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Consulting Engineers

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5 February 2025
File No.: 25-1721

Peltier Developments
2724 Curry Avenue
Windsor, ON N9E 2S7

Attention: **Jennifer Coutts**

Re: **1744 Norman Road Residential, Windsor, Ontario**
Traffic Impact Memo

Ms. Coutts:

RC Spencer Associates Inc. has been retained to evaluate and comment on the potential traffic impact of a proposed residential development located at 1744 Norman Road, in Windsor, Ontario. **Figure 1** illustrates the area plan, with the subject property highlighted in yellow:

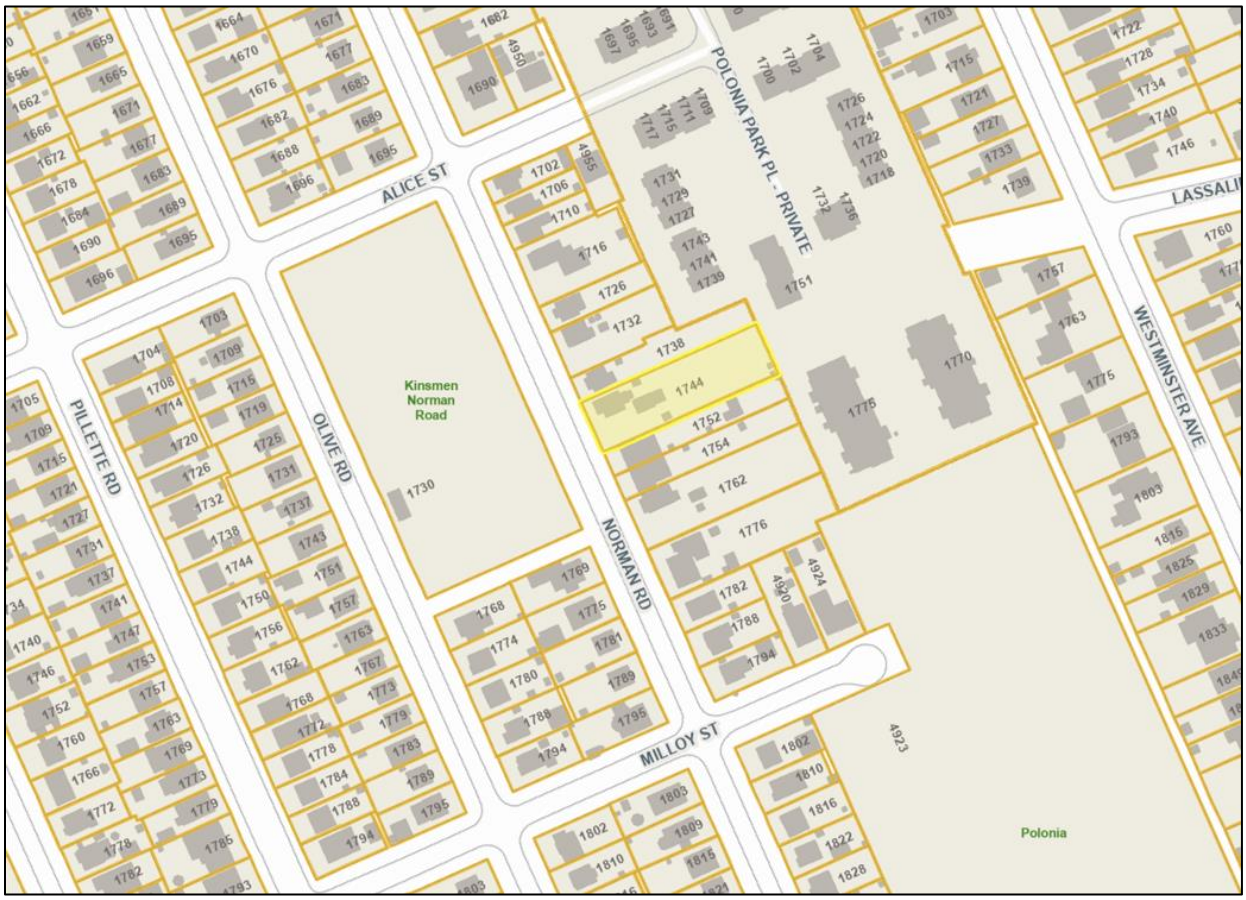


Figure 1: Area Plan

The subject site is located on the east side of Norman Road, between Alice Street and Milloy Street. Norman Road is a north / south residential collector roadway which begins at South National Street and runs south to a cul-de-sac north of Grand Boulevard. All other roadways around the site are local roads. **Figure 2** (below) illustrates the existing conditions of the subject site; the site is currently occupied by a single-detached home:

Figure 2: Aerial Plan of Existing Conditions

The proposed site plan is illustrated on **Figure 3** and consists of a two-storey, 9-unit residential building with one access to Norman Road:

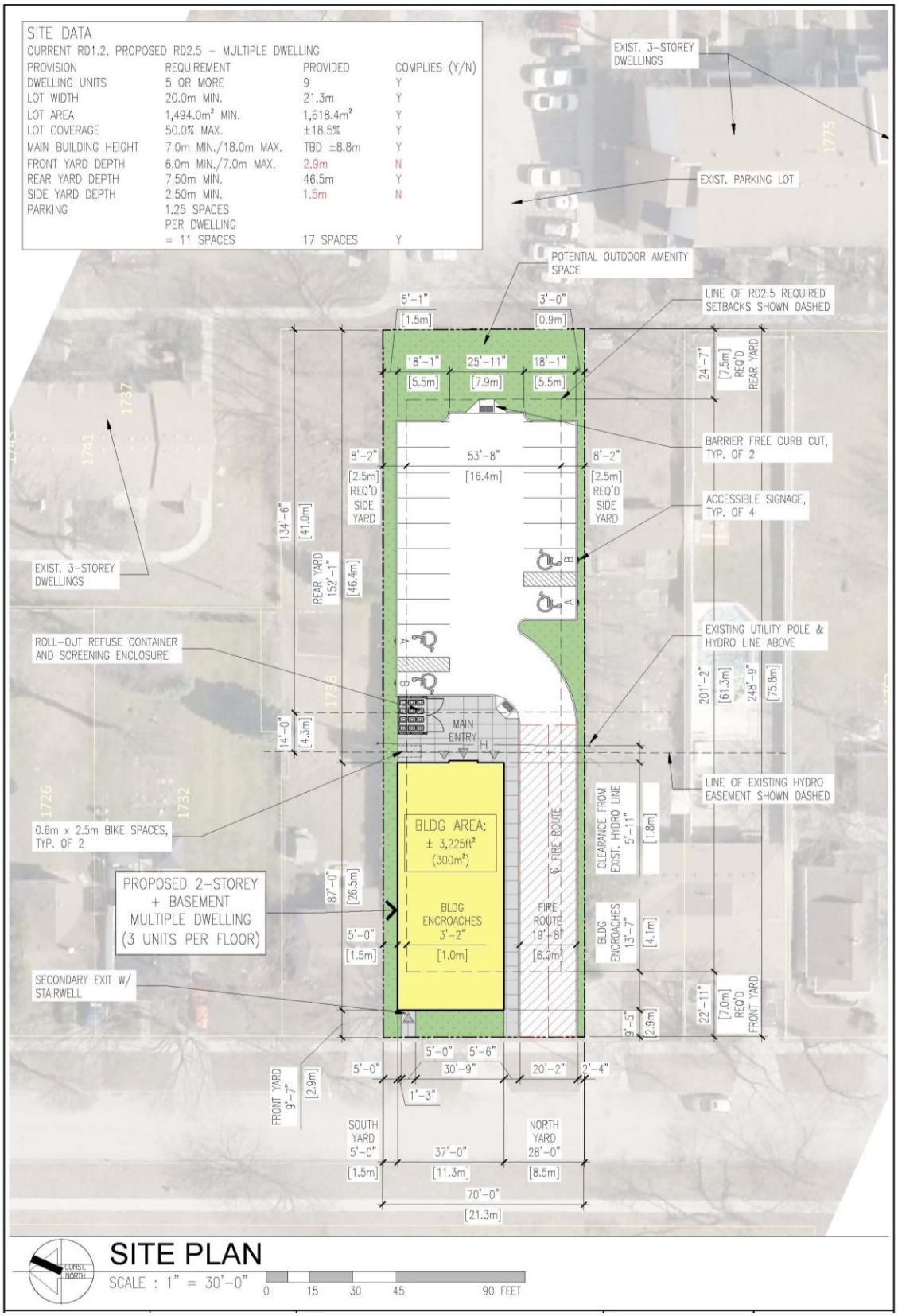


Figure 3: Site Plan

For the subject development proposal, trip generation and distribution estimates were calculated with respect to the guidance provided in the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition). ITE Land Use Code 220: Multifamily Housing (Low-Rise) was used to conservatively estimate the number of trips generated by the proposed 9-unit residential building; this land use code provides average trip generation rates of 0.40 trips per dwelling unit in the AM peak hour, with 24% entering and 76% exiting, and 0.51 trips per dwelling unit in the PM peak hour, with 63% entering and 37% exiting.

Accordingly, as calculated in **Appendix A** and summarized in **Table 1** below, it can be estimated that the proposed residential development will generate a total of 4 trips (1 entering and 3 exiting) in the weekday AM peak hour and a total of 5 trips (3 entering and 2 exiting) in the weekday PM peak hour:

Table 1: Proposed Development Trip Generation and Distribution

Total Trips: Multifamily Housing (Low-Rise)			
	Trips Entering	**Trips Exiting**	**Total**
AM Peak Hour	1	3	**4**
PM Peak Hour	3	2	**5**

If a total of 4 and 5 trips are generated within the respective peak hours, Norman Road can expect to experience a peak hour traffic increase of approximately one new trip every 12 to 15 minutes. Based on these trip generation and distribution estimates, it is the engineers' opinion that the proposed development will have a nominal impact on area traffic operations.

Sight Line Analysis

A sight line analysis was completed for the proposed site access at Norman Road; the analysis was completed in accordance with the TAC Geometric Design Guide for Canadian Roads (2017). The speed limit on Norman Road is 50 km/h, so the analysis was completed for 60 km/h design speed; a passenger car was selected as the design vehicle. According to the TAC Geometric Design Guide for Canadian Roads (2017), the sight line should be evaluated with the design vehicle located at 4.4m from the edge of the nearest travelled lane.

As calculated in **Appendix B**, 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 at Norman Road. Based on the sight lines illustrated on **Figure B1**, it is the engineers' opinion that there is sufficient sight distance for safe egress from the proposed site access.

Conclusions & Recommendations

Upon completion of the review, it was concluded that the addition of site generated traffic will have a nominal impact on Norman Road (approximately one additional vehicle every 12 to 15 minutes in each respective peak hour). Therefore, based on the results of the technical work, it is the engineers' opinion that the proposed residential development will not adversely impact area traffic operations.

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 / Windsor Office Manager

Appendix A

ITE TRIP GENERATION

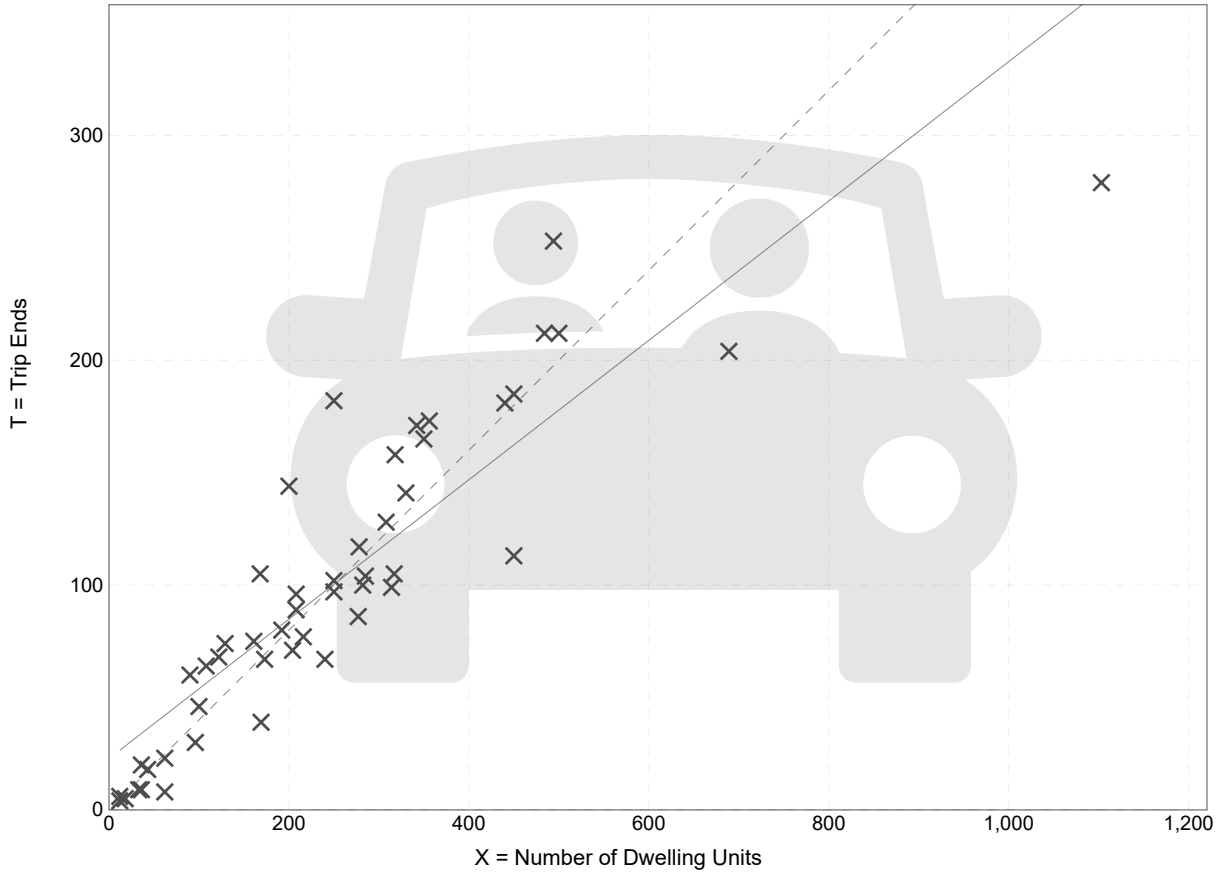
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs: **Dwelling Units**
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: 49
Avg. Num. of Dwelling Units: 249
Directional Distribution: 24% entering, 76% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.40	0.13 - 0.73	0.12

Data Plot and Equation



Fitted Curve Equation: T = 0.31(X) + 22.85

R^2= 0.79

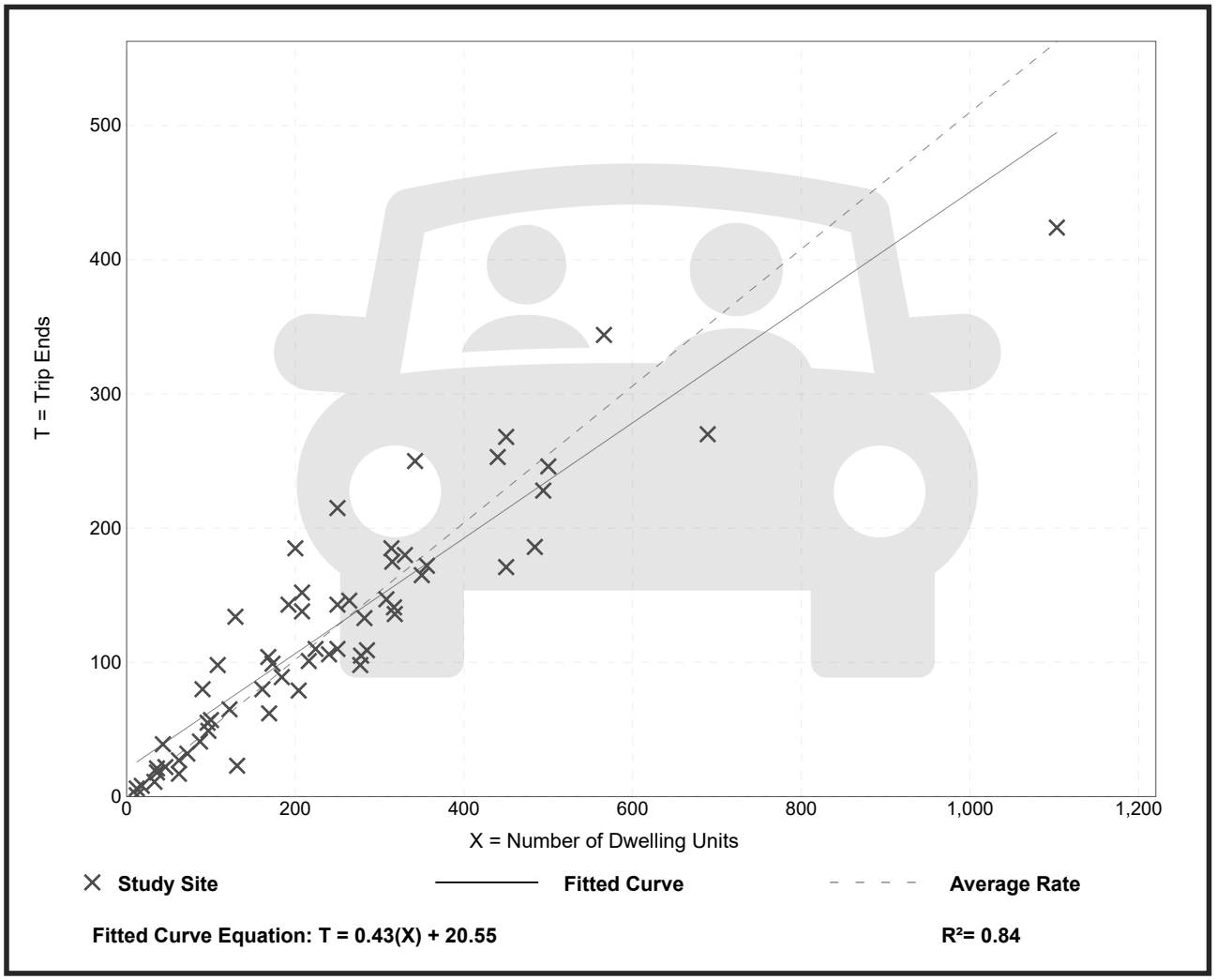
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs:	**Dwelling Units**
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:	59
Avg. Num. of Dwelling Units:	241
Directional Distribution:	63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.51	0.08 - 1.04	0.15

Data Plot and Equation



Proposed Site Development Trip Generation and Distribution

Project: 1744 Norman Road Residential

Site: Windsor, Ontario

Assumed Land Use (1): Multifamily Housing (Low-Rise) - ITE No. 220

Average Vehicle Trip Ends vs.: Dwelling Units

ITE Trip Generation Data collected on a: Weekday

AM Peak Hour:	0.40	= Average Rate	24	% Entering
			76	% Exiting
PM Peak Hour:	0.51	= Average Rate	63	% Entering
			37	% Exiting

Assumed Land Use (1): Multifamily Housing (Low-Rise) - ITE No. 220				
	Dwelling Units	**Trips Generated**	**Trips Entering**	**Trips Exiting**
AM Peak	9	4	1	3
PM Peak	9	5	3	2

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

Appendix B

SIGHT LINE CALCULATIONS

25-1721: 1744 Norman Road Residential Development, Windsor, TIS - Sight Line Analysis

Design Intersection Sight Distance (TAC Geometric Design Guide for Canadian Roads)

Design Speed: 60km/h (Posted: 50km/h)

Table 9.9.3: Time Gap for Case B1, Left Turn from Stop

Design Vehicle	Time Gap (t_g)(s) at Design Speed of Major Road
Passenger car	7.5
Single-unit truck	9.5
Combination truck (WB 19 and WB 20)	11.5
Longer truck	To be established by road authority

Intersection Stopping Distance **(ISD)** = 0.278 V_{major} t_g

Where:

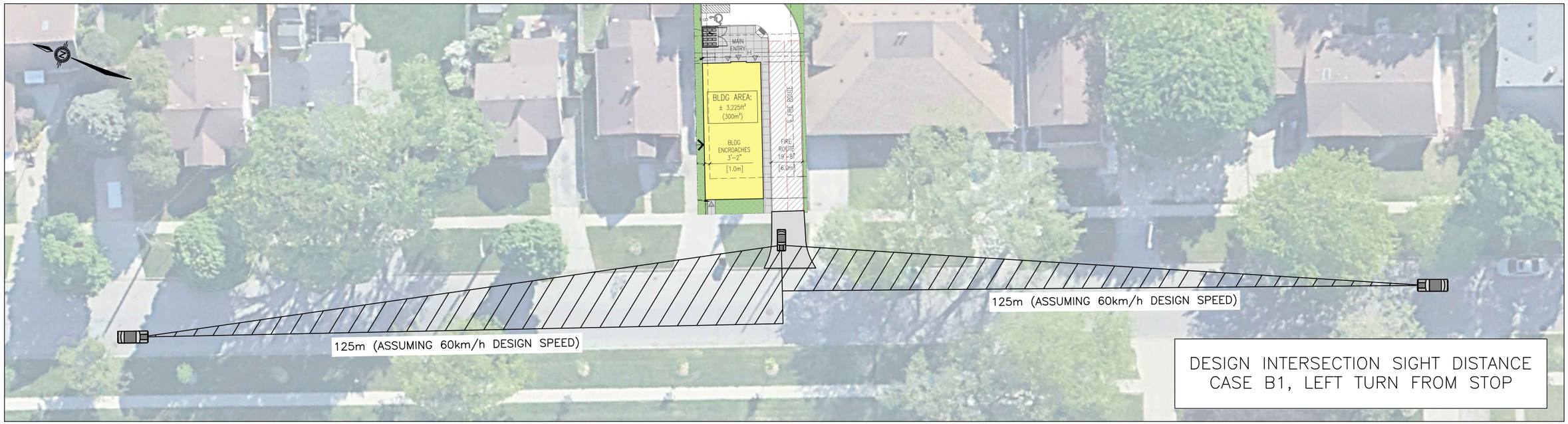
ISD = intersection sight distance (m)
(length of the leg of sight triangle along the major road)
V_{major} = design speed of the major road (km/h)
t_g = time gap for minor road vehicle to enter the major road (s)

ISD $_{passenger\ car}$ (left turn from stop) = 0.278 x 60 x 7.5 = **125 m**

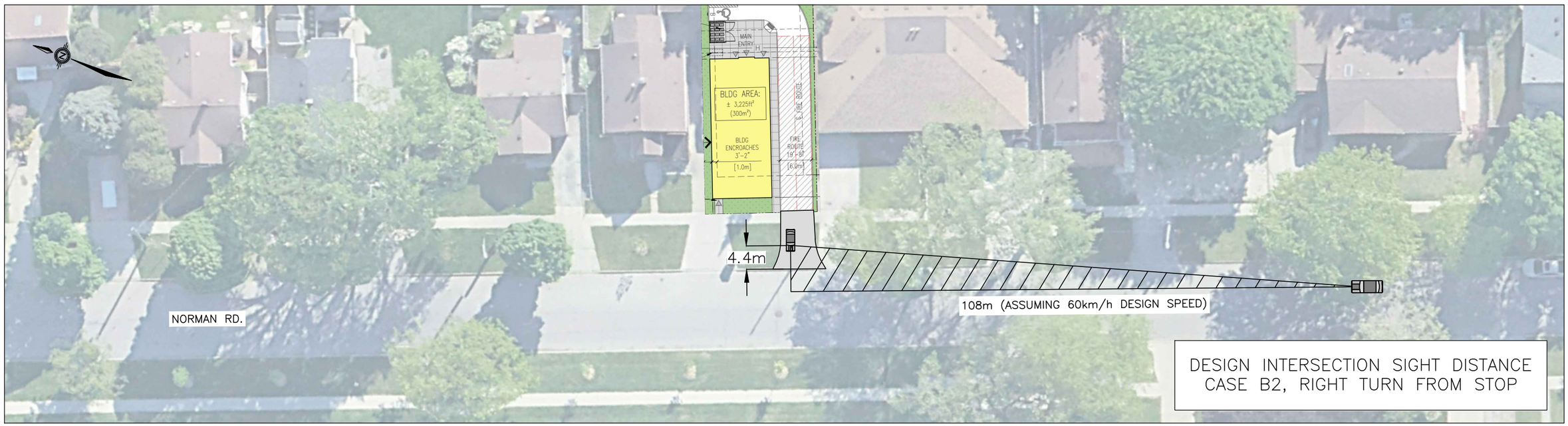
Table 9.9.5: Time Gap for Case B2—Right Turn from Stop and Case B3—Crossing Maneuver

Design Vehicle	Time Gap (t_g)(s) at Design Speed of Major Road
Passenger car	6.5
Single-unit truck	8.5
Combination truck (WB 19 and WB 20)	10.5

ISD $_{passenger\ car}$ (right turn from stop) = 0.278 x 60 x 6.5 = **108 m**



DESIGN INTERSECTION SIGHT DISTANCE
CASE B1, LEFT TURN FROM STOP



DESIGN INTERSECTION SIGHT DISTANCE
CASE B2, RIGHT TURN FROM STOP

RC SPENCER ASSOCIATES INC.
Consulting Engineers
Windsor: 800 University Avenue W. – Windsor ON N9A 5R9
Leamington: 18 Talbot Street W. – Leamington ON N8H 1M4
Chatham-Kent: 49 Raleigh Street – Chatham ON N7M 2M6
Professional Engineers Ontario

NO.	REVISION	DATE	BY	APP
1.	COMPLETED REPORT FIGURES	30 JAN 2025	K.R.	A.D.B.

DESIGN	K.R
CHECKED	A.D.B.
DRAWN	K.R.
CHECKED	A.D.B.
DATE	JANUARY 2025
SCALE	N.T.S.

1744 NORMAN ROAD RESIDENTIAL,
WINDSOR – T.I.S.

SIGHT LINE ANALYSIS:
SITE ACCESS AT NORMAN ROAD

PROJECT NO. 25–1721
FIGURE NO. 1
OF 1