



Our ref: 12663064

February 25, 2025

Vince Barrese
Engineering Technologist
Township of Scugog
vbarrese@scugog.ca

Shahram Almasi, MSc, P.Eng., RSP
Senior Project Coordinator
Works Department
Regional Municipality of Durham
Shahram.Almasi@durham.ca

**Subject: Traffic Impact Brief
2080 Whitfield Road, Honey's Beach
Scugog Township**

Dear Vince and Shahram,

GHD is pleased to provide the following Traffic Brief for the residential development located on south side of Whitfield Road centered on Indian Way in Honey's Beach, Township of Scugog. The proposed development in the current draft plan of subdivision (plan) consists of 26 residential lots is provided in **Appendix A**.

GHD has consulted with Region of Durham and the Township of Scugog to confirm the Terms of Reference of this Traffic Brief. The Terms of Reference and responses / comments from the Region and Township are attached in **Appendix B**.

1. Existing Traffic Data

In reviewing the traffic conditions along Whitfield Road, the existing weekday traffic data for the AM and PM peak hours was referenced from the Turning Movement Counts (TMC) at the intersection of Simcoe Street & Whitfield Road, as provided by the Regional Municipality of Durham's Interactive Traffic Count Map. The traffic data, recorded on September 25, 2024 (Wednesday), reflects the AM peak hour from 7:45 AM to 8:45 AM and the PM peak hour from 4:15 PM to 5:15 PM.

The 2024 weekday AM and PM peak hour traffic volumes along Whitfield Road is illustrated in **Figure 1**. The detailed traffic count data are provided in **Appendix C**. There are 44 and 207 two-way vehicles trips during the weekday AM and PM peak hours, respectively, on Whitfield Road at the east leg of the intersection of Simcoe Street & Whitfield Road. This road has the capacity for 600-700 vehicles per hour. Therefore, the existing traffic is considered low and there is abundance of remaining capacity.

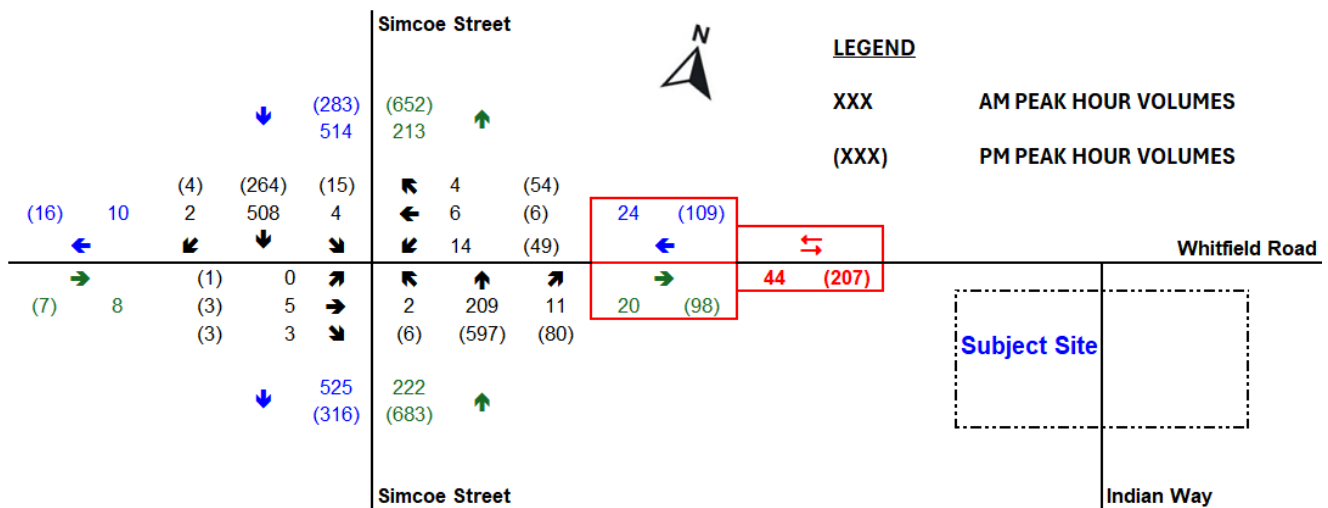


Figure 1 Existing Traffic

2. Development Traffic Trip Generation

Based on the plan, the proposed development consists of 26 residential lots. Hence, the anticipated vehicular trips were estimated based on the trip rates of Single - Family Detached Housing (LUC #210) provided by Trip Generation, 11th Edition, published by the Institute of Transportation Engineers (ITE).

The estimated development trips are summarized in **Table 1** below and the ITE Trip Generation details are provided in **Appendix D**.

Table 1 Development Trip Generation

Land Use	Dwelling Unit	Parameter	Peak Hour Trip Generation					
			Weekly AM Peak			Weekly PM Peak		
			In	Out	Total	In	Out	Total
Single-Family Detached Housing (LUC #210)	26	Average Rate	5	13	18	15	9	24
		Fitted Curve Rate	5	17	23	18	10	28
Adopted Development Traffic Generation			5	17	23	18	10	28

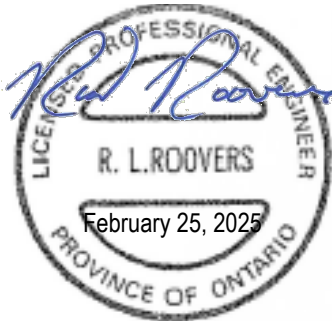
The development trips are expected to be 23 two-way trips during the weekday AM peak hour and 28 two-way trips during the weekday PM peak hour.

The estimated development traffic volume is considered low and will not impact the capacity of the surrounding roads. The existing roads of Whitfield Road and Indian Way is expected to have sufficient remaining or reserve capacity to accommodate this additional development traffic.

If you wish to discuss any aspect of this Traffic Brief, please feel free to contact the undersigned. We trust that the above noted information is suitable for the proposed development at this time.

Sincerely,

GHD



Roland Roovers, P.Eng.
Senior Manager, Transportation Planning
+1 905 752-4348
roland.roovers@ghd.com

A handwritten signature in blue ink, appearing to read "Alex Cheng".

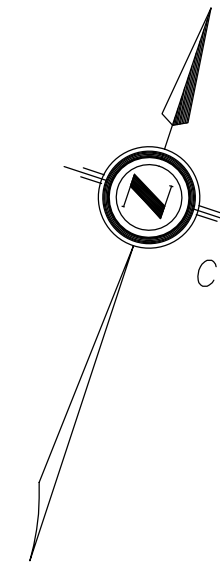
Alex Cheng
Transportation Planner, Transportation Planning
+1 905 814-4424
alex.cheng@ghd.com

RR/AC

Cc: Erin Moir, Honey Heights Developments Ltd.

Appendix A

Draft Plan of Subdivision



LOT 20,
CONCESSION 9
(E.R.S. 18028)
AGRICULTURAL

LOT

21,

CONCESSION

9

ZONING - RURAL RESIDENTIAL (RU)

ZONING (RU) RURAL RESIDENTIAL

ZONING - RURAL RESIDENTIAL (RU)

ZONING RECREATIONAL COMMERCIAL (C5-1)

DURHAM ROAD No. 8

HIGHWAY No. 7

DURHAM ROAD No. 2

DURHAM ROAD No. 57

KEY PLAN
SCALE : NOT TO SCALE

LAND USE SCHEDULE				
PROPOSED USE	LOT/BLK #	# OF LOTS/BLKS	# OF UNITS	AREA (ha)
RESIDENTIAL				
LOW DENSITY RESIDENTIAL SINGLE DETACHED	LOTS 1-26	26	26	17.9545
NON RESIDENTIAL				
DETENTION POND	BLOCK 27	1	0	0.7596
20m DRAINAGE EASEMENT (PART 4, 40R-22323)	BLOCK 28	1	0	0.8898
10.0m MAINTENANCE ROAD EASEMENT (PART 6, 40R-22323)	BLOCK 29	1	0	0.2242
23.0m ROAD ALLOWANCE		0	0	0.5591
TOTALS		29	26	20.3872

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51 OF THE PLANNING ACT	
E NORTH -AGRICULTURE LANDS SOUTH -RESIDENTIAL EAST -RESIDENTIAL WEST -AGRICULTURE LANDS H -INDIVIDUAL DRILLED WELLS I -TILL K -NO MUNICIPAL SERVICES	G -SHOWN ON PLAN

OWNER'S AUTHORIZATION	SURVEYOR'S CERTIFICATE
I/WE BEING THE REGISTERED OWNER OF THE SUBJECT LANDS HEREBY AUTHORIZE CM PLANNING INC. TO PREPARE AND SUBMIT A DRAFT PLAN OF SUBDIVISION FOR APPROVAL SIGNED _____ TITLE _____ DATE _____	I HEREBY CERTIFY THAT THE BOUNDARY OF THE LANDS TO BE SUBDIVIDED AS SHOWN ON THIS PLAN AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN ONTARIO LAND SURVEYORS SIGNED _____ O.L.S. DATE _____

No.	REVISION	DATE	BY	APPROVED

DRAFT PLAN
OF SUBDIVISION

PART OF LOT 21 & 22, CONCESSION 8
FORMERLY IN THE TOWNSHIP OF REACH
NOW IN THE
TOWNSHIP OF SCUGOG
REGIONAL MUNICIPALITY OF DURHAM

D.G. BIDDLE & ASSOCIATES
CONSULTING ENGINEERS & PLANNERS

96 King Street East
Oshawa, Ontario, L1H 1B6
Phone: 905-576-8500
info@dgbidle.com
dgbidle.com

SCALE: 1:2000

DRAWN BY: B.B.

DESIGN BY: M.J.F.

CHECKED BY: M.J.F.

PLOT DATE: 31/10/2024

I12112

DP-1

BLOCK 29
(E.R.S. 2006)
AGRICULTURAL

8

CONCESSION

LOT 20,

LOT

40M - 1280

PLAN

EXISTING

ZONING

CAWKER'S COVE

RESIDENTIAL

RESIDENTIAL

RESIDENTIAL

RESIDENTIAL

RESIDENTIAL

RESIDENTIAL

RESIDENTIAL

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RESIDENTIAL

LOT

21,

CONCESSION

9

ZONING - RURAL RESIDENTIAL (RU)

ZONING (RU) RURAL RESIDENTIAL

ZONING - RURAL RESIDENTIAL (RU)

ZONING RECREATIONAL COMMERCIAL (C5-1)

DURHAM ROAD No. 8

HIGHWAY No. 7

DURHAM ROAD No. 2

DURHAM ROAD No. 57

KEY PLAN

SCALE : NOT TO SCALE

LAND USE SCHEDULE

PROPOSED USE

LOT/BLK #

OF LOTS/BLKS

OF UNITS

AREA (ha)

RESIDENTIAL

LOW DENSITY RESIDENTIAL

SINGLE DETACHED

LOTS 1-26

26

26

17.9545

NON RESIDENTIAL

DETENTION POND

BLOCK 27

1

0

0.7596

20m DRAINAGE EASEMENT

(PART 4, 40R-22323)

BLOCK 28

1

0

0.8898

10.0m MAINTENANCE ROAD

EASEMENT

(PART 6, 40R-22323)

BLOCK 29

1

0

0.2242

23.0m ROAD ALLOWANCE

0

0

0.5591

TOTALS

29

26

20.3872

ADDITIONAL INFORMATION REQUIRED UNDER

SECTION 51 OF THE PLANNING ACT

E NORTH -AGRICULTURE LANDS

SOUTH -RESIDENTIAL

EAST -RESIDENTIAL

WEST -AGRICULTURE LANDS

H -INDIVIDUAL DRILLED WELLS

I -TILL

K -NO MUNICIPAL SERVICES

G -SHOWN ON PLAN

OWNER'S AUTHORIZATION

SURVEYOR'S CERTIFICATE

I/WE

BEING THE REGISTERED OWNER OF THE

SUBJECT LANDS HEREBY AUTHORIZE

CM PLANNING INC.

TO PREPARE AND SUBMIT A DRAFT PLAN

OF SUBDIVISION FOR APPROVAL

SIGNED

TITLE

DATE

I HEREBY CERTIFY THAT THE BOUNDARY

OF THE LANDS TO BE SUBDIVIDED AS

SHOWN ON THIS PLAN AND THEIR

RELATIONSHIP TO ADJACENT LANDS ARE

ACCURATELY AND CORRECTLY SHOWN

ONTARIO LAND SURVEYORS

SIGNED

O.L.S.

DATE

No.

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X:\STAFF\JOB FILES\1200\12112 DRAWINGS\12112 CONCEPTUAL DEVELOPMENT AND PRELIMINARY ENGINEERING\12112-20241030- DRAFT PLAN OF SUBDIVISION.DWG

Appendix B

Terms of Reference



Our ref: 12663064

February 10, 2025

Valerie Hendry
Manager of Planning
Township of Scugog
vhendry@scugog.ca

Shahram Almasi, MSc, P.Eng., RSP
Senior Project Coordinator
Works Department
Regional Municipality of Durham
Shahram.Almasi@durham.ca

**Subject: Terms of Reference for Traffic Impact Brief
2080 Whitfield Road, Honey's Beach
Scugog Township**

Dear Valerie and Shahram,

GHD is pleased to provide the following Terms of Reference (ToR) to prepare a Traffic Impact Study for the residential development located on south side of Whitfield Road centered on Indian Way in Honey's Beach, Scugog Township. The proposed development in the current draft plan of subdivision (plan) consists of 26 residential lots. The current plan is provided in **Appendix A**.

Based on a review the proposed draft plan, GHD have prepared the following scope of work.

1. Scope of Work / Terms of Reference

Task 1. Project Initiation

This scope of work / Terms of Reference (ToR) is submitted to the reviewing/approving agencies to confirm project requirements. Based on the size of the development, 26 residential lots, GHD believes that a traffic impact brief is more appropriate.

GHD will confirm all site statistics (example: number of lots) with the Project Team and obtain the latest digital version (in AutoCAD and PDF) of the plan prior to commencing the traffic analysis. The current plan is attached in **Appendix A**.

Task 2. Traffic Impact Study / Traffic Impact Brief

Development Site Traffic

GHD will estimate the subject development traffic of a typical weekday AM and PM peak hour based on the information contained in the ITE Trip Generation, 11th Edition. Based on the number of residential lots (26 lots), GHD anticipates that the traffic volumes during the weekday peak hours will be less than 30 two-way vehicle trips. The volume is very low and will not impact the capacity of the surrounding roads. The existing roads of Whitfield Road and Indian Way significantly higher reserve capacity to accommodate this additional development traffic. No further traffic assessment is necessary.

Task 3. Documentation

GHD will prepare a draft letter of the Traffic Impact Brief incorporating the above tasks for review. Once the Project Team have reviewed and approved, the final version of the letter will be prepared and stamped by a Professional Engineer.

If you wish to discuss any aspect of these ToR, please feel free to contact the undersigned at your earliest convenience. We trust that the above noted information is suitable for your purposes at this time and look forward to working with you on this project.

Sincerely,

GHD

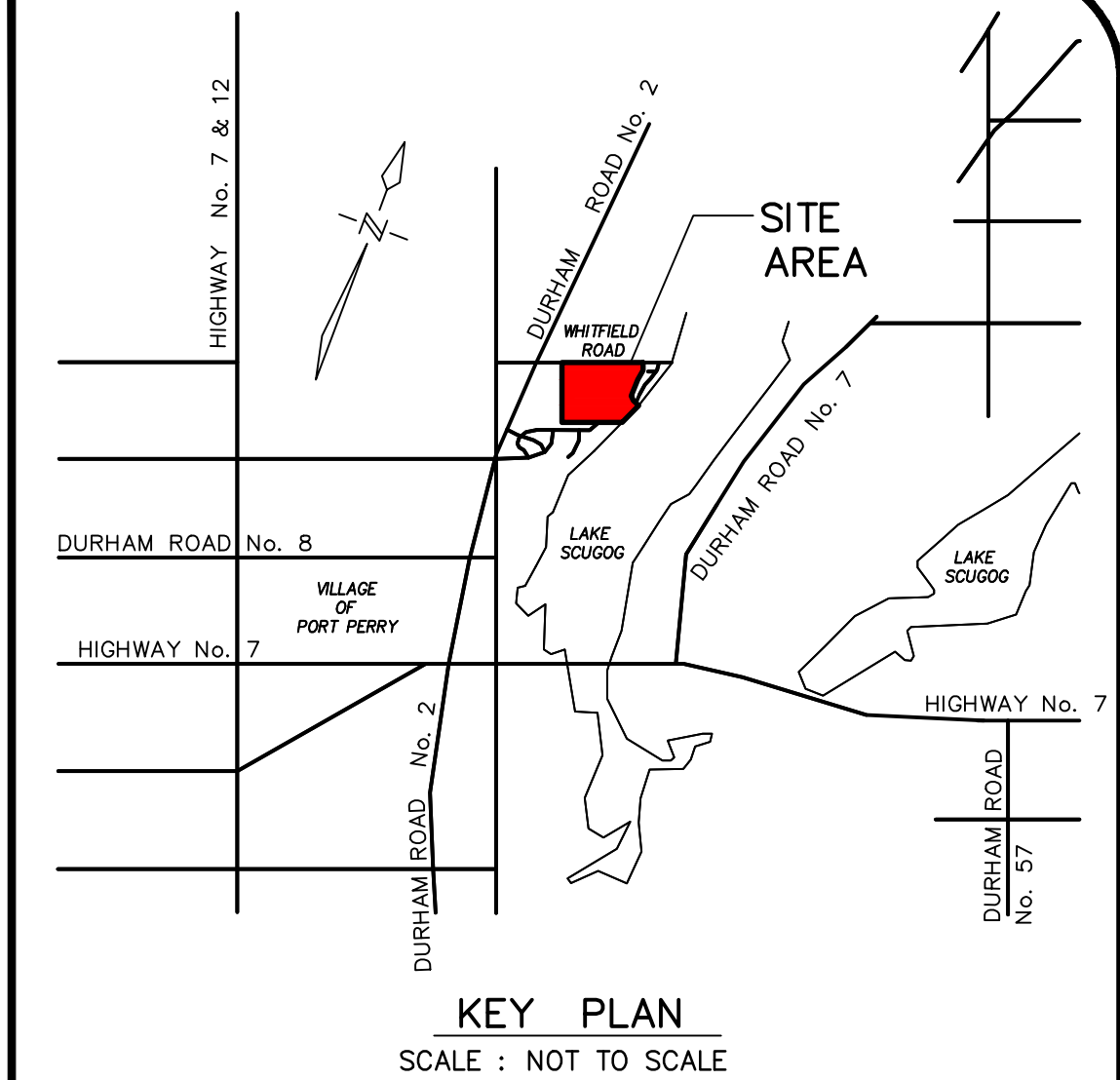
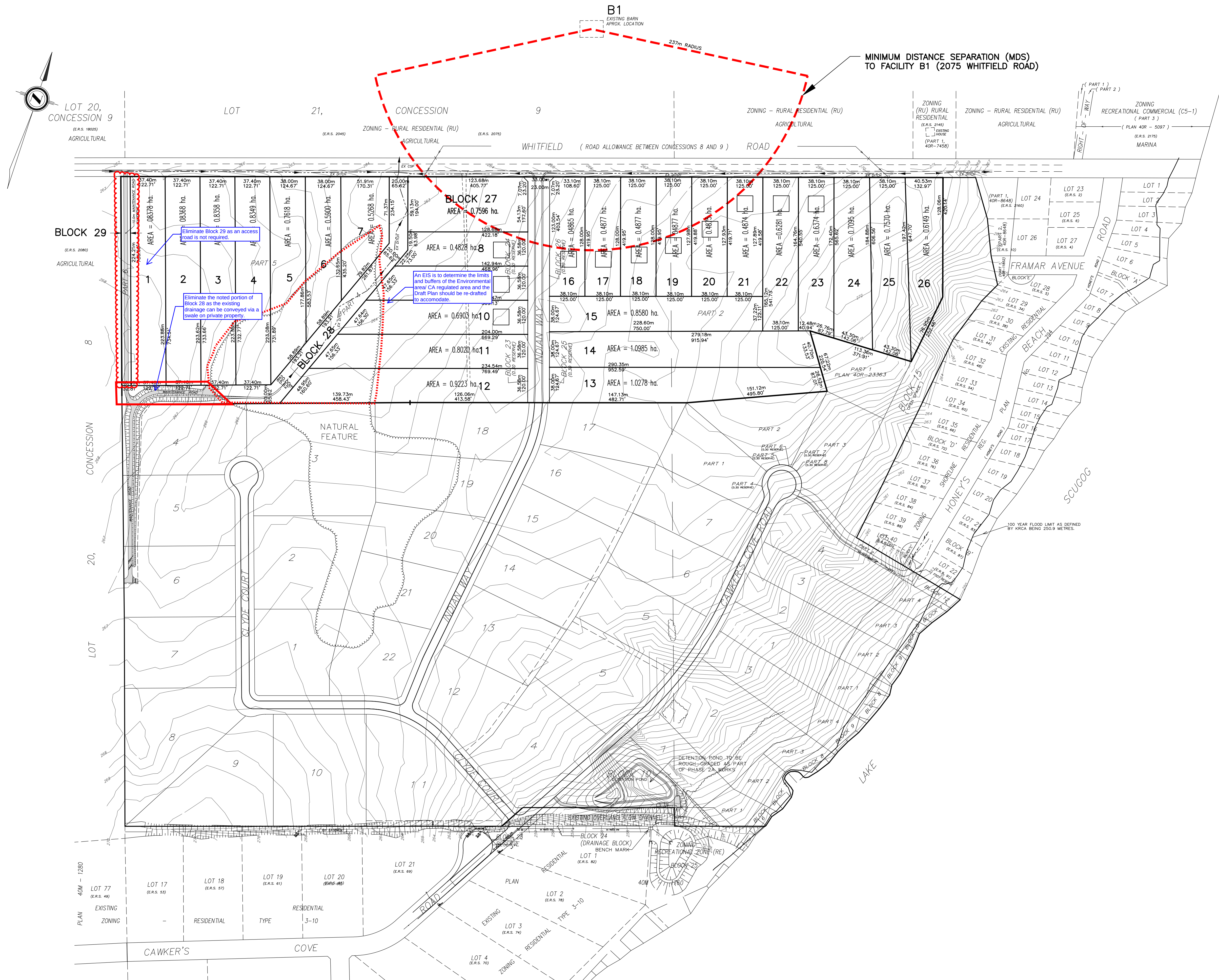


Roland Roovers, P.Eng.
Senior Manager, Transportation Planning
+1 905 752-4348
roland.roovers@ghd.com

RR/AC



Alex Cheng
Transportation Planner
+1 905 814-4424
alex.cheng@ghd.com



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DESIGN BY:	M.J.F.	
CHECKED BY:	M.J.F.	
PLOT DATE:	31/10/2024	

X:\STAFF\208 FILES\1200\12112 DRAWINGS\12112 CONCEPTUAL DEVELOPMENT AND PRELIMINARY ENGINEERING\12112-20241030- DRAFT PLAN OF SUBDIVISION.DWG

Alex Cheng

From: Shahram Almasi <Shahram.Almasi@durham.ca>
Sent: Wednesday, February 19, 2025 8:25 AM
To: Alex Cheng; Valerie Hendry
Cc: Doug Robertson (InTouch); Roland Roovers
Subject: RE: 2080 Whitfield Road, Honey's Beach - ToR review

Hi Alex,

Apologies for the late response. We have reviewed the Terms of Reference for the development consisting of 26 residential lots at 2080 Whitfield Road, Scugog. Given the scale of the development, we anticipate minimal impact on Regional infrastructure and will defer to the Township for comments.

Please let us know if you need any further clarification.

Best regards,
Shahram

From: Alex Cheng <Alex.Cheng@ghd.com>
Sent: February 18, 2025 4:05 PM
To: Valerie Hendry <vhendry@scugog.ca>; Shahram Almasi <Shahram.Almasi@durham.ca>
Cc: Doug Robertson <Doug.Robertson@Durham.ca>; Roland Roovers <Roland.Roovers@ghd.com>
Subject: RE: 2080 Whitfield Road, Honey's Beach - ToR review

⚠ CAUTION: This email is from an external source. Verify sender before opening links and attachments. **⚠**

Hi Valerie and Shahram,

Just following up to confirm that you received my email below regarding the ToR for 2080 Whitfield Road, Honey's Beach, dated on Feb 10, 2025. Could you kindly provide an update on when we can expect approval or comments on the ToR?

Thanks and regards,
Alex Cheng
Transportation Planner

GHD

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140 Allstate Parkway, Suite 210, Markham ON L3R 5Y8, Canada

D +1 905 814 4424 | E Alex.Cheng@ghd.com

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Connect



Please consider the environment before printing this email

From: Alex Cheng
Sent: Monday, February 10, 2025 6:53 PM
To: vhendry@scugog.ca; Shahram.Almasi@durham.ca
Cc: Doug Robertson (InTouch) <doug.robertson@durham.ca>; Roland Roovers <Roland.Roovers@ghd.com>
Subject: 2080 Whitfield Road, Honey's Beach - ToR review

Hi Karen, Doug,

Attached please kindly find our Terms of Reference for the development at 2080 Whitfield Road, Honey's Beach for your review and acceptance.

Thank you and regards,
Alex Cheng
Transportation Planner

GHD

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140 Allstate Parkway, Suite 210, Markham ON L3R 5Y8, Canada

D +1 905 814 4424 | E Alex.Cheng@ghd.com

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Alex Cheng

From: Vince Barrese <vbarrese@scugog.ca>
Sent: Thursday, February 20, 2025 3:45 PM
To: Alex Cheng
Cc: Valerie Hendry; 'Bruce Alexander'
Subject: Re: 2080 Whitfield Road, Honey's Beach - ToR review

You don't often get email from vbarrese@scugog.ca. [Learn why this is important](#)

Hi Alex,

Our peer engineer has reviewed the Traffic Impact Study (TIS) Terms of Reference and finds it satisfactory, except for one item. The TOR states that traffic is low on Whitfield Road, but the TIS will need to provide evidence to support this statement with a traffic volume count.

Please ensure that this is addressed in the TIS. Let me know if you have any questions.

Thank you,

Vince Barrese
Engineering Technologist
P: (905) 985-4303 ext. 175

Township of Scugog, 181 Perry St. P.O. Box 780, Port Perry, ON L9L 1A7
Website: www.scugog.ca
vbarrese@scugog.ca

From: Alex Cheng <Alex.Cheng@ghd.com>
Sent: Monday, February 10, 2025 6:53 PM
To: Valerie Hendry <vhendry@scugog.ca>; Shahram.Almasi@durham.ca
Cc: Doug Robertson (InTouch) <doug.robertson@durham.ca>; Roland Roovers <Roland.Roovers@ghd.com>
Subject: 2080 Whitfield Road, Honey's Beach - ToR review

You don't often get email from alex.cheng@ghd.com. [Learn why this is important](#)

Hi Karen, Doug,

Attached please kindly find our Terms of Reference for the development at 2080 Whitfield Road, Honey's Beach for your review and acceptance.

Thank you and regards,
Alex Cheng
Transportation Planner

GHD
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Appendix C

Traffic Data from Region

Simcoe St (R.R.02) @ Whitfield Rd

09/25/2024, Wed

Total Count 8 hours*				↑ 6% 133	Ped. 5			
				3% 123				
				13% 2				
				13				
				4099				
Ped. 0								
	←	5	100	↖	Cars 303	Trucks 7	Trucks % PHF 2%	
	10%	1	9	↗	52	3	5%	
	10%	4	36	→	379	14	4%	
	7%	3	39	↘	718	22	→	
PHF	Trucks %	Trucks	Cars					
				4417	549			1 Ped. ↕
				3787	10			
				125	2%			
				0	3%			
				0%	2%			
				↓				
				Ped. 11				

TMC 15 Min Report

Simcoe St (R.R.02) @ Whitfield Rd

TMC No: 0025600000 Intersection ID: 1035 Count ID: 35702072501 Count Date: 09/25/2024, Wed

Time	NORTH APPROACH										EAST APPROACH										SOUTH APPROACH										WEST APPROACH										Total
	Cars	Trucks			Heavies			Ped	Cars	Trucks			Heavies			Ped	Cars	Trucks			Heavies			Ped	Cars	Trucks			Heavies			Ped									
Left	Thru	Right	Left	Thru	Right	Left	Thru		Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left		Thru	Right	Left	Thru	Right	Left	Thru		Right	Left	Thru	Right	Ped				
Period 1																																									
05:00	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*						
05:15	0*	38*	0*	0*	3*	0*	0*	0*	0*	0*	0*	1*	0*	0*	0*	0*	0*	0*	0*	0*	0*	2*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	44*						
05:30	0*	58*	0*	0*	2*	0*	0*	0*	0*	0*	0*	1*	0*	0*	0*	0*	0*	0*	0*	0*	10*	1*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	72*						
05:45	0*	56*	0*	0*	1*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	5*	0*	0*	1*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	63*						
06:00	1	79	0	0	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	10	1	0	0	0	0	0	0	0	0	0	0	0	0	95						
06:15	0	81	0	0	2	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	12	0	0	1	0	0	0	0	0	0	0	0	0	0	99						
06:30	0	113	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	14	1	0	0	0	0	0	0	0	0	0	0	0	0	130						
06:45	1	107	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	19	3	0	1	0	0	0	0	0	0	1	0	0	0	134						
07:00	2	91	0	1	0	0	0	0	0	0	0	1	0	2	0	0	1	0	0	0	21	3	0	1	0	0	0	0	0	0	0	0	0	0	123						
07:15	1	101	0	0	4	0	0	0	0	0	0	5	1	0	0	0	1	0	0	0	31	3	0	0	0	0	0	0	0	0	1	0	0	1	149						
07:30	1	142	0	1	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	29	0	0	1	0	0	0	0	0	0	1	0	0	0	178						
07:45	0	145	0	0	2	0	0	0	0	0	0	4	0	2	0	0	0	0	0	0	42	3	0	3	0	0	0	0	0	0	0	0	0	0	201						
08:00	3	129	2	0	7	0	0	0	0	0	0	3	1	1	0	0	0	0	0	1	39	6	0	2	0	0	0	0	0	0	0	0	0	0	194						
08:15	1	95	0	0	5	0	0	0	0	0	0	4	3	1	0	0	0	0	0	1	52	1	0	5	1	0	0	0	0	0	2	2	0	0	173						
08:30	0	123	0	0	2	0	0	0	0	1	3	2	0	0	0	0	0	0	0	0	58	0	0	8	0	0	0	0	0	0	2	1	0	1	201						
08:45	0	88	0	2	6	0	0	0	0	1	6	0	0	0	0	0	0	0	0	0	49	1	0	3	1	0	0	0	8	0	0	2	0	0	167						
09:00	3	124	0	1	2	0	0	0	0	1	4	0	1	1	0	0	0	0	0	1	46	2	0	3	0	0	0	0	0	0	0	0	0	0	192						
09:15	4	108	0	0	1	0	0	0	0	0	3	0	0	1	0	1	0	0	0	4	38	5	0	2	0	0	0	0	0	0	1	3	0	0	171						
09:30	2	82	0	0	0	0	0	0	0	0	4	1	6	0	0	0	0	0	0	0	50	10	0	7	0	0	0	0	0	0	1	0	0	0	163						
09:45	4	90	0	0	3	0	0	0	0	0	8	0	4	0	0	0	0	0	0	1	40	12	0	4	0	0	0	0	0	0	1	0	0	0	167						
10:00	3	85	0	0	3	0	0	0	0	0	4	0	2	0	0	0	0	0	0	1	36	7	0	0	0	0	0	0	0	0	0	0	0	0	141						
10:15	2	54	0	0	4	0	0	0	0	0	7	0	6	0	0	0	0	0	0	0	47	5	0	1	0	0	0	0	0	0	0	0	1	0	127						
10:30	5	78	1	0	3	0	0	0	0	2	7	2	6	1	0	0	0	0	0	0	62	10	0	4	1	0	0	0	0	0	0	1	0	0	183						
10:45	4	85	0	0	1	0	0	0	0	0	9	0	1	1	0	0	0	0	0	0	35	12	0	2	0	0	0	0	0	0	1	1	0	1	154						
Period 2																																									
11:00	6	86	0	0	3	0	0	0	0	0	8	2	3	0	0	0	0	0	0	1	42	13	0	5	0	0	0	0	0	0	0	1	0	0	170						
11:15	5	79	0	0	0	0	0	0	0	0	11	1	8	1	0	0	0	0	0	1	57	11	0	0	0	0	0	0	0	0	0	0	0	0	174						
11:30	2	67	0	0	1	0	0	0	0	0	7	2	4	0	0	0	0	0	0	0	68	14	0	4	1	0	0	0	0	0	3	0	0	0	173						
11:45	3	70	0	0	3	0	0	0	0	0	10	0	8	0	0	0	0	0	0	0	50	13	0	2	0	0	0	0	1	0	0	1	0	0	161						
12:00	4	75	0	1	7	0	0	0	0	0	14	2	8	1	0	0	0	0	0	0	49	16	0	1	1	0	0	0	0	1	1	1	0	0	182						
12:15	3	61	0	0	4	0	0	0	0	0	15	0	5	2	0	1	0	0	0	0	55	24	0	4	3	0	0	0	0	0	0	3	0	0	180						
12:30	1	54	1	0	1	0	0	0	0	0	13	2	10	1	0	0	0	0	0	1	66	15	0	7	1	0	0	0	0	0	0	2	0	0	175						
12:45	4	69	0	0	2	0	0	0	0	0	9	2	9	0	0	0	0	0	0	2	58	11	0	3	0	0	0	0	1	0	1	1	0	0	172						
13:00	2	78	0	0	4	0	0	0	0	0	12	2	5	1	0	0	0	0	0	1	64	19	0	1	0	0	0	0	1	0	2	1	0	0	193						
13:15	4*	63*	0*	0*	1*	0*	0*	0*	0*	0*	11*	0*	9*	0*	0*	0*	0*	0*	0*	1*	61*	11*	0*	5*	1*	0*	0*	0*	0*	0*	0*	1*	0*	0*	168*						
13:30	5*	68*	0*	0*	1*	0*	0*	0*	0*	0*	11*	0*	4*	1*	0*	0*	0*	0*	0*	0*	72*	21*	0*	3*	1*	0*	0*	0*	0*	0*	0*	1*	0*	0*	188*						
13:45	1*	75*	0*	0*	5*	0*	0*	0*	0*	0*	6*	4*	13*	1*	0*	0*	0*	0*	0*	1*	72*	18*	0*	1*	0*	0*	0*	0*	0*	0*	2*	2*	0*	0*	201*						
Period 3																																									
14:00	1	57	0	0	2	0	0	0	0	0	7	2	8	0	0	0	0	0	0	1	68	16	0	3	0	0	0	0	0	0	0	0	0	0	165						
14:15	5	60	1	0	4	0	0	0	0	0	15	1	9	1	0	0	0	0	0	1	79	23	0	2	1	0	0	0	0	0	0	0	0	0	202						
14:30	1	75	1	0	2	0	0	0	0	0	10	2	13	1	1	1	0	0	0	0	59	22	0	3	0	0	0	0	0	0	0	0	0	0	191						
14:45	1	51	0	0	2	0	0	0	0	0	9	3	12	0	0	0	0	0	0	0	85	19	0	2	0	0	0	0	0	1	1	0	0	0	187						
15:00	5	67	0	0	4	0	0	0	0	0	9	4	10	0	0	0	0	0	0	0	82	18	0	3	0	0	0	0	0	0	2	2	0	0	206						
15:15	6	69	0	0	7	0	0	0	0	0	11	2	10	0	0	1	0	0	0	0	112	16	0	3	0	0	0	0	0	0	1	1	0	0	239						
15:30	4	58	1	1	2	0	0	0	0	0	12	3	8	1	0	0	0	0	0	0	86	13	0	3	0	0	0	0	0	0	2	1	0	0	195						
15:45	3	62	0	0	3	0	0	0	0	0	12	1	5	0	0	0	0	0	0	0	111	16	0	2	0	0	0	0	1	1	2	0	0	0	219						
16:00	11	61	0	0	1	0	0	0	0	0	6	0	10	0	0	0	0	0	0	3	120	12	0	2	0	0	0	0	0	3	1	3	0	0	233						
16:15	2	45	0	0	2	1	0	0	0	0	16	3	16	0	0	1	0	0	0	2	151	20	0	5	0	0	0	0	0	0	1	0	0	0	265						
16:30	6	75	1	0	2	0	0	0	0	0</																															

Appendix D

ITE Trip Generation

ITE Trip Generation

26 Residential lots

Weekday AM Peak Hour

ITETripGen Web-based App

[? Help](#) [Will Maria](#) [Sign out](#)

Graph Look Up

[Query](#) [Filter](#)

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
210

LAND USE GROUP:
(200-299) Residential

LAND USE:
210 - Single-Family Detached Housing

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

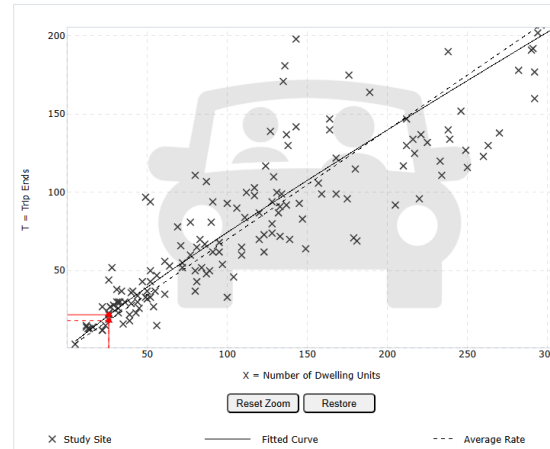
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
26 [Calculate](#)

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:	Single-Family Detached Housing (210) Click for Description and Data Plots
Independent Variable:	Dwelling Units
Time Period:	Weekday Peak Hour of Adjacent Street Traffic One Hour Between 7 and 9 a.m.
Setting/Location:	General Urban/Suburban
Trip Type:	Vehicle
Number of Studies:	192
Avg. Num. of Dwelling Units:	226
Average Rate:	0.70
Range of Rates:	0.27 - 2.27
Standard Deviation:	0.24
Fitted Curve Equation:	$\ln(T) = 0.91 \ln(X) + 0.12$
R ² :	0.90
Directional Distribution:	25% entering, 75% exiting
Calculated Trip Ends:	Average Rate: 18 (Total), 5 (Entry), 13 (Exit) Fitted Curve: 22 (Total), 5 (Entry), 17 (Exit)

Weekday PM Peak Hour

ITETripGen Web-based App

[? Help](#) [Will Maria](#) [Sign out](#)

Graph Look Up

[Query](#) [Filter](#)

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
210

LAND USE GROUP:
(200-299) Residential

LAND USE:
210 - Single-Family Detached Housing

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

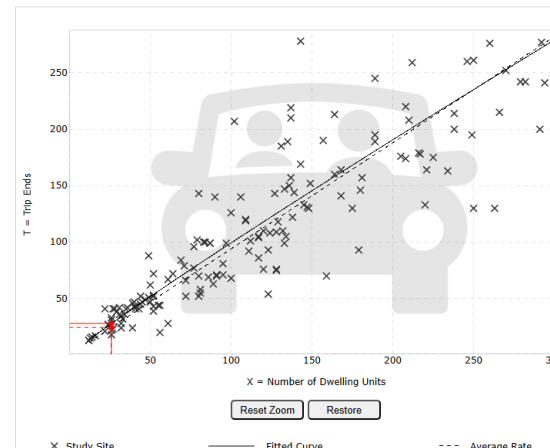
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
26 [Calculate](#)

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:	Single-Family Detached Housing (210) Click for Description and Data Plots
Independent Variable:	Dwelling Units
Time Period:	Weekday Peak Hour of Adjacent Street Traffic One Hour Between 4 and 6 p.m.
Setting/Location:	General Urban/Suburban
Trip Type:	Vehicle
Number of Studies:	208
Avg. Num. of Dwelling Units:	248
Average Rate:	0.94
Range of Rates:	0.35 - 2.98
Standard Deviation:	0.31
Fitted Curve Equation:	$\ln(T) = 0.94 \ln(X) + 0.27$
R ² :	0.92
Directional Distribution:	63% entering, 37% exiting
Calculated Trip Ends:	Average Rate: 24 (Total), 15 (Entry), 9 (Exit) Fitted Curve: 28 (Total), 18 (Entry), 10 (Exit)