



June 27th, 2023

JDE Project 23034

Peter Raikes

Raikes Geomatics Inc.
642 Welham Road, Suite 102
Barrie, ON L4N 9A1

**RE: Professional Engineering Services – Sight Distance Analysis
1500 Sandy Bay Road, Town of Penetanguishene**

JD Northcote Engineering Inc. [JD Engineering] is pleased to submit the following sight distance analysis letter associated with the three (3) proposed lot severances located at 1500 Sandy Bay Road, in the Town of Penetanguishene [Town].

1.0 BACKGROUND

The subject lands are located on the west side of Sandy Bay Road, north of Watson Road, in the Town.

The Client is proposing lot severances to create three (3) new lots with private driveway connections to Sandy Bay Road.

2.0 STUDY AREA

Figure 1 shows the location of the subject site and study area intersections in relation to the surrounding area. The Plan of Survey by Raikes Geomatics Inc. is provided in **Appendix**.

The subject site is bound by Sandy Bay Road to the east and south, existing residential lands to the north and vacant land to the west.



JD Engineering
Phone: 705.725.4035
Email: Admin@JDEngineering.ca

Figure 1 – Site Location



3.0 STREET CHARACTERISTICS

Sandy Bay Road is a two-lane local road, under jurisdiction of the Town. Sandy Bay Road has a rural cross-section (asphalt platform and gravel/grassed shoulders) and a posted speed limit of 50km/h.

4.0 TRAFFIC DATA

Detailed traffic speed counts were commissioned by JD Engineering on Sandy Bay Road, between Watson Road and Gordon Road. **Table 1** and **Table 2** summarize the traffic data. Detailed traffic count data can be found in the **Appendix**.

Table 1 – Traffic Volume Data

Count Date	Maximum Directional Traffic Volumes						Source
	AM Peak Hour			PM Peak Hour			
	NB	SB	Total	NB	SB	Total	
Tuesday May 9 th to Thursday May 11 th , 2023	11	6	17	9	8	17	JD Eng.*

*Counts were completed by Ontario Traffic Inc. on behalf of JD Engineering.

Table 2 – Traffic Speed Data

Speed Criteria	Weekly Traffic Volume	
	Northbound	Southbound
1 - 15 km/h	0	0
16 - 23 km/h	0	1
24 - 31 km/h	3	7
32 - 39 km/h	18	20
40 - 47 km/h	81	47
48 - 55 km/h	74	70
56 - 63 km/h	25	32
64 - 71 km/h	9	19
72 - 79 km/h	2	4
Total	212	200
Average	49 km/h	50 km/h
85th Percentile	56 km/h	61 km/h

5.0 SIGHT DISTANCE

The sight distance available at the proposed lot frontages was evaluated based the minimum stopping sight distance requirements as recommended in the Transportation Association of Canada Design Guide for Canadian Roads (2017) [TAC Guidelines].

The 85th percentile speeds of 56km/h and 61km/h noted in **Table 2** have been utilized to evaluate the sightlines to/from the north and south on Sandy Bay Road, respectively. Based on the County's interactive topographic map, the grade of Sandy Bay Road, adjacent the proposed lots is relatively flat.

Table 3 summarizes the sight distance requirements for the proposed lot driveways.

Table 3 – Sight Distance Requirements

Sight Distance Requirement	Sight Distance Requirement	
	To/from South (56km/h)	To/from North (61km/h)
Stopping Sight Distance	77m	87m

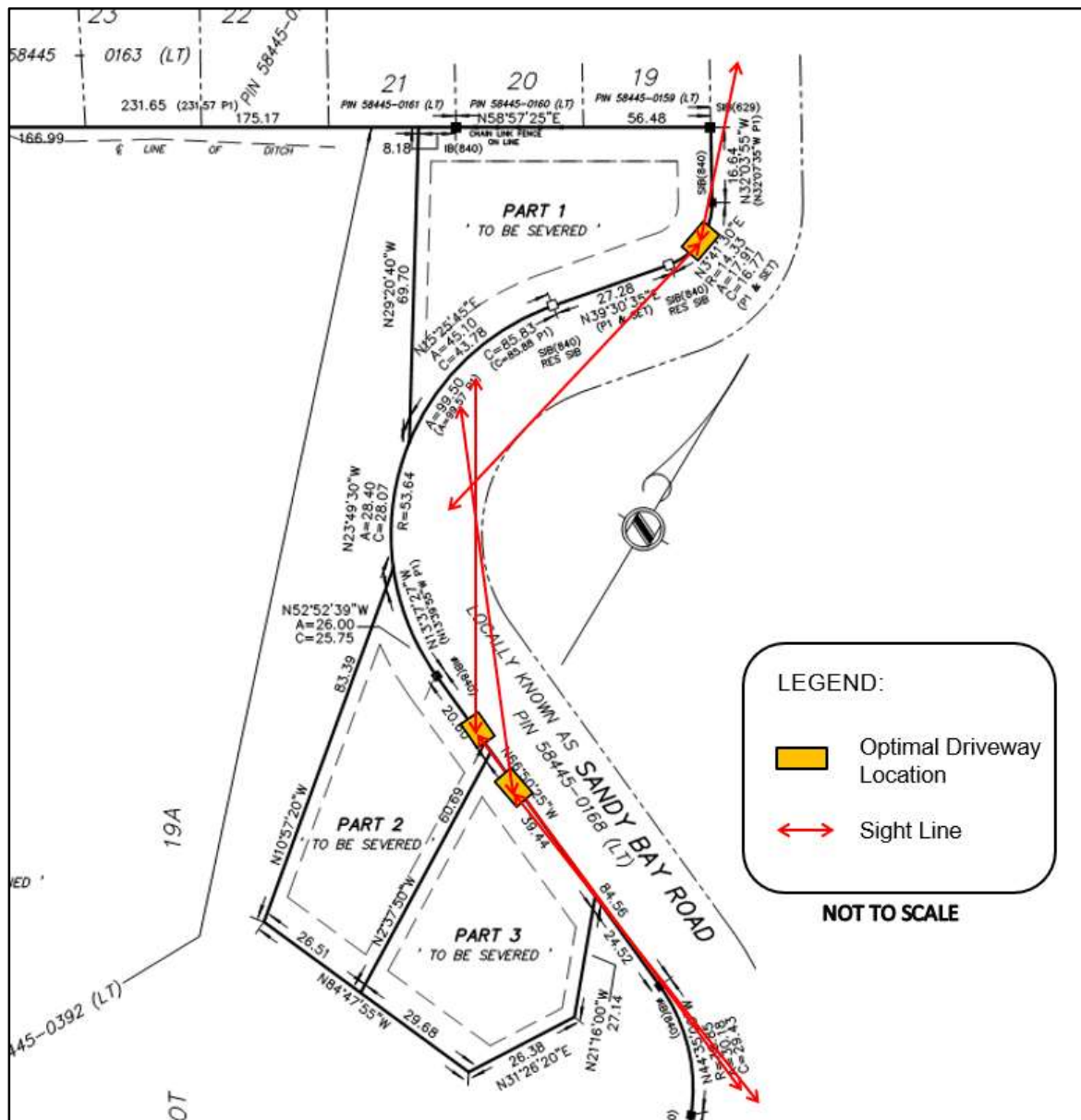
The available sight distances were identified through field observations. The photographs provided in the **Appendix** illustrate the available sight distance from the critical location (driver's eye height of 1.08 metres and object height of 0.6m), as identified in the TAC Guidelines. For each lot frontage, the optimal driveway location was identified, considering the above noted sight distance requirements.

Table 4 summarizes the available sight distances for each proposed lot. **Figure 2** illustrates the optimal driveway locations, from which sight distances were recorded.

Table 4 – Sight Distance Analysis

Location	Available Sight Distance	
	to/from South	to/from North
Lot 1	85m	53m
Lot 2	93m	71.5m
Lot 3	81.5m	76.5m

Figure 2 – Sight Distance and Driveway Locations



As outlined above, the sight distances to the south of each driveway location along Sandy Bay Road are greater than the minimum stopping sight distance requirements as identified in the TAC Guidelines for the 85th percentile speed of 56km/h (77 metres). The sight distances to the north of each driveway location along Sandy Bay Road fall short of the minimum stopping sight distance requirements for the 85th percentile speed of 61km/h (87 metres).

With regards to the Lot 1 driveway location, the sight line to the north was measured at 53 metres, corresponding to a design speed of 42 km/h. It is noted that all traffic approaching the driveway from the north will do so at a reduced speed, having just completed a stop at the Sandy Bay Road / Gordon Drive intersection. Consequently, the sight distance to the north of the proposed Lot 1 driveway is considered sufficient.

The sight line to the north of the Lot 2 driveway location was measured at 71.5 metres, corresponding to a design speed of 53 km/h. This sight line exceeds the sight distance requirement for the posted speed of 50km/h (65 metres) but falls marginally short of the 85th percentile speed of 61km/h (87 metres).

The sight line to the north of the Lot 3 driveway location was measured at 76.5 metres, corresponding to a design speed of 56 km/h. This sight line exceeds the sight distance requirement for the posted speed of 50km/h (65 metres) but falls marginally short of the 85th percentile speed of 61km/h (87 metres).

Based on our review, the sight distance available for the proposed lots are in a reasonable range, falling above posted speed limit design speed where necessary. It is recommended that a “hidden driveway” warning sign be installed on Sandy Bay Road, 100 metres north of the Lot 2 property line and 100 metres south of the Lot 3 property line, to advise approaching traffic of the potential for vehicles entering at the Lot 2 and Lot 3 driveways.

Based on the existing radius of the road (multiple curves with centreline radius of less than 55 metres), the 85th percentile speed would be expected to be around 40km/h, based on typical driver behaviour. For the purpose of this analysis the surveyed 85th percentile speed was used, in order to be conservative. Additional consideration for traffic calming measures along Sandy Bay Road may be considered, at the direction of the Town.

1500 Sandy Bay Road
Town of Penetanguishene

Traffic Letter
Sight Distance Analysis

Date: 06/27/23
Project No.: 23034

We trust that you find this proposal satisfies your requirements.

Yours truly,
JD Northcote Engineering Inc.



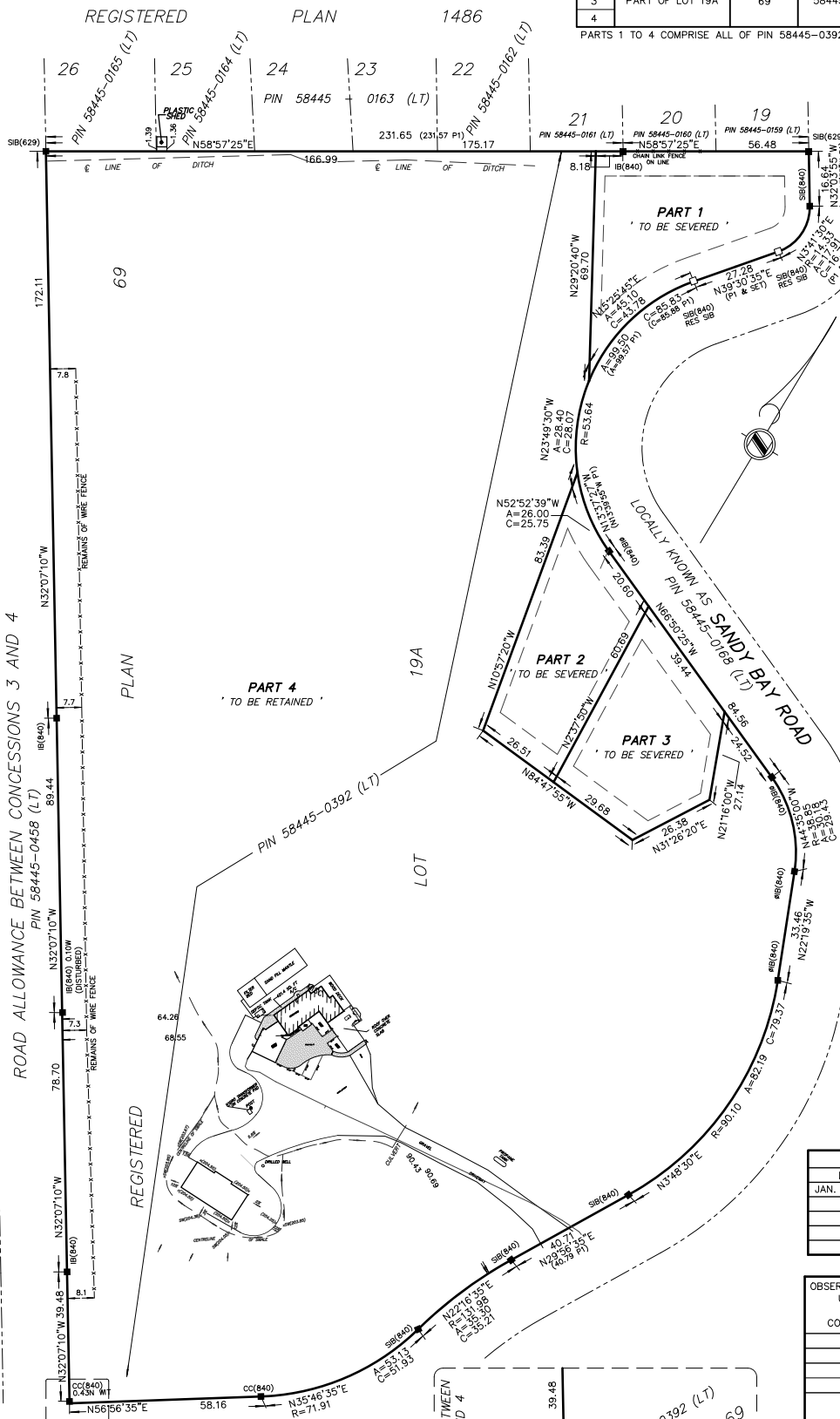
John Northcote, P.Eng.
President



APPENDIX

SCHEDULE			
PART	LOT / BLOCK	PLAN	PIN
1			2676.1
2			2114.1
3	PART OF LOT 19A	69	58445-0392 (LT)
4			63156.8

PARTS 1 TO 4 COMPRISE ALL OF PIN 58445-0392 (LT)



**PLAN OF SURVEY
OF ALL OF
LOT 19A
REGISTERED PLAN 69
(GEOGRAPHIC TOWNSHIP OF TAY)
TOWN OF PENETANGUISHENE
COUNTY OF SIMCOE**

SCALE 1 : 1000

25 20 15 10 5 0 25 50 75 Metres

THE INTENDED PLOT SIZE OF THIS PLAN IS 559mm IN WIDTH BY 432mm IN HEIGHT WHEN PLOTTED AT A SCALE OF 1: 1000.

RAIKES GEOMATICS INC.
2021

METRIC

DISTANCES AND COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

BEARING NOTE

BEARINGS HEREON ARE UTM GRID BEARINGS AND ARE DERIVED FROM OBSERVED REFERENCE POINTS (ORPs) A AND B BY REAL TIME NETWORK (RTN) OBSERVATIONS AND ARE REFERRED TO THE CENTRAL MERIDIAN 81°W IN ZONE 17 BASED ON NAD83 (CSRS) (2010 EPOCH).

BEARING ROTATION

FOR BEARING COMPARISONS, A ROTATION OF 0°48'25" COUNTERCLOCKWISE WAS APPLIED TO PLAN 51R-6181 (P1)

DISTANCE NOTE

DISTANCES SHOWN ON THIS PLAN ARE HORIZONTAL GROUND DISTANCES AND CAN BE CONVERTED TO GRID DISTANCES BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999667.

LEGEND

- DENOTES MONUMENT FOUND
- DENOTES MONUMENT PLANTED
- IB DENOTES IRON BAR
- SIB DENOTES STANDARD IRON BAR
- ØIB DENOTES ROUND IRON BAR
- CC DENOTES CUT CROSS
- Mess. DENOTES MEASURED
- 629 DENOTES V.R. DAVIES, OLS
- 840 DENOTES J.M. HARVEY, OLS
- P1 DENOTES PLAN 51R-6181
- RES DENOTES RESTORED IN ACCORDANCE WITH SECTION 1.5 OF THE NATIONAL STANDARDS FOR THE SURVEY OF CANADA LANDS
- WIT DENOTES WITNESS

ZONING INFORMATION

ZONE DESIGNATION	PERMITTED	PROVIDED PART 1	PROVIDED PART 2	PROVIDED PART 3
RURAL (RU)				
LOT AREA (sq.m.)	2000	2676	2134	2074
LOT FRONTAGE (m)	35.0	> 35.0	35.0	35.0

* MAY REQUIRE FRONTAGE DEFINITION CLARIFICATION

REVISION TABLE

DATE	BY	COMMENT
JAN. 18, 2023		RELEASED FOR ENVIRONMENTAL IMPACT STUDY

OBSERVED REFERENCE POINTS (ORPs) ARE DERIVED FROM GPS OBSERVATIONS USING THE CAN-NET VRS NETWORK, UTM ZONE 17 (81° LONGITUDE) NAD 83 CSRS (1997 EPOCH)
COORDINATES TO URBAN ACCURACY PER SEC. 14 (2) OF OREG 216/10

UTM NAD 83 CSRS COORDINATE TABLE		
POINT ID	NORTHING	EASTING
ORP A	4962005.90	587279.61
ORP B	4962253.89	586998.50

COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN

W:\PROJECTS\PROJECTS_2015\155314\MSCAD\155314_RP2.DWG

DRAWN BY: EKG PROJECT No. 155314
CHECKED BY: PTR



RAIKES
GEOMATICS INC.

Barrie Office: (705) 722 - 6222 642 Welham Road, Barrie, ON L4N 9A1
Midland Office: (705) 526 - 7552 529 Elizabeth Street, Midland, ON L4R 2A2
Email: info@survey4u.com

SURVEYOR'S CERTIFICATE

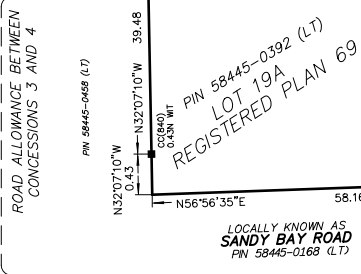
I CERTIFY THAT:

- THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYORS ACT, THE SURVEYORS ACT, THE LAND TITLES ACT, AND THE REGULATIONS MADE UNDER THEM.
- THE SURVEY WAS COMPLETED ON THE ##th DAY OF XXXXX, 2021.

DATE

PETER T. RAIKES, BSc., CLS, MRICS
ONTARIO LAND SURVEYOR

THIS PLAN OF SURVEY RELATES TO AOLS PLAN SUBMISSION FORM NUMBER #####.



DETAIL 'A'
SCALE: NOT TO SCALE

EB[illegible]

EB[illegible]

Ontario Traffic, Inc.
 17705 Leslie St., Unit 6
 Newmarket, Ontario L3Y 3E3
 Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 1
 Station ID: U24
 Sandy Bay Rd between Watson Rd & Gordon
 Dr
 Date Start: 09-May-23
 Date End: 11-May-23

EB

Start Time	1 15	16 23	24 31	32 39	40 47	48 55	56 63	64 71	72 79	80 88	89 96	97 104	105 112	113 120	121 9999	Total	Average (Mean)	85th Percent
05/11/2																		
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
05:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	76	77
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
07:00	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	2	56	68
08:00	0	0	0	0	3	6	2	0	0	0	0	0	0	0	0	11	51	56
09:00	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	4	50	58
10:00	0	0	0	0	5	2	0	0	0	0	0	0	0	0	0	7	46	50
11:00	0	0	1	0	1	1	1	1	0	0	0	0	0	0	0	5	50	65
12 PM	0	0	0	2	2	1	3	1	0	0	0	0	0	0	0	9	51	62
13:00	0	0	0	0	2	4	0	0	0	0	0	0	0	0	0	6	49	53
14:00	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	3	49	59
15:00	0	0	0	0	4	2	0	0	0	0	0	0	0	0	0	6	46	51
16:00	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	3	49	59
17:00	0	0	0	0	3	1	0	0	0	0	0	0	0	0	0	4	46	50
18:00	0	0	0	0	4	3	0	0	0	0	0	0	0	0	0	7	47	52
19:00	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	3	49	53
20:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	44	45
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
22:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	36	37
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
Total	0	0	1	3	33	23	9	3	1	0	0	0	0	0	0	73		
Percent	0.0%	0.0%	1.4%	4.1%	45.2%	31.5%	12.3%	4.1%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak			11:00		10:00	08:00	08:00	07:00	05:00									
Vol.			1		5	6	2	1	1									
PM Peak				12:00	15:00	13:00	12:00	12:00										
Vol.				2	4	4	3	1										
Total	0	0	3	18	81	74	25	9	2	0	0	0	0	0	0	212		

15th Percentile : 40 KPH
 50th Percentile : 47 KPH
 85th Percentile : 56 KPH
 95th Percentile : 63 KPH

Stats
 15 KPH Pace Speed : 40-54 KPH
 Number in Pace : 146
 Percent in Pace : 68.9%
 Number of Vehicles > 40 KPH : 181
 Percent of Vehicles > 40 KPH : 85.3%
 Mean Speed(Average) : 49 KPH

[illegible]

Ontario Traffic, Inc.
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Start Time	1 15	16 23	24 31	32 39	40 47	48 55	56 63	64 71	72 79	80 88	89 96	97 104	105 112	113 120	121 9999	Total	Average (Mean)	85th Percent
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3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	44	45
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
05:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	52	53
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
07:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	44	45
08:00	0	0	0	0	3	1	1	1	0	0	0	0	0	0	0	6	52	63
09:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	52	53
10:00	0	0	0	0	0	2	2	0	1	0	0	0	0	0	0	5	60	73
11:00	0	0	0	1	2	1	0	0	0	0	0	0	0	0	0	4	44	50
12 PM	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	3	49	53
13:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	52	53
14:00	0	0	0	0	2	2	1	1	0	0	0	0	0	0	0	6	53	63
15:00	0	0	0	2	0	4	0	0	0	0	0	0	0	0	0	6	46	53
16:00	0	0	0	0	2	4	1	1	0	0	0	0	0	0	0	8	52	61
17:00	0	0	0	0	2	1	1	1	0	0	0	0	0	0	0	5	53	65
18:00	0	0	0	0	2	4	1	0	0	0	0	0	0	0	0	7	50	54
19:00	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	2	44	52
20:00	0	0	0	0	5	0	1	0	0	0	0	0	0	0	0	6	46	55
21:00	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	52	53
22:00	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2	36	44
23:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	52	53
Total	0	0	1	4	22	28	8	4	1	0	0	0	0	0	0	68		
Percent	0.0%	0.0%	1.5%	5.9%	32.4%	41.2%	11.8%	5.9%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak Vol.				11:00	08:00	10:00	10:00	08:00	10:00									
PM Peak Vol.			22:00	15:00	20:00	15:00	14:00	14:00										
Total	0	1	7	20	47	70	32	19	4	0	0	0	0	0	0	200		

15th Percentile : 39 KPH
 50th Percentile : 49 KPH
 85th Percentile : 61 KPH
 95th Percentile : 68 KPH

Stats 15 KPH Pace Speed : 41-55 KPH
 Number in Pace : 111
 Percent in Pace : 55.5%
 Number of Vehicles > 40 KPH : 166
 Percent of Vehicles > 40 KPH : 83.1%
 Mean Speed(Average) : 50 KPH

[illegible]

Stats	15 KPH Pace Speed :	41-55 KPH
	Number in Pace :	256
	Percent in Pace :	62.1%
	Number of Vehicles > 40 KPH :	347
	Percent of Vehicles > 40 KPH :	84.2%
	Mean Speed(Average) :	49 KPH

PICTURE 1



Picture taken from south on Sandy Bay Road, towards Lot 1 driveway location

PICTURE 2



Picture taken from Lot 1 driveway facing south on Sandy Bay Road

PICTURE 3



Picture taken from Lot 1 driveway facing north on Sandy Bay Road

PICTURE 4



Picture taken from north on Sandy Bay Road, towards Lot 1 driveway location

PICTURE 5



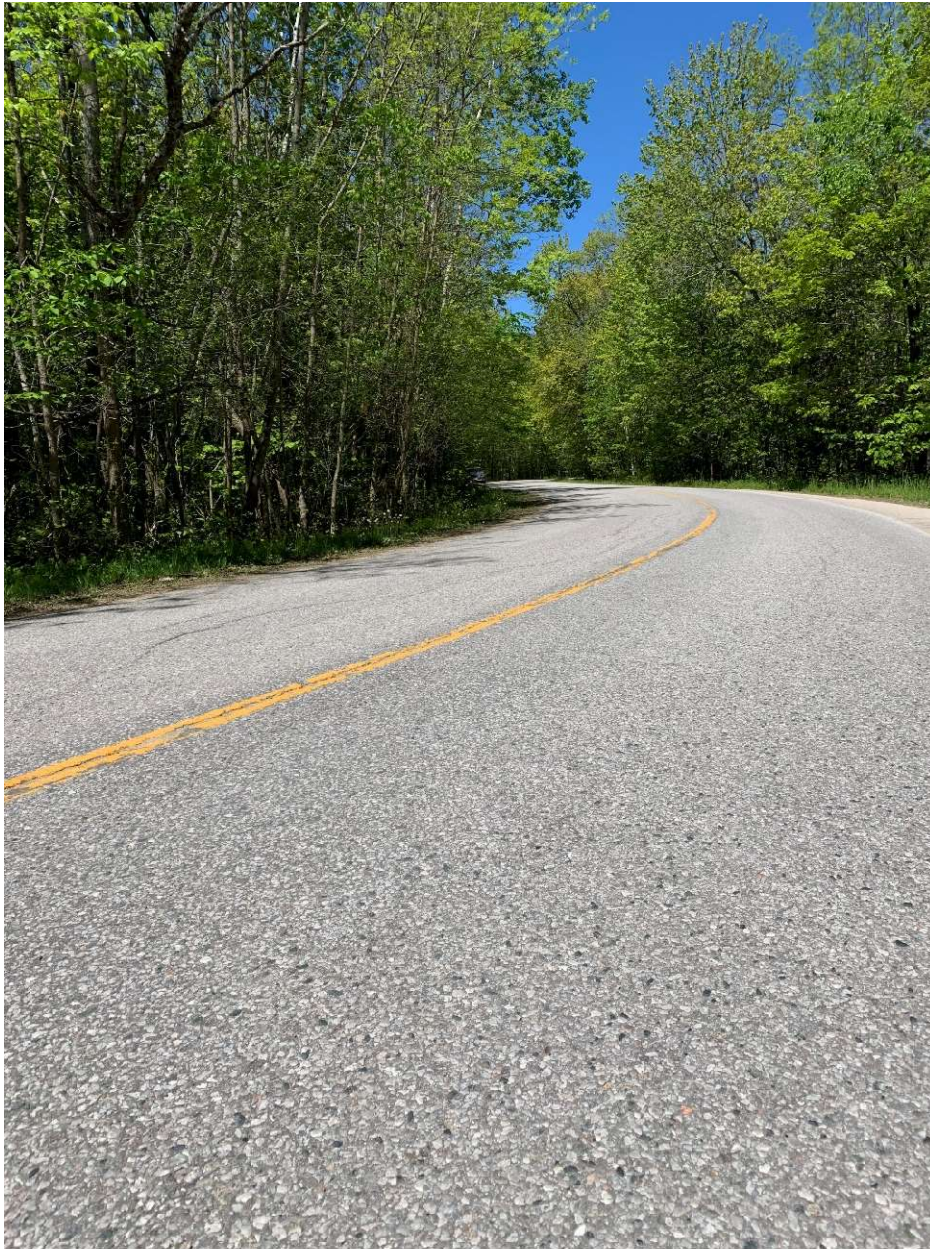
Picture taken from north on Sandy Bay Road, towards Lot 2 driveway location

PICTURE 6



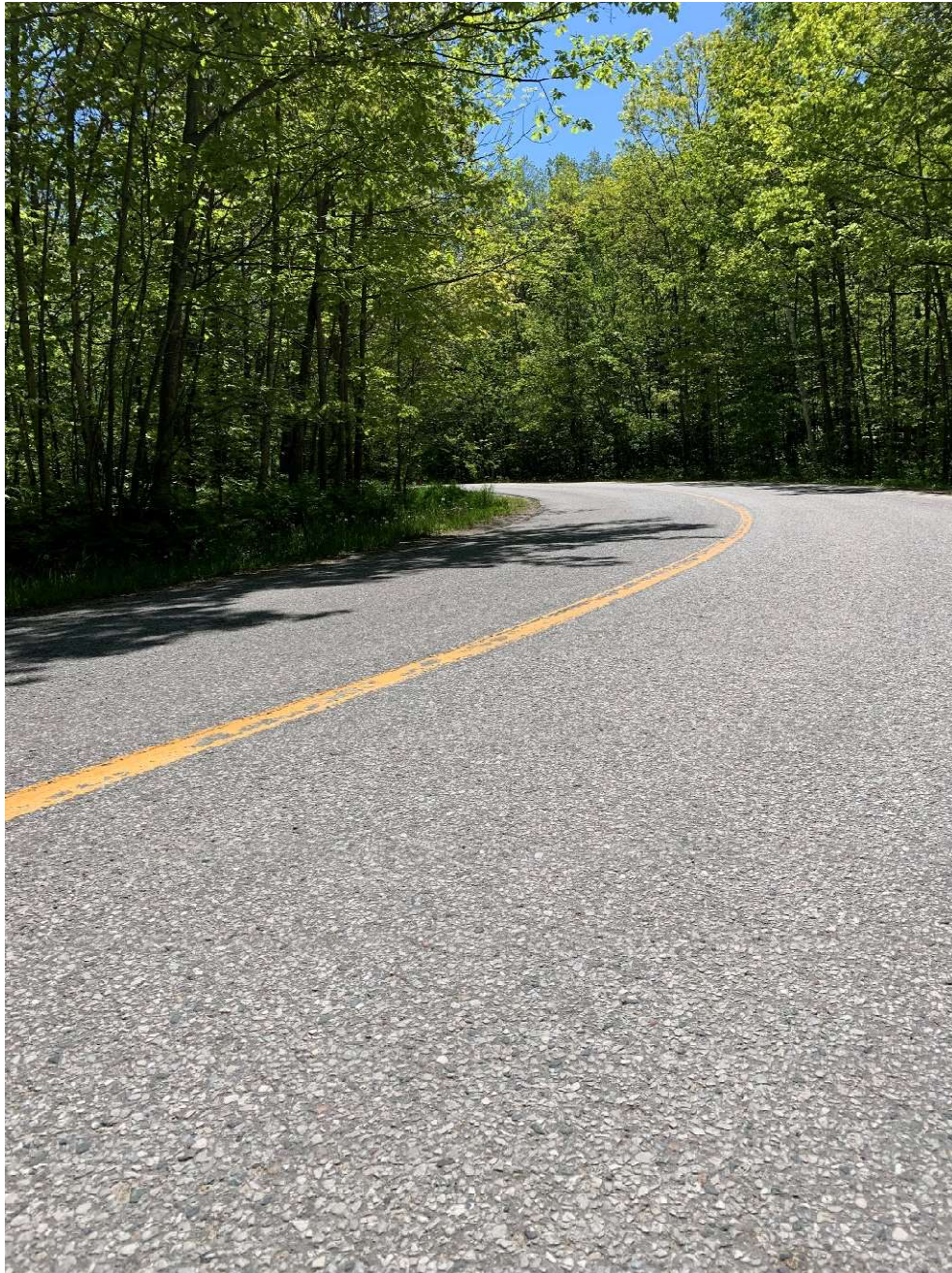
Picture taken from Lot 2 driveway facing south on Sandy Bay Road

PICTURE 7



Picture taken from south on Sandy Bay Road, towards Lot 2 driveway location

PICTURE 8



Picture taken from north on Sandy Bay Road, towards Lot 3 driveway location

PICTURE 9



Picture taken from Lot 3 driveway facing north on Sandy Bay Road