ITE Trip Generation estimates (attached)indicate that the medical clinic will generate approximately 15 trips during the AM peak hour and 16 trips during the PM peak hour. This is approximately one new trip to or from Longwoods Road every 4 minutes.

Our proposed Terms of Reference are as follows:

- Correspondence with Officials;
- **Weekday** turning movement counts at one area intersection (the site access at Longwoods Road);
- Trip generation for the proposed site using ITE trip generation reference data (attached);
- Traffic distribution and assignment of site generated traffic onto the road network;
- High-level capacity and level of service analysis using the **Synchro 12** analysis program;
- Identification of applicable improvements for future consideration (warrants);
- Preparation of a final report (to include engineers' comments and supporting figures).

An engineering comment on Page 2 of the Record of Pre-Consultation notes states that "the entrance must be upgraded with a left turn slip around lane and right turn taper." Could you please confirm the County's intention in this comment? Are the slip lane and taper mandatory improvements (in which case our modelling for the brief would need to show this proposed geometry), or will the requirement for these potential improvements be based upon the results of the traffic brief (left turn lane warrants and traffic operations with existing conditions)?

Please provide comment at your earliest convenience.

Thank you,

Cheryl Morden
Executive Assistant to Aaron D. Blata

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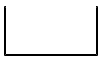


Appendix B

TRAFFIC DATA COLLECTION

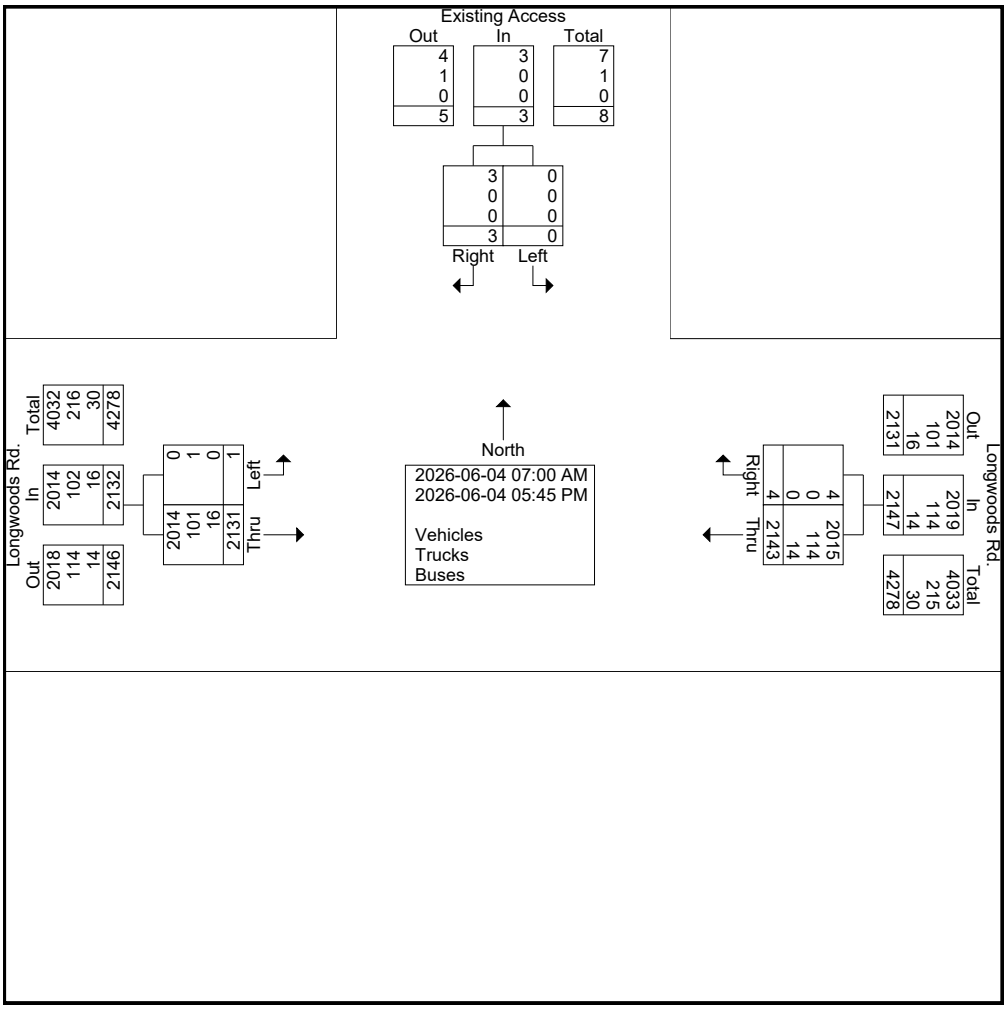
Site Access at 10608 Longwoods Road

RC SPENCER ASSOCIATES INC.
Consulting Engineers

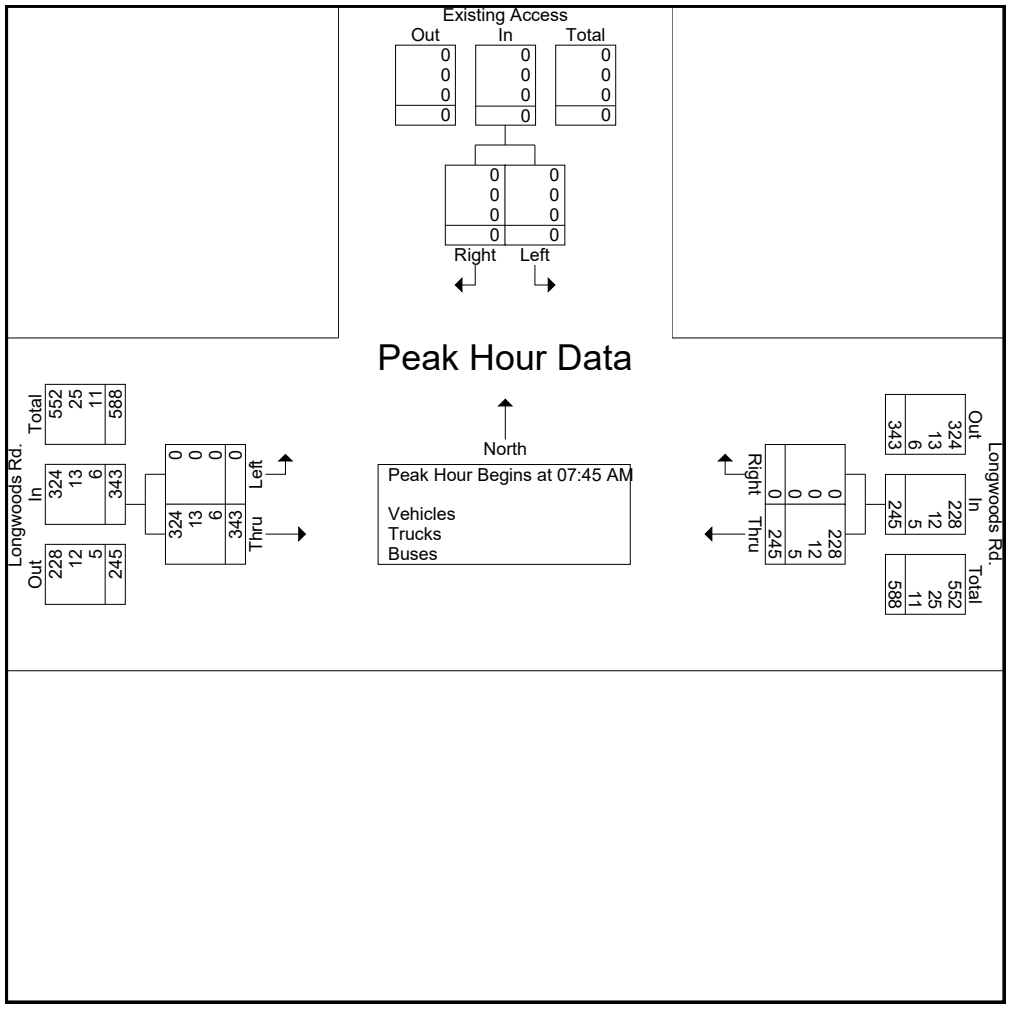
Date: 4 June 2026
Counted By: Zak P. / Reviewed by: A. Blata
Weather Conditions: Sunny
10608 Longwoods Road

Groups Printed- Vehicles - Trucks - Buses

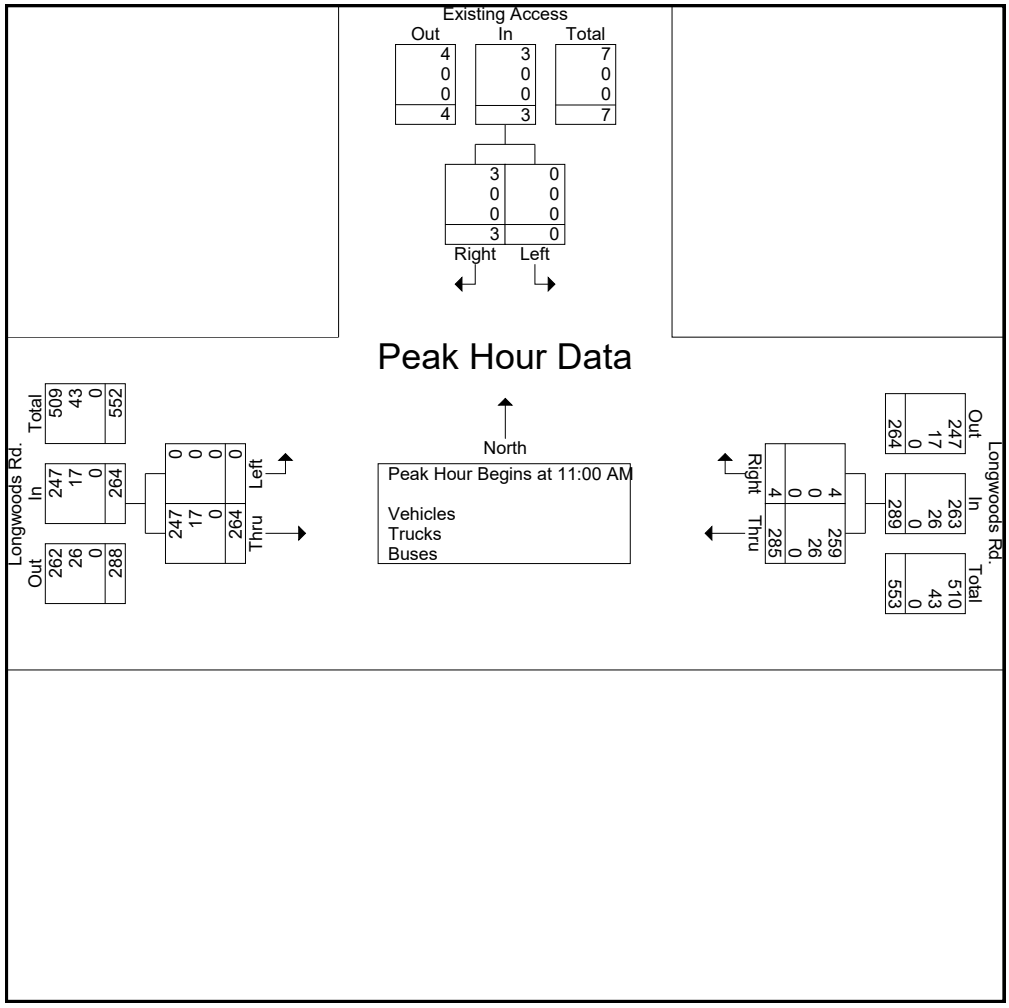
	Existing Access S/B				Longwoods Rd. W/B				Longwoods Rd. E/B						
Start Time	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	(0)	0	0	42	(0)	42	50	0	(1)	50	1	92	93
07:15 AM	0	0	(0)	0	0	50	(0)	50	75	0	(0)	75	0	125	125
07:30 AM	0	0	(0)	0	0	52	(0)	52	74	0	(0)	74	0	126	126
07:45 AM	0	0	(0)	0	0	63	(0)	63	104	0	(0)	104	0	167	167
Total	0	0	(0)	0	0	207	(0)	207	303	0	(1)	303	1	510	511
08:00 AM	0	0	(0)	0	0	61	(0)	61	84	0	(0)	84	0	145	145
08:15 AM	0	0	(0)	0	0	58	(0)	58	73	0	(0)	73	0	131	131
08:30 AM	0	0	(0)	0	0	63	(0)	63	82	0	(0)	82	0	145	145
08:45 AM	0	0	(0)	0	0	68	(0)	68	79	0	(0)	79	0	147	147
Total	0	0	(0)	0	0	250	(0)	250	318	0	(0)	318	0	568	568
*** BREAK ***															
11:00 AM	0	0	(0)	0	0	82	(0)	82	117	0	(0)	117	0	199	199
11:15 AM	1	0	(0)	1	2	60	(0)	62	46	0	(0)	46	0	109	109
11:30 AM	1	0	(0)	1	2	63	(0)	65	54	0	(0)	54	0	120	120
11:45 AM	1	0	(0)	1	0	80	(0)	80	47	0	(0)	47	0	128	128
Total	3	0	(0)	3	4	285	(0)	289	264	0	(0)	264	0	556	556
12:00 PM	0	0	(0)	0	0	64	(0)	64	86	0	(0)	86	0	150	150
12:15 PM	0	0	(0)	0	0	58	(0)	58	63	0	(0)	63	0	121	121
12:30 PM	0	0	(0)	0	0	70	(0)	70	76	0	(0)	76	0	146	146
12:45 PM	0	0	(0)	0	0	57	(0)	57	58	0	(0)	58	0	115	115
Total	0	0	(0)	0	0	249	(0)	249	283	0	(0)	283	0	532	532
01:00 PM	0	0	(0)	0	0	2	(0)	2	5	0	(0)	5	0	7	7
*** BREAK ***															
Total	0	0	(0)	0	0	2	(0)	2	5	0	(0)	5	0	7	7
*** BREAK ***															
03:00 PM	0	0	(0)	0	0	87	(0)	87	73	0	(0)	73	0	160	160
03:15 PM	0	0	(0)	0	0	93	(0)	93	65	0	(0)	65	0	158	158
03:30 PM	0	0	(0)	0	0	97	(0)	97	83	1	(0)	84	0	181	181
03:45 PM	0	0	(0)	0	0	95	(0)	95	66	0	(0)	66	0	161	161
Total	0	0	(0)	0	0	372	(0)	372	287	1	(0)	288	0	660	660
04:00 PM	0	0	(0)	0	0	101	(0)	101	99	0	(0)	99	0	200	200
04:15 PM	0	0	(0)	0	0	93	(0)	93	79	0	(0)	79	0	172	172
04:30 PM	0	0	(0)	0	0	118	(0)	118	91	0	(0)	91	0	209	209
04:45 PM	0	0	(0)	0	0	98	(0)	98	76	0	(0)	76	0	174	174
Total	0	0	(0)	0	0	410	(0)	410	345	0	(0)	345	0	755	755
05:00 PM	0	0	(0)	0	0	86	(0)	86	82	0	(0)	82	0	168	168
05:15 PM	0	0	(0)	0	0	108	(0)	108	98	0	(0)	98	0	206	206
05:30 PM	0	0	(0)	0	0	93	(0)	93	78	0	(0)	78	0	171	171
05:45 PM	0	0	(0)	0	0	81	(0)	81	68	0	(0)	68	0	149	149
Total	0	0	(0)	0	0	368	(0)	368	326	0	(0)	326	0	694	694
Grand Total	3	0	(0)	3	4	2143	(0)	2147	2131	1	(1)	2132	1	4282	4283
Apprch %	100	0			0.2	99.8			100	0					
Total %	0.1	0		0.1	0.1	50		50.1	49.8	0		49.8	0	100	
Vehicles	3	0		3	4	2015		2019	2014	0		2015	0	0	4037
% Vehicles	100	0	0	100	100	94	0	94	94.5	0	100	94.5	0	0	94.3
Trucks	0	0		0	0	114		114	101	1		102	0	0	216
% Trucks	0	0	0	0	0	5.3	0	5.3	4.7	100	0	4.8	0	0	5
Buses	0	0		0	0	14		14	16	0		16	0	0	30
% Buses	0	0	0	0	0	0.7	0	0.7	0.8	0	0	0.8	0	0	0.7


Existing Access
Out In Total
4 3 7
1 0 1
0 0 0
5 3 8
3 0 0 0
0 0 0 0
3 0
Right Left
North
2026-06-04 07:00 AM
2026-06-04 05:45 PM
Vehicles
Trucks
Buses
Longwoods Rd.
Total 4032 216 30 4278
In 2014 102 16 2132
Out 2018 114 14 2146
0 1 0 1
2014 101 16 2131
Left
Thru
Right
Thru
4 0 0 4
4 2143 14 14 2015
Out 2014 101 16 2131
In 2019 114 14 2147
Total 4033 215 30 4278
Longwoods Rd.

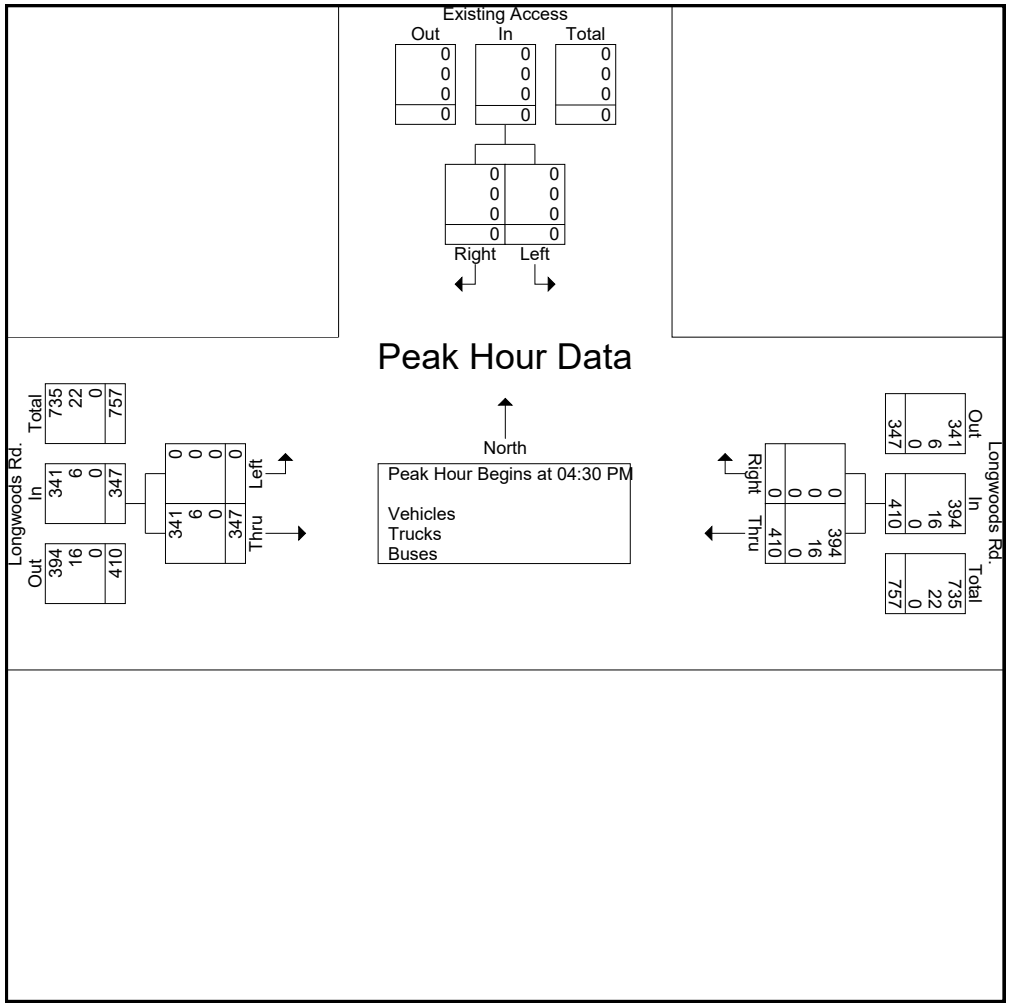
	Existing Access S/B			Longwoods Rd. W/B			Longwoods Rd. E/B			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45 AM										
07:45 AM	0	0	0	0	**63**	**63**	**104**	0	**104**	**167**
08:00 AM	0	0	0	0	61	61	84	0	84	145
08:15 AM	0	0	0	0	58	58	73	0	73	131
08:30 AM	0	0	0	0	63	63	82	0	82	145
Total Volume	0	0	0	0	245	245	343	0	343	588
% App. Total	0	0		0	100		100	0		
PHF	.000	.000	.000	.000	.972	.972	.825	.000	.825	.880
Vehicles	0	0	0	0	228	228	324	0	324	552
% Vehicles	0	0	0	0	93.1	93.1	94.5	0	94.5	93.9
Trucks	0	0	0	0	12	12	13	0	13	25
% Trucks	0	0	0	0	4.9	4.9	3.8	0	3.8	4.3
Buses	0	0	0	0	5	5	6	0	6	11
% Buses	0	0	0	0	2.0	2.0	1.7	0	1.7	1.9



	Existing Access S/B			Longwoods Rd. W/B			Longwoods Rd. E/B			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 11:00 AM										
11:00 AM	0	0	0	0	**82**	**82**	**117**	0	**117**	**199**
11:15 AM	**1**	0	**1**	**2**	60	62	46	0	46	109
11:30 AM	1	0	1	2	63	65	54	0	54	120
11:45 AM	1	0	1	0	80	80	47	0	47	128
Total Volume	3	0	3	4	285	289	264	0	264	556
% App. Total	100	0		1.4	98.6		100	0		
PHF	.750	.000	.750	.500	.869	.881	.564	.000	.564	.698
Vehicles	3	0	3	4	259	263	247	0	247	513
% Vehicles	100	0	100	100	90.9	91.0	93.6	0	93.6	92.3
Trucks	0	0	0	0	26	26	17	0	17	43
% Trucks	0	0	0	0	9.1	9.0	6.4	0	6.4	7.7
Buses	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0



	Existing Access S/B			Longwoods Rd. W/B			Longwoods Rd. E/B			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	0	0	0	0	**118**	**118**	91	0	91	**209**
04:45 PM	0	0	0	0	98	98	76	0	76	174
05:00 PM	0	0	0	0	86	86	82	0	82	168
05:15 PM	0	0	0	0	108	108	**98**	0	**98**	206
Total Volume	0	0	0	0	410	410	347	0	347	757
% App. Total	0	0		0	100		100	0		
PHF	.000	.000	.000	.000	.869	.869	.885	.000	.885	.906
Vehicles	0	0	0	0	394	394	341	0	341	735
% Vehicles	0	0	0	0	96.1	96.1	98.3	0	98.3	97.1
Trucks	0	0	0	0	16	16	6	0	6	22
% Trucks	0	0	0	0	3.9	3.9	1.7	0	1.7	2.9
Buses	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0



Appendix C

ITE TRIP GENERATION MANUAL – 12TH EDITION REFERENCES

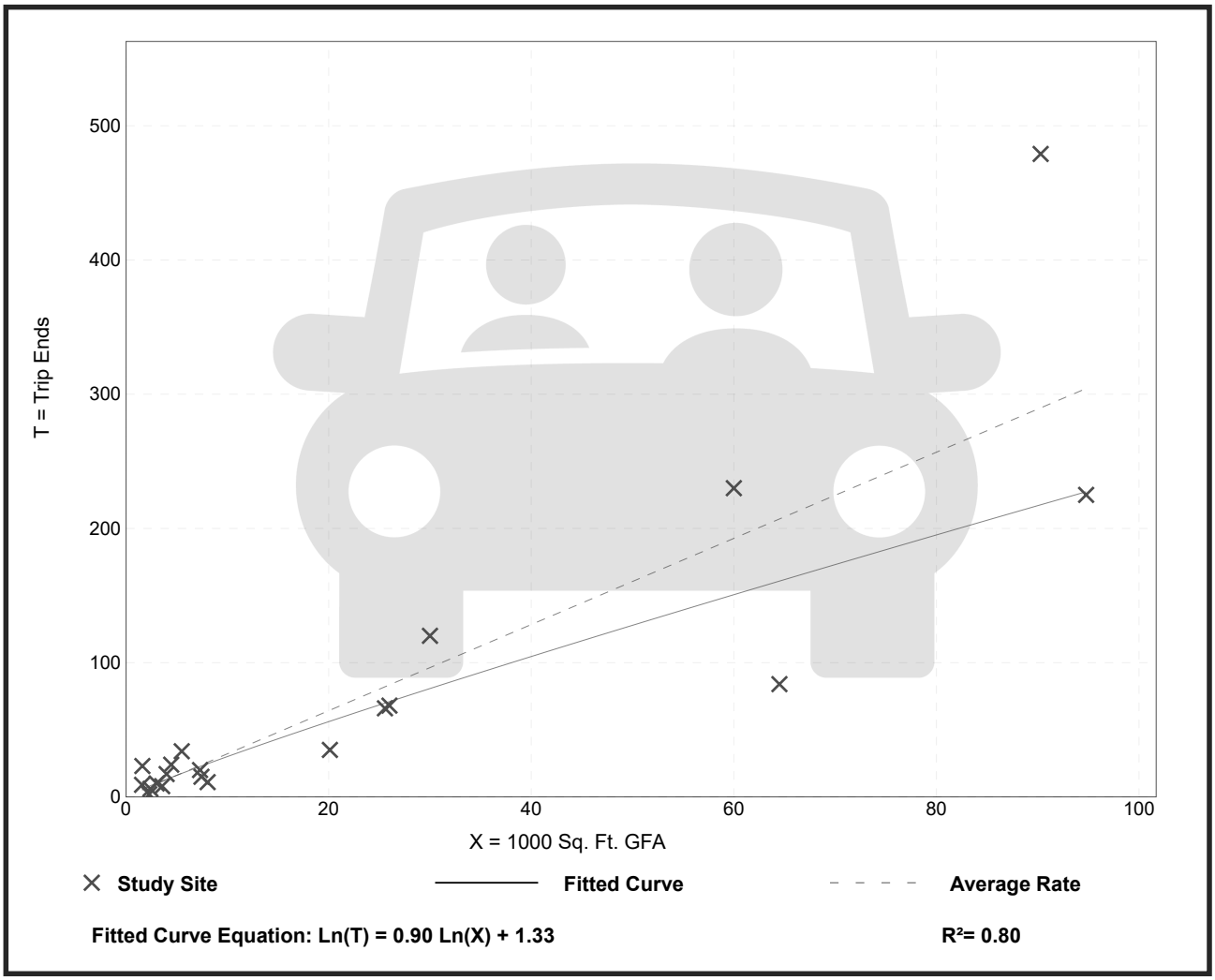
Medical-Dental Office Building - Stand-Alone
(720)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	20
Avg. 1000 Sq. Ft. GFA:	23
Directional Distribution:	78% entering, 22% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.21	0.87 - 14.30	1.61

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.90 Ln(X) + 1.33

R^2= 0.80

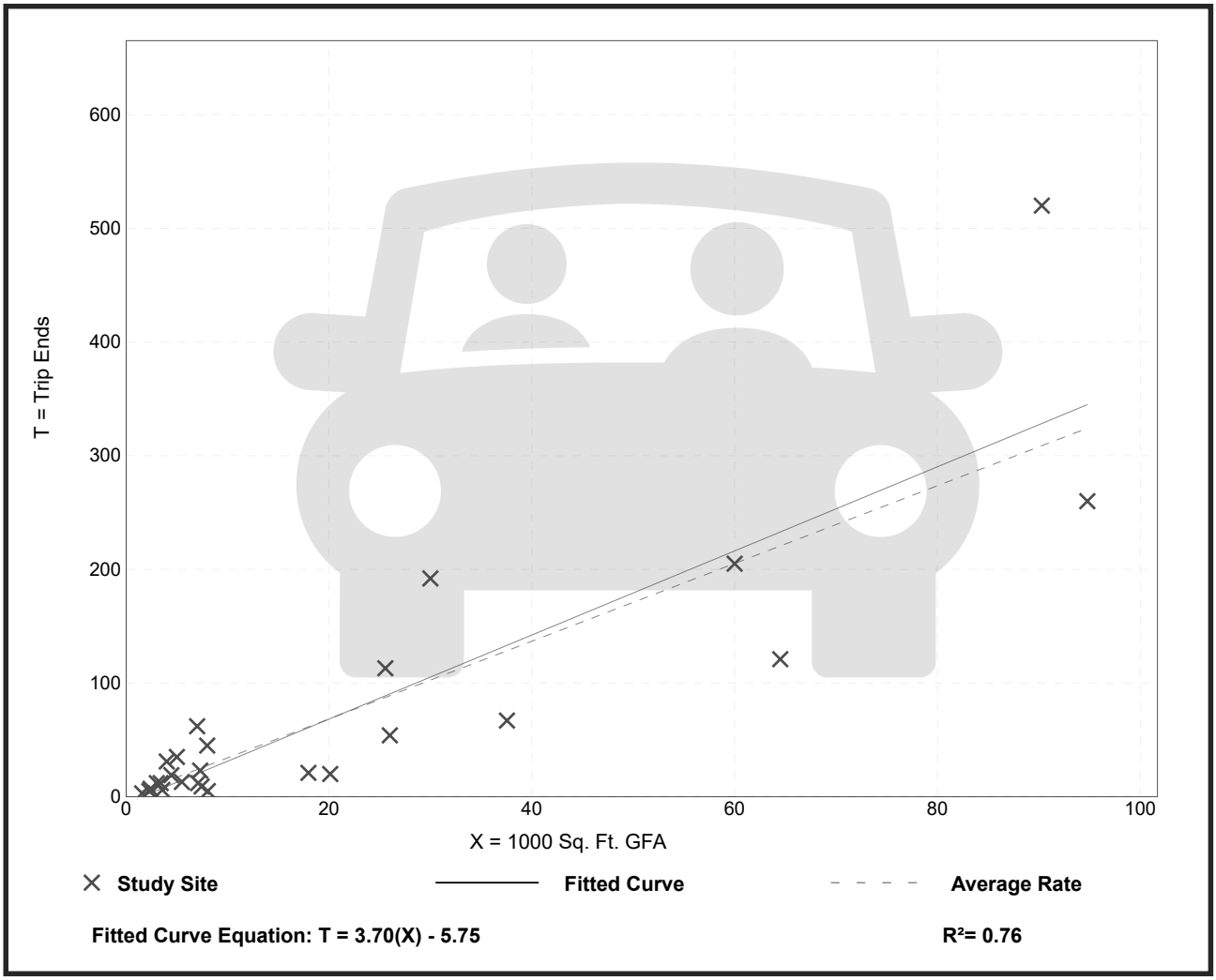
Medical-Dental Office Building - Stand-Alone
(720)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 26
Avg. 1000 Sq. Ft. GFA: 21
Directional Distribution: 30% entering, 70% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.42	0.62 - 8.86	1.89

Data Plot and Equation



Fitted Curve Equation: T = 3.70(X) - 5.75

R^2= 0.76

Proposed Site Development Trip Generation and Distribution

Project: 10608 Longwoods Road

Site: Delaware, Ontario

Assumed Land Use (1): Medical-Dental Office Building - Stand-Alone - ITE No. 720

Average Vehicle Trip Ends vs.: 1000 Sq. Ft. GFA

ITE Trip Generation Data collected on a: Weekday

AM Peak Hour:	3.21	= Average Rate	78	% Entering
			22	% Exiting
PM Peak Hour:	3.42	= Average Rate	30	% Entering
			70	% Exiting

Assumed Land Use (1): Medical-Dental Office Building - Stand-Alone - ITE No. 720				
	1000 Sq. Ft. GFA	**Trips Generated**	**Trips Entering**	**Trips Exiting**
AM Peak	2.207	7	6	1
PM Peak	2.207	8	2	6

Total Trips		
	Trips Entering	**Trips Exiting**
AM Peak	6	1
PM Peak	2	6

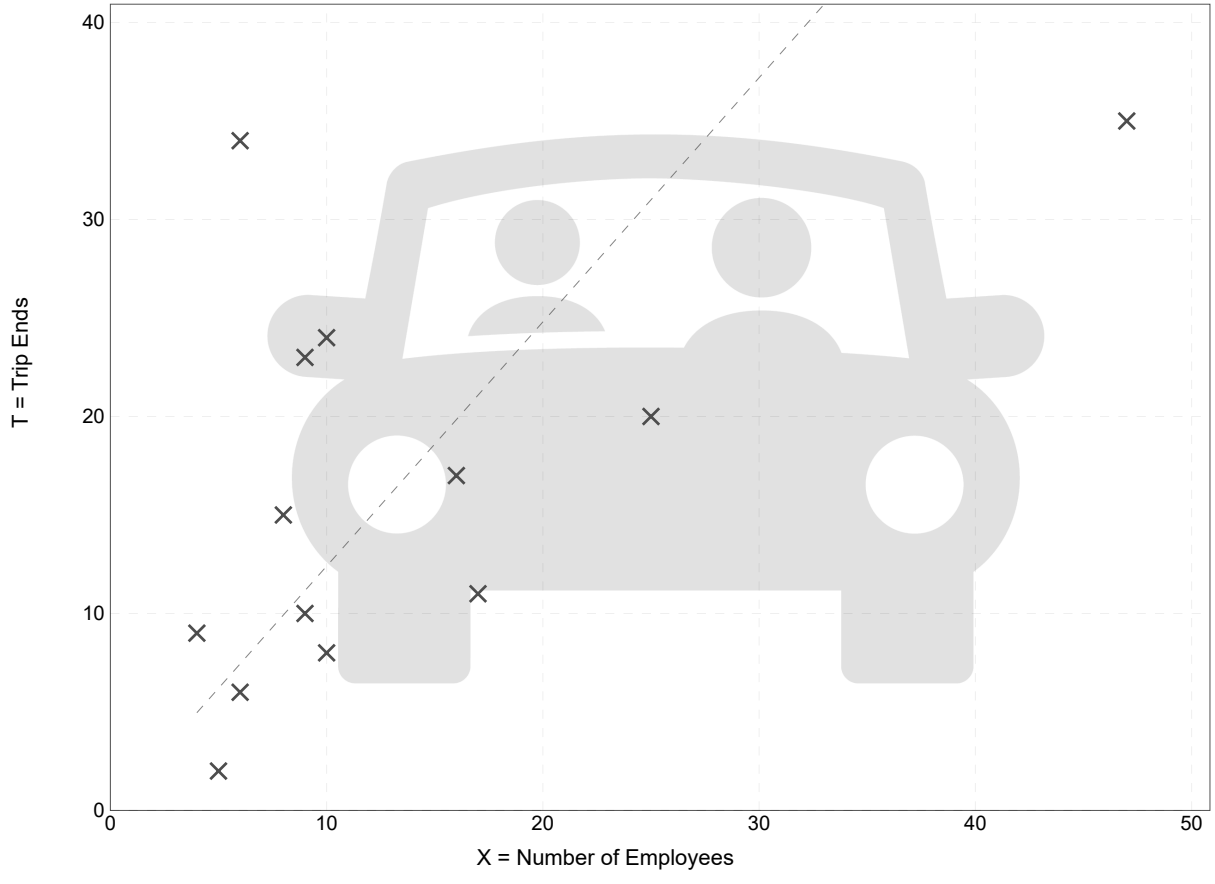
Medical-Dental Office Building - Stand-Alone
(720)

Vehicle Trip Ends vs: **Employees**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 13
Avg. Num. of Employees: 13
Directional Distribution: 70% entering, 30% exiting

Vehicle Trip Generation per Employee

Average Rate	Range of Rates	Standard Deviation
1.24	0.40 - 5.67	1.07

Data Plot and Equation



Fitted Curve Equation: Not Given

R^2= **

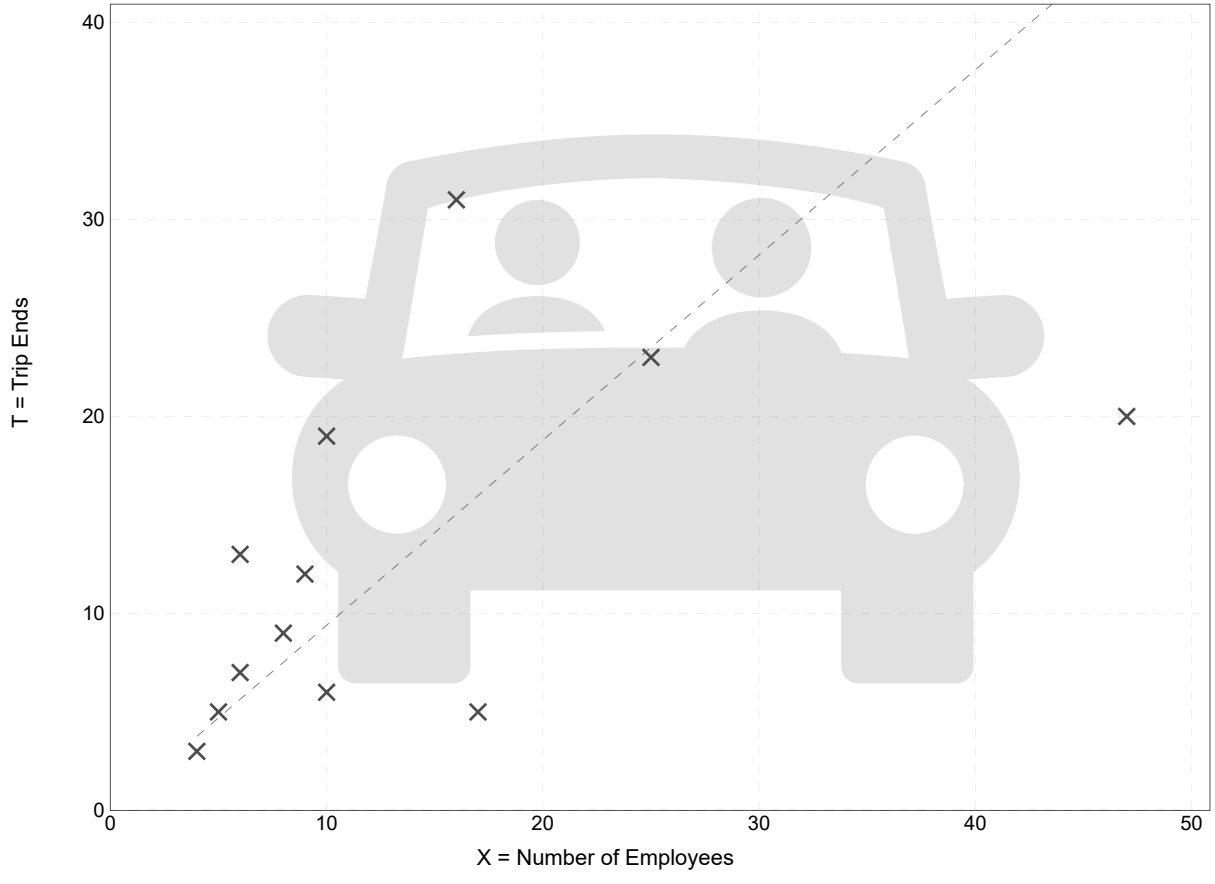
Medical-Dental Office Building - Stand-Alone
(720)

Vehicle Trip Ends vs: **Employees**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 12
Avg. Num. of Employees: 14
Directional Distribution: 45% entering, 55% exiting

Vehicle Trip Generation per Employee

Average Rate	Range of Rates	Standard Deviation
0.94	0.29 - 2.17	0.62

Data Plot and Equation



Fitted Curve Equation: Not Given

R^2= **

Proposed Site Development Trip Generation and Distribution

Project: 10608 Longwoods Road

Site: Delaware, Ontario

Assumed Land Use (1): Medical-Dental Office Building - Stand-Alone - ITE No. 720

Average Vehicle Trip Ends vs.: Employees

ITE Trip Generation Data collected on a: Weekday

AM Peak Hour:	1.24	= Average Rate	70	% Entering
			30	% Exiting
PM Peak Hour:	0.94	= Average Rate	45	% Entering
			55	% Exiting

Assumed Land Use (1): Medical-Dental Office Building - Stand-Alone - ITE No. 720				
	Employees	**Trips Generated**	**Trips Entering**	**Trips Exiting**
AM Peak	3	4	3	1
PM Peak	3	3	1	2

Total Trips		
	Trips Entering	**Trips Exiting**
AM Peak	3	1
PM Peak	1	2

Appendix D

DETAILED SYNCHRO RESULTS

Site Access at 10608 Longwoods Road

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	343	245	0	0	0
Future Vol, veh/h	0	343	245	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	6	7	2	2	2
Mvmt Flow	0	373	266	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	266	0	-	0	639	266
Stage 1	-	-	-	-	266	-
Stage 2	-	-	-	-	373	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1298	-	-	-	440	772
Stage 1	-	-	-	-	778	-
Stage 2	-	-	-	-	697	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1298	-	-	-	440	772
Mov Cap-2 Maneuver	-	-	-	-	440	-
Stage 1	-	-	-	-	778	-
Stage 2	-	-	-	-	697	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1298	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	347	410	0	0	0
Future Vol, veh/h	0	347	410	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	2	2	2
Mvmt Flow	0	377	446	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	446	0	-	0	823	446
Stage 1	-	-	-	-	446	-
Stage 2	-	-	-	-	377	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1115	-	-	-	343	613
Stage 1	-	-	-	-	645	-
Stage 2	-	-	-	-	693	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1115	-	-	-	343	613
Mov Cap-2 Maneuver	-	-	-	-	343	-
Stage 1	-	-	-	-	645	-
Stage 2	-	-	-	-	693	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1115	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	347	410	1	3	3
Future Vol, veh/h	1	347	410	1	3	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	2	2	2
Mvmt Flow	1	377	446	1	3	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	447	0	-	0	826	446
Stage 1	-	-	-	-	446	-
Stage 2	-	-	-	-	379	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1114	-	-	-	342	612
Stage 1	-	-	-	-	645	-
Stage 2	-	-	-	-	692	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1114	-	-	-	342	612
Mov Cap-2 Maneuver	-	-	-	-	342	-
Stage 1	-	-	-	-	644	-
Stage 2	-	-	-	-	692	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.02	0	13.33
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	5	-	-	-	439
HCM Lane V/C Ratio	0.001	-	-	-	0.015
HCM Ctrl Dly (s/v)	8.2	0	-	-	13.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	343	245	3	1	0
Future Vol, veh/h	3	343	245	3	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	6	7	2	2	2
Mvmt Flow	3	373	266	3	1	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	270	0	-	0	647	268
Stage 1	-	-	-	-	268	-
Stage 2	-	-	-	-	379	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1294	-	-	-	435	771
Stage 1	-	-	-	-	777	-
Stage 2	-	-	-	-	692	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1294	-	-	-	434	771
Mov Cap-2 Maneuver	-	-	-	-	434	-
Stage 1	-	-	-	-	775	-
Stage 2	-	-	-	-	692	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.07	0	13.32
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	16	-	-	-	434
HCM Lane V/C Ratio	0.003	-	-	-	0.003
HCM Ctrl Dly (s/v)	7.8	0	-	-	13.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0