

TRAFFIC IMPACT BRIEF

**PROPOSED 268499 ONTARIO
LIMITED RESIDENTIAL
DEVELOPMENT - 218026,
PORT PERRY TOWNSHIP OF
SCUGOG**

FINAL ▪ OCTOBER 2021

REPORT PREPARED FOR

268499 ONTARIO LIMITED
23 LESLIE ROAD, SUITE 111
TORONTO, ON M3B 3P6

REPORT PREPARED BY

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TMIG PROJECT NUMBER 10315



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1 INTRODUCTION

The Municipal Infrastructure Group Ltd. (TMIG), a T.Y. Lin International Company, was retained by 268499 Ontario Limited to prepare a Traffic Impact Brief in support of a Rezoning, Draft Plan of Subdivision and Site Plan Applications for a proposed residential development located on the northwest corner of Old Simcoe Road and Chimney Hill Way in Port Perry, Township of Scugog. The study objectives are as follows:

- Review the existing and projected operations at the intersection of Old Simcoe Road and Chimney Hill Way and site access intersection to Chimney Hill Way.
- Determine the future impacts to the study intersections due to the proposed development.
- Report any operational deficiencies and recommend mitigating measures, if necessary to improve the traffic operations.
- Review the proposed parking configuration to ensure that it is appropriate and compatible with relevant standards and vehicles.
- Review emergency and waste collection vehicle access to the lands.

Comments from the Town were received and have informed the general work program for this brief. The pre-consultation correspondence has been included in **Appendix A**.

Note that the proposed development was previously the subject of a preliminary access review, for which an Access Feasibility Review letter was submitted to the municipality dated June 2021 (included in **Appendix C** for reference). The following traffic impact brief will build upon the findings of the review.

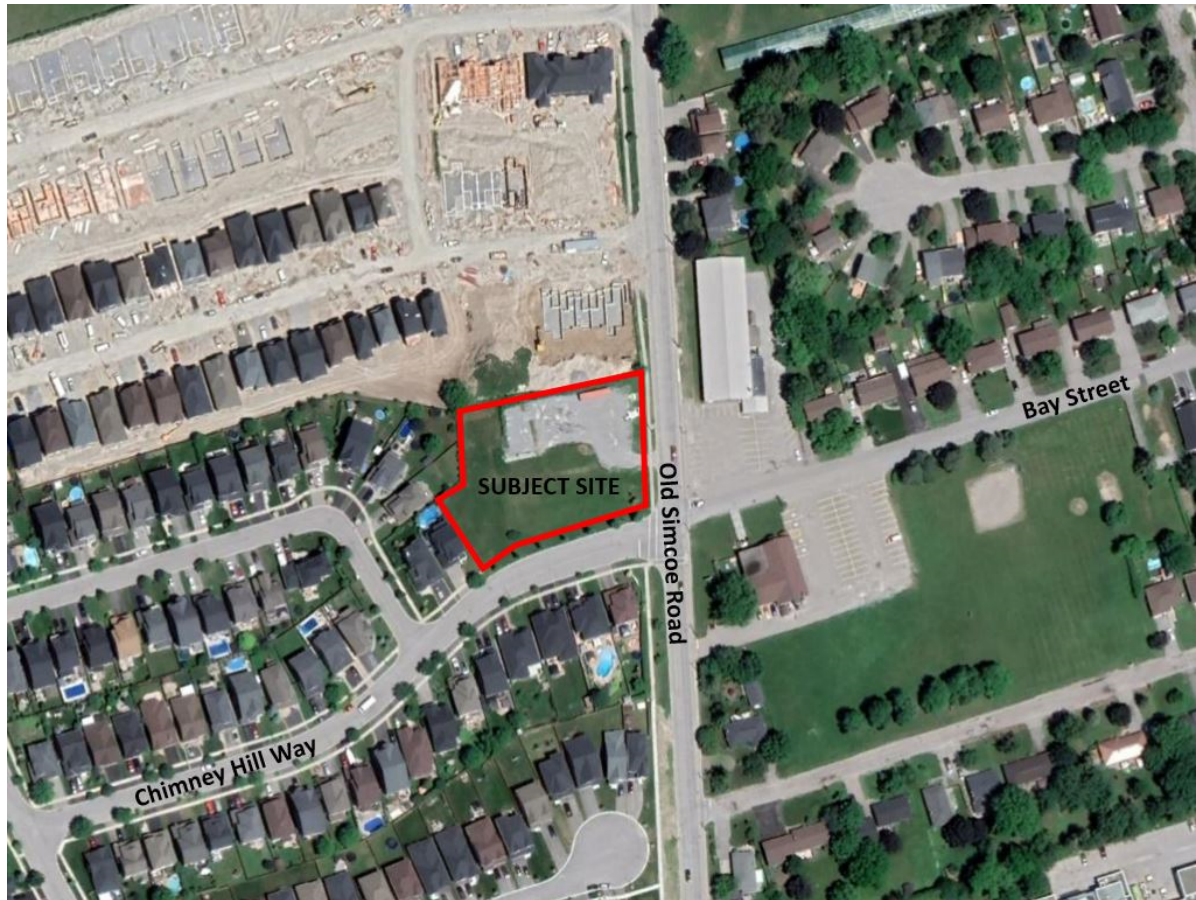
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2 SITE CHARACTERISTICS

2.1 Site Location

The proposed residential development is located on 0.42 hectares (ha) of land on the northwest corner of Chimney Hill Way and Old Simcoe Road in Port Perry, Township of Scugog. The subject site is bounded by Chimney Hill Way to the south, Old Simcoe Road to the east, and residential housing to the north and west. Location of the site and the surrounding road network can be seen in **Figure 2-1**.

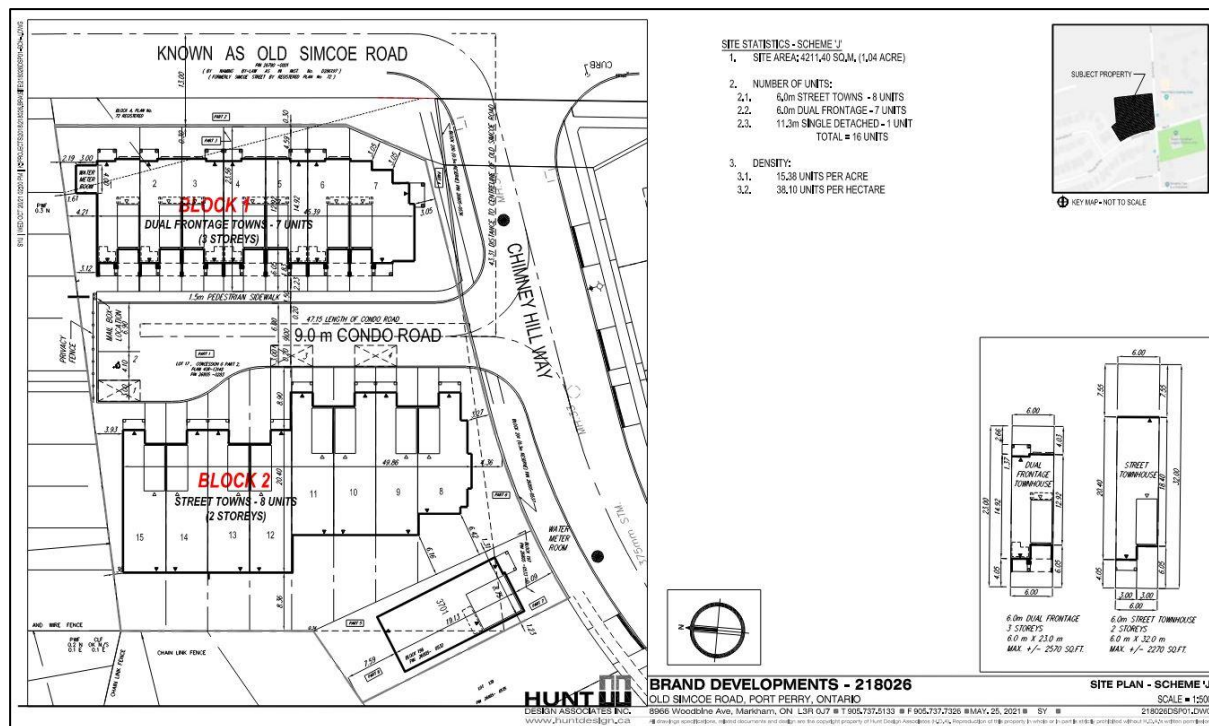
Figure 2-1 **Site Location**



2.2 Site Plan

The site plan provided by Brand Group, dated October 20, 2021, proposes a total of 15 townhouses and 1 single detached house. The proposed townhouses will be accessible via a proposed private road intersecting Chimney Hill Way approximately 43 m west of Old Simcoe Road. The single detached house will have direct driveway access to Chimney Hill Way. The site plan can be seen in **Figure 2-2** and has been included in **Appendix B**.

Figure 2-2 Site Plan



Source: Brand Group

As part of the proposed development, 7 of the townhouses will be 3-storey dual front towns located along Old Simcoe Road. The remaining 8 townhouses will be 2-storey street towns that front the access road. The single detached dwelling unit will be adjacent to the street townhouses and front onto Chimney Hill Way.

2.3 Study Intersections

Through pre-consultation with the Town, the proposed site access intersection to Chimney Hill Way and the intersection of Chimney Hill Way / Bay Street and Old Simcoe Road were chosen for the study. Accordingly, this report does not consider the proposed single detached house that will have direct access onto Chimney Hill Way as its impact on traffic operations will be negligible.

2.4 Access Review

An access feasibility review was previously conducted by TMIG in June 2021 to assess the geometric design of the access road with respect to relevant road design guidelines. Intersection/driveway spacing, intersection angle, and sight distance was investigated and found to satisfy all relevant TAC requirements. A copy of the Access Feasibility Review can be found in **Appendix C**.

3 EXISTING CONDITIONS

3.1 Road Network

The following describes the existing road network within the study area.

Old Simcoe Road is a north-south collector roadway with a two-lane cross section (one lane in each direction) under the jurisdiction of Port Perry, Township of Scugog. The road operates at a posted speed limit of 50 km/h within the study area, with no on-street parking permitted. Concrete sidewalks are located on both sides of the roadway within the area, separated by a boulevard strip on the west side.

Chimney Hill Way is an east-west local road with a two-lane cross section (one lane in each direction) under the jurisdiction of Port Perry, Township of Scugog. The road operates with an assumed statutory speed limit of 50 km/h and allows for on-street parking limited to a maximum of three hours. Concrete sidewalks are located on both sides of the roadway within the area, separated by a boulevard strip, with the exception of the north side between Old Simcoe Road and Queensplate Drive.

3.2 Transit Network

The following describes the existing public transit network around the subject site.

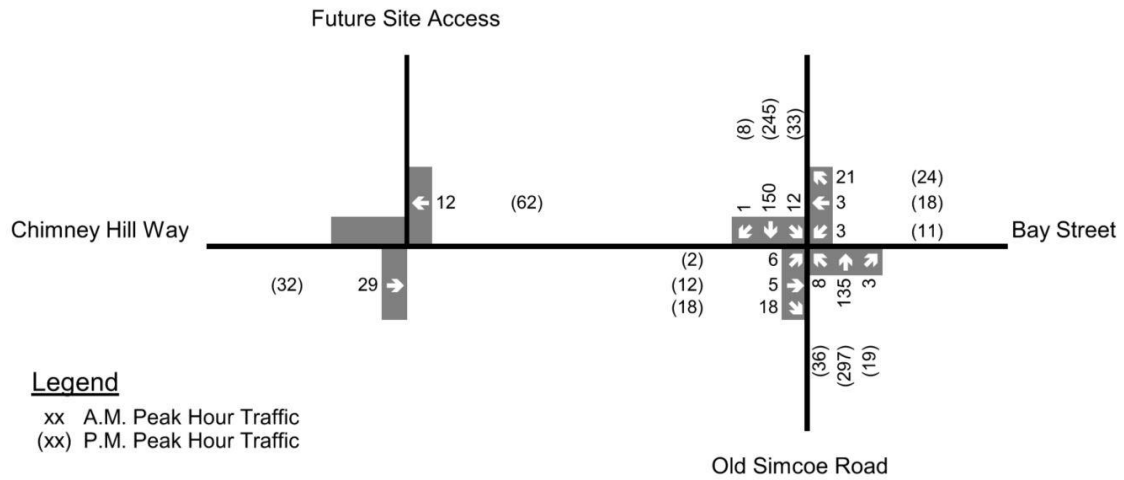
Durham Region Transit Route 905 is a generally north-south bus route that operates between Harmony Terminal in Oshawa and Railway Street in Uxbridge. The route operates 7 days a week with 90-minute service in Port Perry. The nearest stop to the subject site is 600m north of the site at the intersection of Old Simcoe Road and Reach Street.

GO Transit Route 81 is a generally north-south bus route that operates between Whitby GO Station in Whitby and Simcoe Street in Beaverton. The route operates 7 days a week with one bus in the morning and one in the afternoon. The nearest stop to the subject site is 600m north of the site at the intersection of Old Simcoe Road and Reach Street.

3.3 Existing Traffic Volumes

Turning movement counts were collected on September 21, 2021. The survey data has been included in **Appendix D. Figure 3-1** summarizes the 2021 existing traffic volumes for the weekday a.m. and weekday p.m. peak hours.

Figure 3-1 2021 Existing Traffic Volumes



4 FUTURE BACKGROUND CONDITIONS

4.1 Study Horizon Year

Based on the magnitude of the proposed development, TMIG assessed a study horizon year corresponding to the estimated build-out date, assumed conservatively to be 2024.

4.2 Roadway Improvements

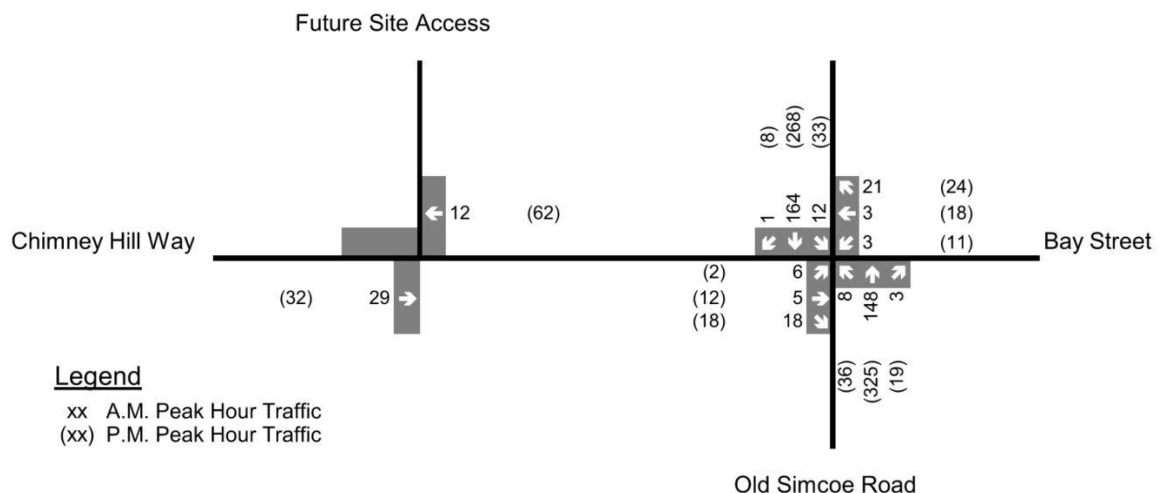
It is TMIG's understanding that improvements for the intersection have been proposed to rectify the existing 5-metre (approximate) misalignment of Chimney Hill Way and Bay Street. The correction is expected to allow for easier through traffic flow in the east-west direction but is unlikely to substantially change the performance of the intersection. Thus, the future improvement does not influence the model used for analysis.

4.3 Background Growth

Due to the relatively short development timeline, it is TMIG's understanding that no major developments are planned to be implemented within the study area before the subject site is operational. There is expected to be some growth in the surrounding area since Old Simcoe Road is a collector roadway and the Township of Port Perry continues to develop at large. To account for this, a 3% annual growth factor was applied to the through movements on Old Simcoe Road. Chimney Hill Way and Bay Street did not have any growth applied since they are local roads that do not have any significant developments planned by the horizon year.

The 2021 existing traffic volumes and the future development growth were combined to produce the 2024 future background volumes as shown in **Figure 4-1**.

Figure 4-1 2024 Future Background Traffic Volume



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5 FUTURE TOTAL CONDITIONS

5.1 Site Trip Generation

The proposed site plan consists of 15 townhouses and 1 single-detached house. The site generated traffic for the weekday a.m. and p.m. peak hours was estimated by applying trip rates found in Trip Generation Manual, 10th Edition, published by the Institute of Transportation Engineers (ITE). Land Use Code (LUC) 220 Multifamily Housing (Low-rise) was applied for the townhomes. Trips from the single-detached house were not estimated since the impact of a single unit access driveway is negligible. Note that no transit modal split was applied for site trip generation. **Table 5-1** summarizes the estimated total trip generation of the site.

Table 5-1 Site Trip Generation

Land Use	Parameter	Peak Hour Trip Generation					
		AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
15-Unit Multifamily Housing (Low-Rise) LUC: 220	Fitted Curve Equation	$\ln(T) = 0.95 \ln(X) - 0.51$			$\ln(T) = 0.89 \ln(X) - 0.02$		
	Trip Distribution	23%	77%	100%	63%	37%	100%
	Site Trips	2	6	8	7	4	11

The proposed development is expected to generate a total of 8 two-way vehicle trips in the a.m. peak hour consisting of 2 inbound and 6 outbound trips. In the p.m. peak hour, the site is expected to generate 11 two-way vehicle trips consisting of 7 inbound and 4 outbound trips.

5.2 Site Trip Distribution

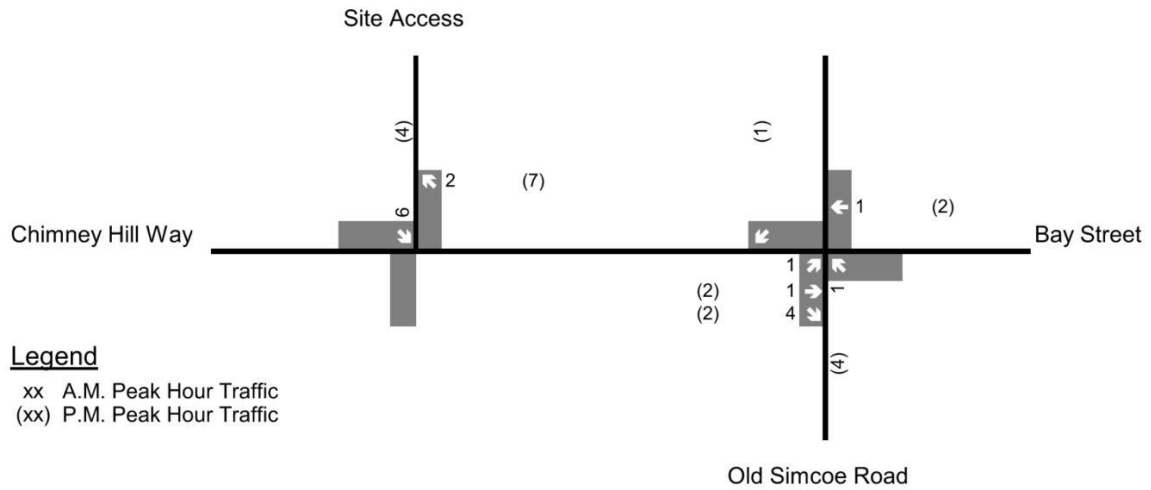
Due to the development's proximity to Old Simcoe Road, it is expected that all trips generated by the site will use the study intersection. The trips are distributed according to the surveyed existing traffic patterns at the intersection. **Table 5-2** details the trip distribution used for the site.

Table 5-2 Trip Distribution

To/From	AM Peak Hour		PM Peak Hour	
	Inbound	Outbound	Inbound	Outbound
North	8%	21%	13%	6%
South	67%	62%	58%	56%
East	25%	17%	29%	38%
Total	100%	100%	100%	100%

Figure 5-1 shows the site traffic volumes based on the trip generation and distribution.

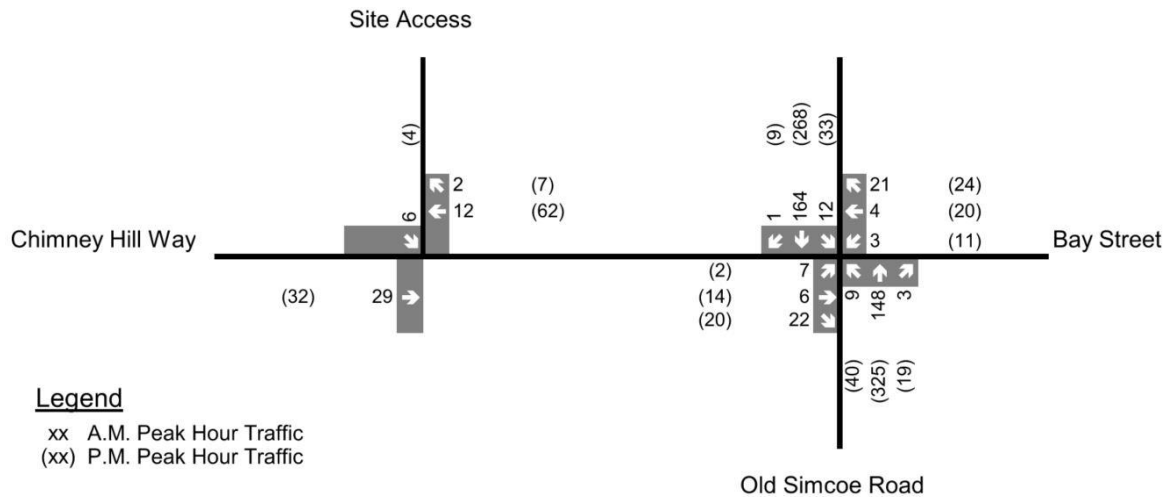
Figure 5-1 Site Traffic Volume



5.3 Future Total Traffic

Future total traffic volumes were derived by combining the projected future background traffic with the site generated trips. **Figure 5-2** summarize the future total volumes for both weekday a.m. and p.m. peak hours.

Figure 5-2 2024 Future Total Traffic Volume



6 TRAFFIC CAPACITY ANALYSIS

The capacity analysis identifies how well the intersections are operating and how they are expected to operate in the future. The analysis contained in this brief utilized the Highway Capacity Manual (HCM) 2000 techniques within the Synchro Version 10 Software package. The reported intersection volume-to-capacity ratios (v/c) are a measure of the saturation volume for each turning movement, while the levels-of-service (LOS) are a measure of the average delay for each turning movement. The volumes and heavy vehicle percentages were derived as surveyed, while the Peak Hour Factor (PHF) was assessed as 0.92 per the Durham Region guidelines.

The analysis includes identification of all intersections and for all movements; v/c ratios and LOS indicators.

The following table summarizes the Synchro/HCM capacity results for the study intersections during the weekday a.m. and weekday p.m. peak hours under existing (2021), future background and future total (2024) traffic conditions. Detailed Synchro reports are attached in **Appendix E** and the results have been summarized in **Table 6-1**.

Table 6-1 Traffic Capacity Analysis

Scenario	Intersection	Movement of Interest	Weekday AM Peak Hour			Weekday PM Peak Hour		
			v/c	Delay (s)	LOS	v/c	Delay (s)	LOS
2021 Existing conditions	Old Simcoe Road & Chimney Hill Way	EBLTR	0.04	10	B	0.08	14	B
		WBLTR	0.04	10	A	0.15	16	C
		NBLTR	0.01	1	A	0.03	1	A
		SBLTR	0.01	1	A	0.03	1	A
2024 Future Background Conditions	Old Simcoe Road & Chimney Hill Way	EBLTR	0.05	10	B	0.08	15	B
		WBLTR	0.04	10	A	0.16	17	C
		NBLTR	0.01	0	A	0.03	1	A
		SBLTR	0.01	1	A	0.03	1	A
2024 Future Total Conditions	Old Simcoe Road & Chimney Hill Way	EBLTR	0.06	11	B	0.10	15	B
		WBLTR	0.04	10	A	0.17	18	C
		NBLTR	0.01	1	A	0.04	1	A
		SBLTR	0.01	1	A	0.03	1	A
	Chimney Hill Way & Site Access	EBTL	0.00	0	A	0.00	0	A
		WBTR	0.01	0	A	0.04	0	A
		SBLR	0.01	9	A	0.00	9	A

Under existing conditions, the study intersection operates well with all movements operating at LOS B or better during the a.m. peak hour and LOS C or better during the p.m. peak hour. All turning movements operate below capacity.

Under future background conditions, the intersection is projected to operate well with all movements operating at LOS B or better during the a.m. peak hour and LOS C or better during the p.m. peak hour as under existing conditions. The growth of 3% on the north-south movements is projected to have little impact on the intersection performance, with all movements projected to operate under capacity as under existing conditions.

Under future total conditions, the intersection is projected to operate well with all movements operating at LOS B or better during the a.m. peak hour and LOS C or better during the p.m. peak hour. The addition of site generated trips is projected to increase delay by a maximum of 1 second at select movements during both peak hours, which is projected to be negligible. The site access intersection to Chimney Hill Way is projected to operate with turning movements at LOS A showing no projected concerns for vehicles accessing the subject lands. The results show that the boundary road network is projected to accommodate the site with no improvement measures necessary.

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7 PARKING AND ACCESS

The parking configuration of the site was analyzed using AutoTURN to ensure that all parking spaces are accessible under all circumstances. Two areas of concern were identified and reviewed, including the last driveway on the east side of the access road and the driveways between the two on-street parking spots, in order to confirm if the on-street parking would impact circulation. Residential parking movements were simulated using a Transportation Association of Canada Passenger Vehicle (PTAC).

Figure 7-1 and **Figure 7-2** show that the PTAC turning movements in both situations can be accommodated sufficiently without concern.

Figure 7-1 End Driveway Vehicle Movement Diagram

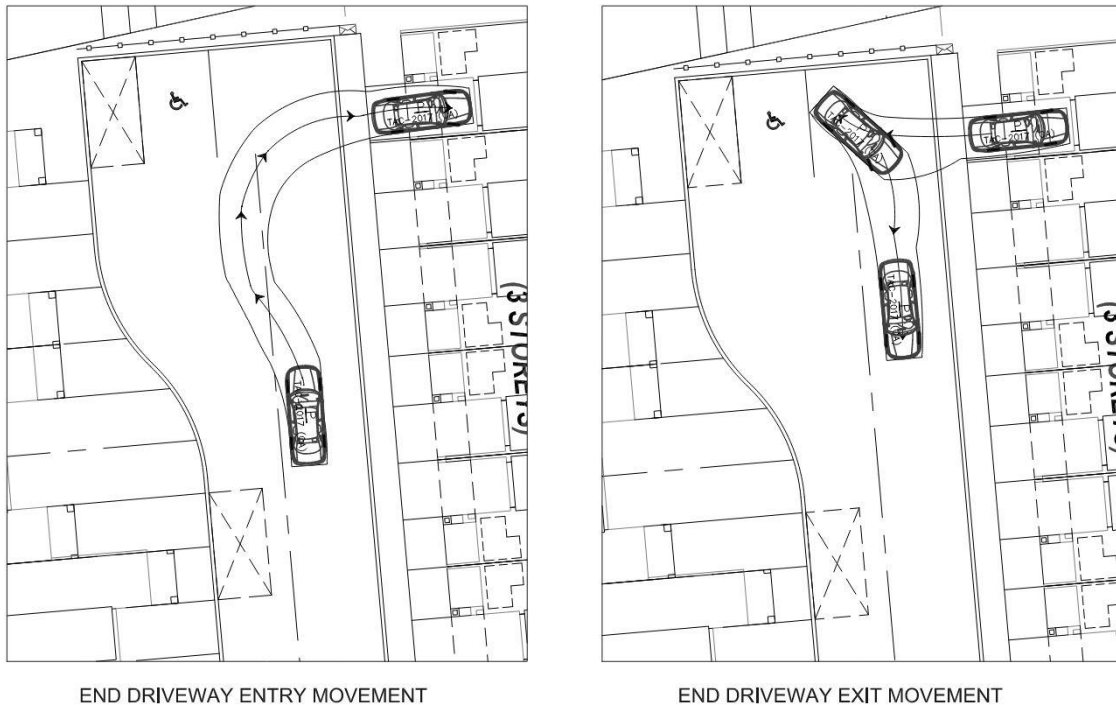
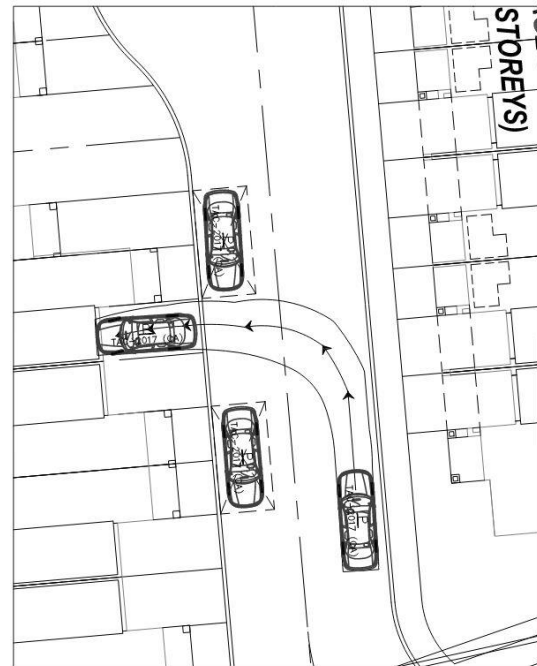


Figure 7-2 On-Street Parking Adjacent Driveway Vehicle Movement Diagram



DRIVEWAY ADJACENT PARKING EXIT MOVEMENT



DRIVEWAY ADJACENT PARKING ENTRY MOVEMENT

Waste collection is proposed to be performed by a private company which will be chosen at a later time; accordingly a turn-around area would not be required for the subject lands. Similarly, based on the length of the proposed roadway it is TMIG's understanding that a turn-around to accommodate emergency vehicles would also not be required.

8 CONCLUSION

The development is proposed to consist of 15 townhouses with direct access to a private road intersecting Chimney Hill Way west of Old Simcoe Road, as well as a single detached residential unit with direct access to Chimney Hill Way.

The proposed development is expected to generate a total of 8 two-way vehicle trips in the a.m. peak hour consisting of 2 inbound and 6 outbound trips. In the p.m. peak hour, the site is expected to generate 11 two-way vehicle trips consisting of 7 inbound and 4 outbound trips. Trips from the single-detached house were not estimated since the impact of a single unit access driveway is projected to be negligible.

Review of traffic operations shows that under 2021 existing and 2024 future background conditions, the study intersection of Old Simcoe Road and Chimney Hill Way is projected to operate well with LOS B or better during the a.m. peak hour and LOS C or better during the p.m. peak hour. The addition of site generated trips is projected to create negligible impact under future total conditions, with all turning movements projected to remain at LOS B or better during the a.m. peak hour and LOS C or better during the p.m. peak hour at the intersection of Old Simcoe Road and Chimney Hill Way. The site access intersection to Chimney Hill Way is projected to operate with turning movements at LOS A showing no projected concerns for vehicles accessing the subject lands.

Overall, the traffic generated by the proposed residential development will have minimal impact and can be accommodated by the roadway network.

As part of this study TMIG also completed a review of site circulation at select driveways to identify any potential conflicts with the proposed on-street parking. This review comes as an addition to the private road design review completed for the development dated June 2021. Results of this additional review show no projected concerns.

Based on the findings of this study, TMIG is in support of the development site plan application for these lands.

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APPENDIX A

Pre-Consultation Correspondence

From: Tyler Dukovic <tdukovic@scugog.ca>

Sent: Friday, September 24, 2021 2:12 PM

To: Jordan Hart-Bishop <JHartBishop@tmig.ca>

Cc: 'Scott Waterhouse' <Scott.Waterhouse@ghd.com>; Michael Dowdall <MDowdall@tmig.ca>; Nawfal Kammah <NKammah@tmig.ca>; Jason Ryan <JRyan@scugog.ca>; Robin Prentice <rprentice@scugog.ca>

Subject: RE: Chimney Hill/Old Simcoe Residential Development - Traffic Brief Terms of Reference

Some people who received this message don't often get email from tdukovic@scugog.ca. [Learn why this is important](#)

Good afternoon Jordan,

Please ensure that the following items are provided in the traffic brief:

- Existing Road Network
- Proposed Road Network
- Transit Services
- Site-Generated Traffic
- Existing and Future Traffic Volumes
- Intersection Sightline Analysis

Please be advised that additional requirements may be determined subject to peer review.

The Township counts are from 2017 and may be inaccurate due to COVID. Please complete new traffic counts for the required locations.

Thanks,

Tyler Dukovic, C. Tech.

Development Engineering Technologist



181 Perry St., PO Box 780

Port Perry, ON L9L 1A7

Tel: 905-985-7346 x 150

tdukovic@scugog.ca

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From: Tyler Dukovic
Sent: September 23, 2021 4:21 PM
To: Jordan Hart-Bishop <JHartBishop@tmig.ca>
Cc: 'Scott Waterhouse' <Scott.Waterhouse@ghd.com>; Michael Dowdall <MDowdall@tmig.ca>; Nawfal Kammah <NKammah@tmig.ca>; Jason Ryan <JRyan@scugog.ca>; Robin Prentice <rprentice@scugog.ca>
Subject: RE: Chimney Hill/Old Simcoe Residential Development - Traffic Brief Terms of Reference

Good afternoon Jordan,

I apologize for the delay in my response.

I will discuss this internally and get back to you.

Thanks,

Tyler Dukovic, C. Tech.
Development Engineering Technologist



181 Perry St., PO Box 780
Port Perry, ON L9L 1A7
Tel: 905-985-7346 x 150
tdukovic@scugog.ca
www.scugog.ca

From: Jordan Hart-Bishop <JHartBishop@tmig.ca>
Sent: September 23, 2021 4:04 PM
To: Tyler Dukovic <tdukovic@scugog.ca>
Cc: 'Scott Waterhouse' <Scott.Waterhouse@ghd.com>; Michael Dowdall <MDowdall@tmig.ca>; Nawfal Kammah <NKammah@tmig.ca>
Subject: RE: Chimney Hill/Old Simcoe Residential Development - Traffic Brief Terms of Reference

Hello Tyler,

I wanted to advise you that if you do have comments on the below scope of work, please send them to Michael and Nawfal (cc'ed) as my last day with TMIG will be September 24. I also want to note that we are in a position to finalize our study shortly, so please advise if there are items that you have comments on.

Regards,

Jordan Hart-Bishop, M.A.Sc, P.Eng
TMIG | TYLI
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From: Jordan Hart-Bishop
Sent: Wednesday, September 15, 2021 12:56 PM
To: tdukovic@scugog.ca
Cc: 'Scott Waterhouse' <Scott.Waterhouse@ghd.com>; Michael Dowdall <MDowdall@tmig.ca>
Subject: RE: Chimney Hill/Old Simcoe Residential Development - Traffic Brief Terms of Reference

Hello Tyler,

I wanted to follow-up on if you have any comments on the below or if we should proceed with the scope as outlined.

Thanks,

Jordan Hart-Bishop, M.A.Sc, P.Eng
TMIG | TYLI
+1.905.738.5700 x350 | +1.437.215.0089

From: Jordan Hart-Bishop
Sent: Friday, September 3, 2021 9:52 AM
To: tdukovic@scugog.ca
Cc: 'Scott Waterhouse' <Scott.Waterhouse@ghd.com>; Michael Dowdall <MDowdall@tmig.ca>
Subject: Chimney Hill/Old Simcoe Residential Development - Traffic Brief Terms of Reference

Hello Tyler,

I am preparing the traffic brief for the 15-unit townhouse development at the northwest corner of Old Simcoe Road and Chimney Hill Way. I have attached the most recent version of the site plan for your reference. Based on the Pre-consultation requirements (dated July 7, 2021) our understanding is that the following would represent the scope of the traffic brief that the Township of Scugog requires for its review:

- Review of the operations of the intersection of Old Simcoe Road and Chimney Hill Way. Does the Township have counts available for this location? If not, would it be acceptable for us to arrange for counts to take place in September once school re-opens to assess the baseline conditions?
- The projected impact of the development on the adjacent intersection. Typically, we would not complete operational analysis for a development of this magnitude as the projected two-way trips are minimal, but we will complete the analysis for the opening day horizon.
- Review of the proposed parking layout to ensure that the visitor parking spots can be accessed and do not impede the access to the driveways. This will be completed with AutoTurn
- Discussion on how the block would accommodate emergency services (fire) and waste collection.

Please let us know if the above scope is acceptable for this site and if you have any data available that we could take into consideration for this study. If you have any questions or comments, please let me know.

Thank you,

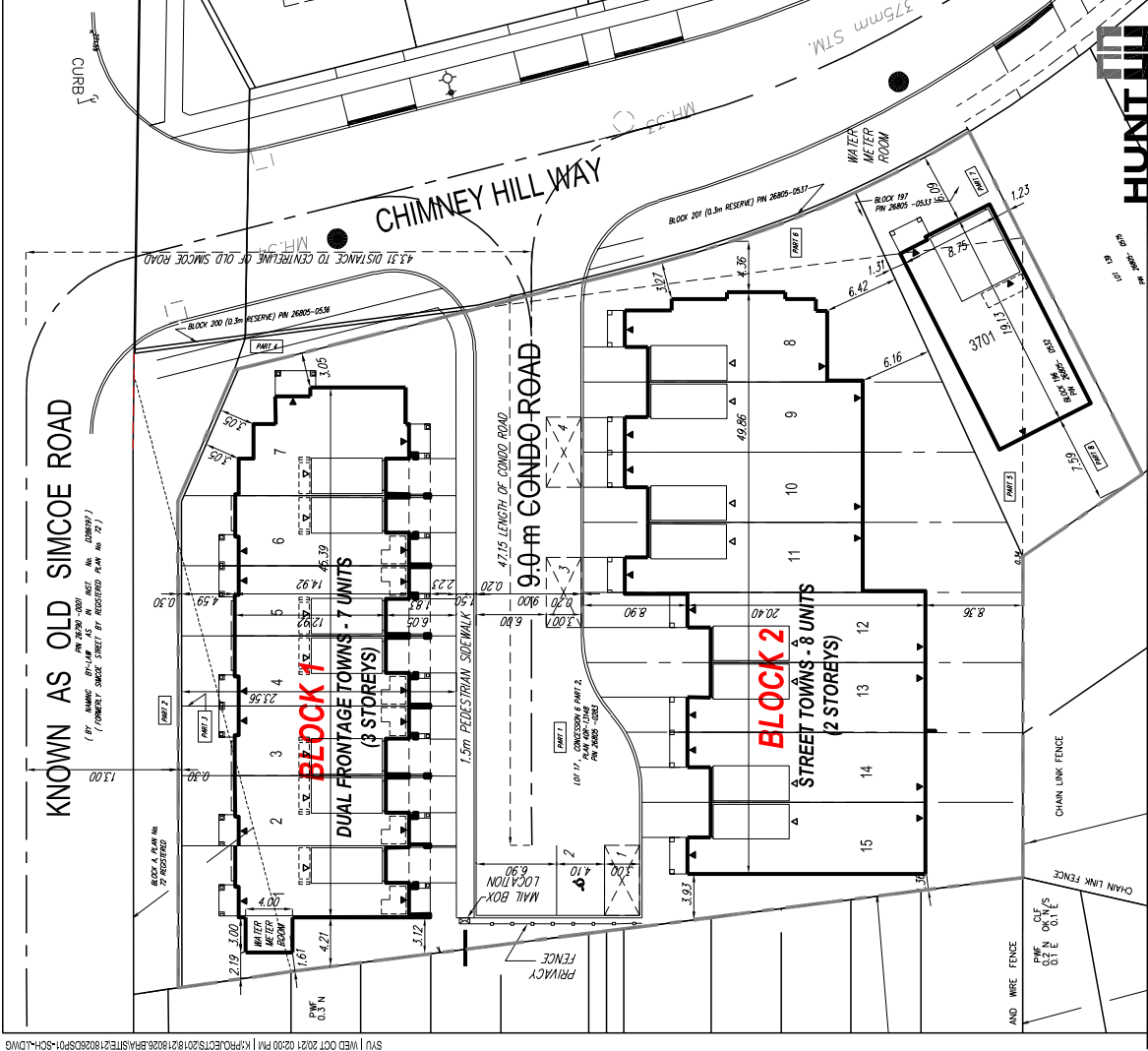
Jordan Hart-Bishop, M.A.Sc, P.Eng
Project Manager

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APPENDIX B

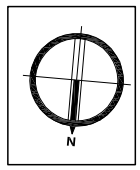
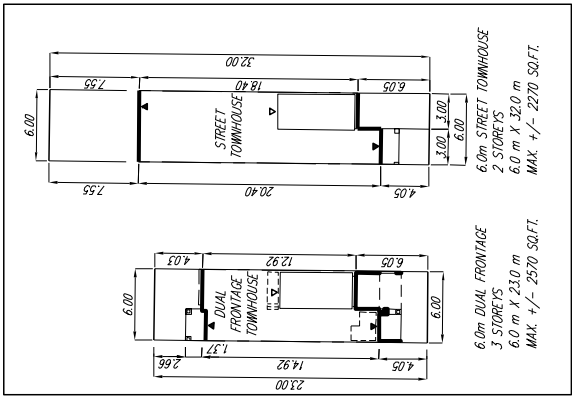
Preliminary Site Plan



- SITE STATISTICS - SCHEME 'J'**
1. SITE AREA: 4211.40 SQ.M. (1.04 ACRE)
 2. NUMBER OF UNITS:
 - 2.1. 6.0m STREET TOWNS - 8 UNITS
 - 2.2. 6.0m DUAL FRONTAGE - 7 UNITS
 - 2.3. 11.3m SINGLE DETACHED - 1 UNITTOTAL = 16 UNITS
 3. DENSITY:
 - 3.1. 15.38 UNITS PER ACRE
 - 3.2. 38.10 UNITS PER HECTARE



KEY MAP - NOT TO SCALE



APPENDIX C

Access Feasibility Review

June 9, 2021

David Brand
Brand Group
23 Lesmill Road, Suite 111
Toronto, ON M3B 3P6

**Re: Access Feasibility Review
Brand Developments, Old Simcoe Road, Port Perry, ON**

Dear Mr. Brand

As requested, we have conducted a preliminary review of your proposed residential development's vehicular access in terms of its compliance with relevant road design guidelines. This investigation provides a high-level review of the proposed site access geometrics for your pre-consultation purposes with the approval agencies but does not include a fulsome traffic operations review. The conclusions of this review are therefore subject to a comprehensive Traffic Impact Study, to be prepared at the time of your formal application.

The site is located on the northwest corner of Old Simcoe Road and Chimney Hill Way and consists of 17 dwellings, with 16 townhomes using the condo road to access Chimney Hill Road. Our review was based on the draft Site Plan Scheme E (prepared by Hunt Design Inc.) and represents our opinion on the site access configuration as currently proposed (**Attachment A**). This review focused on the following geometric design aspects:

- The proposed Condo Road intersection spacing from Old Simcoe Road
- The angle that the Condo Road connects to Chimney Hill Way
- The sight distance available departing from, and approaching the Condo Road on Chimney Hill Way

The above basic road design elements were assessed based on the site plan provided and the guidelines presented in the Transportation Association of Canada's (TAC) Geometric Design Guide for Canadian Roads. Supporting figures for the below items are provided in **Attachment B**.

Driveway/Intersection Spacing

The development is proposed to be served by a private laneway (Condo Road) that could be classified as either an "access" or intersection according to TAC for the purposes of design. If considered as an "access" then the distance that governs the spacing of the driveway to Old Simcoe Road is the corner clearances as defined in Section 8.8.1 in the Geometric Design Guide, where the spacing distance between the access and a local road is just 15 metres (measured from the nearest curb returns). If the laneway is defined as an intersection, then as per Section 9.4.2.3 a minimum separation distance of 40 metres, measured from centreline of the intersections, is acceptable for three-leg intersections adjacent to a four-leg intersection (Old Simcoe Road and Chimney Hill Way / Bay Street is a four-leg intersection with a slight offset for the two minor legs).

Figure 1 shows that the proposed access complies with both these requirements, with measurements of 19 metres and 43 metres respectively. Measurement A shows the corner clearance exceeds 15 metres; Measurement B shows the spacing of the intersection to Old Simcoe Road exceeds 40 metres; and Measurement C shows that there is no intersection within 40 metres of the driveway to the west.

Intersection Angle

As per Section 8.9.6 Angle of Driveway and Section 9.4.5.4 Geometric Characteristics of the guidelines a skew angle of 70° to 90° is permissible for standard intersections with values closer to 90° preferred but not required. Section 8.9.6 recommends this value be measured by the roadway curb line.

Figure 2 shows an approximate angle of 76° measured from the curb line for the proposed site, which exceeds the minimum of 70°, and falls within the acceptable range for this type of intersection.

Sight Distance

As a minor driveway (less than 100 peak hour trips expected) intersecting with a local road, the *Stopping Sight Distance* represents the minimum distance that would be acceptable for this access. Based on the values in Table 2.5.2 the stopping site distance for a design speed of 50 km/h and 40 km/h would be 65 metres and 50 metres respectively. Based on a review of the Township of Scugog speed limits (<https://www.scugog.ca/en/township-office/Public-Works.aspx#Speed-Limits>), TMIG assumed that the speed limit of this road would be 40 km/h, however as it is currently unposted, there exists the possibility that drivers would travel at 50 km/h, so the higher design value was used for this assessment.

Figure 3 shows the approximate stopping sight distance for vehicles travelling along Chimney Hill Way. Note that although the line for the vehicles travelling eastbound extends past the boundary of the drawing, based on a review of available satellite and 'street view' imagery the road alignment provides more than this distance, which exceeds the minimum values required. The available distance westbound is less than 65 metres, constrained by Chimney Hill Way's intersection with Old Simcoe Road. However, the available sight line for drivers departing the site provides a full view of all turning movements at this nearby intersection (and vice versa), and since the intersection spacing requirement has been satisfied, this sight distance is acceptable.

In conclusion, the proposed development's Condo Road site access satisfies all relevant TAC requirements for a development of this size and type in the context of the existing road environment. Be advised that these findings are subject to a fulsome Traffic Impact / Operations Study at the time of formal application.

Please do not hesitate to contact the undersigned with any questions.

Sincerely,

The Municipal Infrastructure Group Ltd.,
a T.Y. Lin International Company



Jordan Hart-Bishop, P.Eng, MASc
Project Manager | jhartbishop@tmig.ca



J. A. (Jim) Bacchus, B.A., MITE
Vice President, Development (Canada) | jbacchus@tmig.ca

Attachment A – Site Plan

ALL SHIMCO ROAD, PORT PERRY, ONTARIO ■ 905.737.5133 ■ F 905.737.7326 ■ MAY. 25, 2021 ■ SY ■ 218026SDSP01.DWG/SCALE = 1/320

Attachment B - Supporting Figures

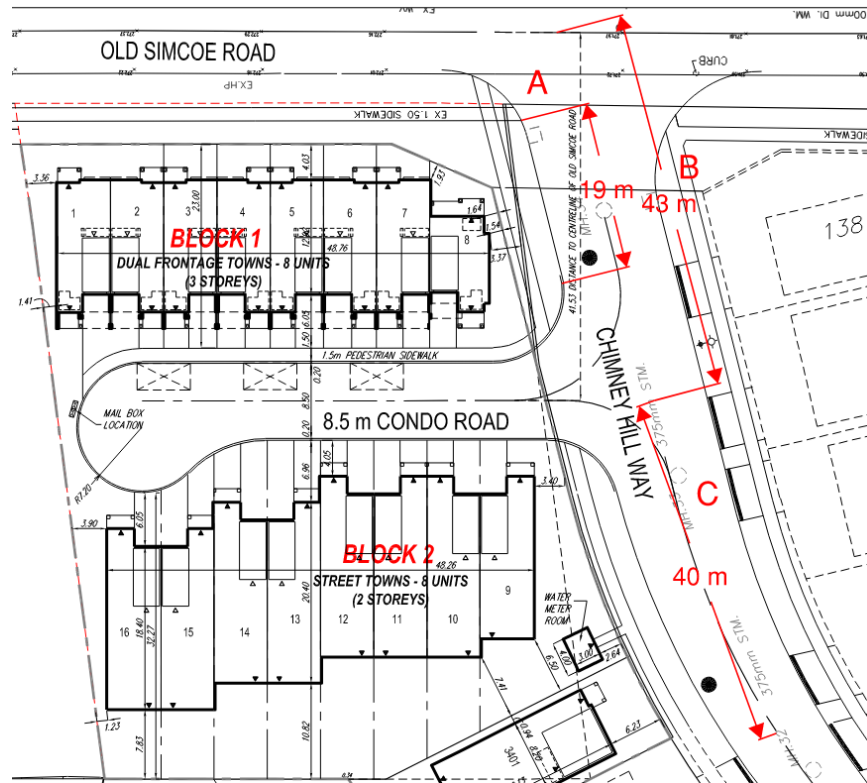


FIGURE 1: DRIVEWAY SPACING

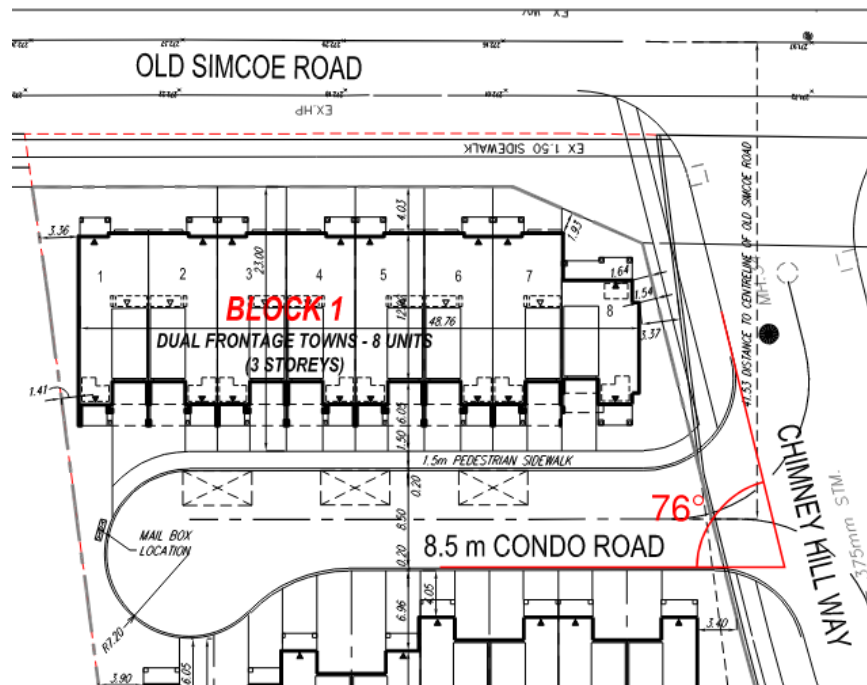


FIGURE 2: INTERSECTION ANGLE

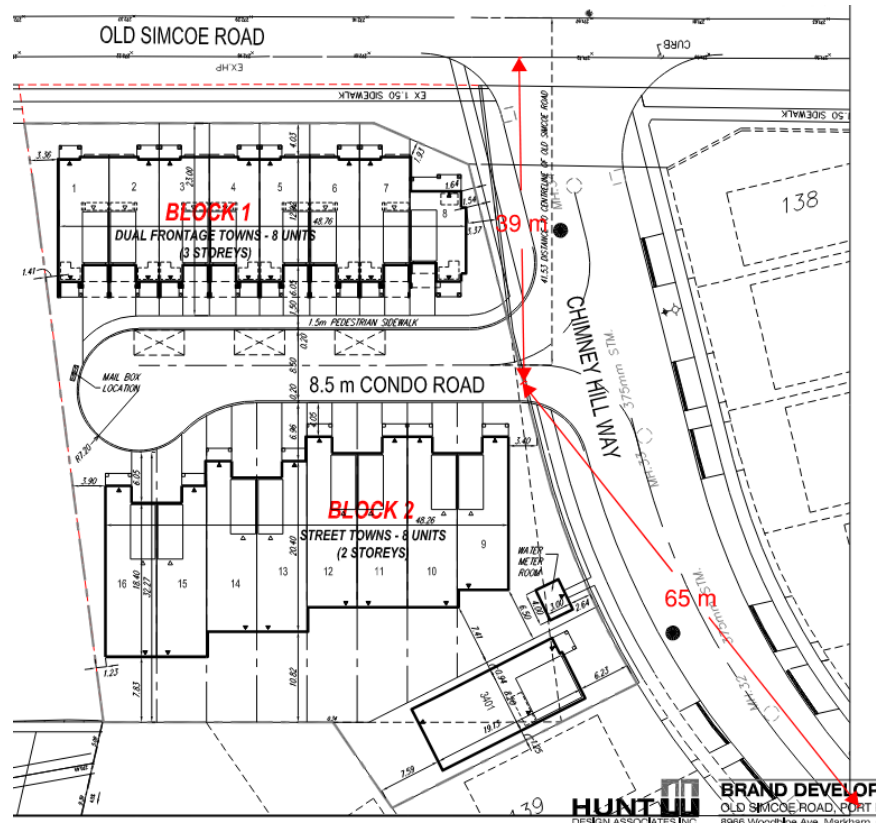


FIGURE 3: APPROXIMATE STOPPING SIGHT DISTANCE

APPENDIX D

Traffic Data

Horizon Data Services Ltd

318 Simonsen Blvd
Thornhill, ON L3T 4T5

"we always count...never estimated"

File Name : Bay St at Old Simcoe Rd
Site Code : 00000000
Start Date : 9/21/2021
Page No : 1

Groups Printed- Cars - Trucks - Heavys - Cyclists														
Old Simcoe Rd Southbound					Bay St Westbound					Old Simcoe Rd Northbound				
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds
07:00 AM	0	25	4	0	29	3	1	1	1	6	1	19	3	1
07:15 AM	0	37	0	2	39	5	0	2	2	9	1	42	3	2
07:30 AM	0	46	3	2	51	4	0	0	0	4	1	32	1	3
07:45 AM	1	42	5	0	48	9	2	0	0	11	0	42	1	1
Total	1	150	12	4	167	21	3	3	3	30	3	135	8	7
08:00 AM	0	51	1	0	52	1	0	0	1	2	0	41	4	1
08:15 AM	1	49	5	0	55	6	1	4	0	11	1	40	4	1
08:30 AM	2	53	5	1	61	7	0	0	1	8	0	54	3	8
08:45 AM	4	84	6	0	94	5	3	4	0	12	2	57	17	6
Total	7	237	17	1	262	19	4	8	2	33	3	192	28	16
Chimney Hill Way Eastbound														
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds
04:00 PM	2	60	13	0	75	10	5	1	5	21	4	101	8	12
04:15 PM	2	61	8	1	72	4	6	6	5	21	4	73	13	7
04:30 PM	1	73	2	1	77	2	4	3	0	9	5	63	7	2
04:45 PM	3	51	10	3	67	8	3	1	1	13	6	60	8	2
Total	8	245	33	5	291	24	18	11	11	64	19	297	36	23
Grand Total	16	632	62	10	720	64	25	22	16	127	25	624	72	46
Approch %	2.2	87.8	8.6	1.4		50.4	19.7	17.3	12.6		3.3	81.4	9.4	6
Total %	0.9	36.3	3.6	0.6	41.4	3.7	1.4	1.3	0.9	7.3	1.4	35.8	4.1	2.6
Cars	16	586	56	10	668	60	22	22	16	120	25	615	69	46
% Cars	100	92.7	90.3	100	92.8	93.8	88	100	100	94.5	100	98.6	95.8	100
Trucks	0	17	1	0	18	2	0	0	0	2	0	9	1	0
% Trucks	0	2.7	1.6	0	2.5	3.1	0	0	0	1.6	0	1.4	1.4	0
Heavys	0	25	5	0	30	1	1	0	0	2	0	0	2	0
% Heavys	0	4	8.1	0	4.2	1.6	4	0	0	1.6	0	0	2.8	0
Cyclists	0	4	0	0	4	1	2	0	0	3	0	0	0	0
% Cyclists	0	0.6	0	0	0.6	1.6	8	0	0	2.4	0	0	0	0

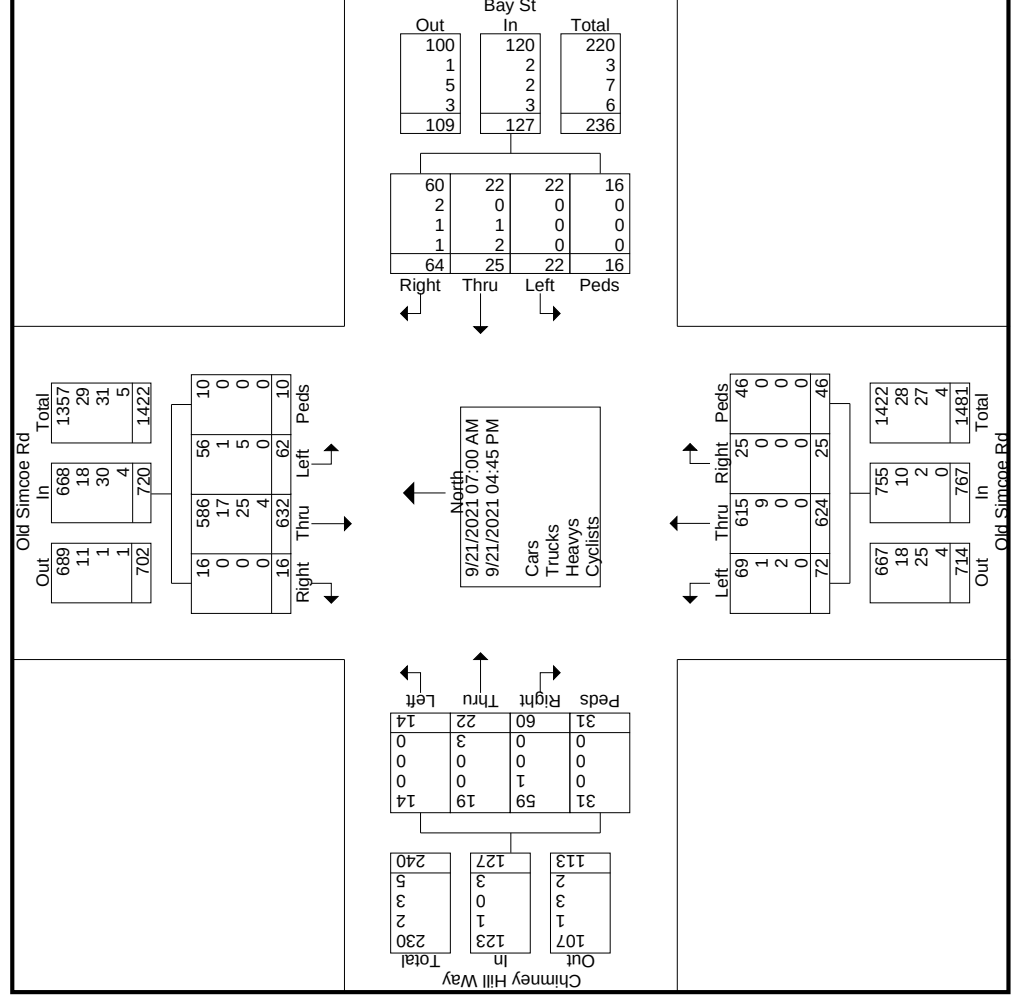
04:00 PM	2	60	13	0	75	10	5	1	5	21	4	101	8	12	125	6	2	1	8	17	238
04:15 PM	2	61	8	1	72	4	6	6	5	21	4	73	13	7	97	3	4	1	3	11	201
04:30 PM	1	73	2	1	77	2	4	3	0	9	5	63	7	2	77	2	5	0	1	8	171
04:45 PM	3	51	10	3	67	8	3	1	1	13	6	60	8	2	76	7	1	0	1	9	165
Total	8	245	33	5	291	24	18	11	11	64	19	297	36	23	375	18	12	2	13	45	775
Grand Total	16	632	62	10	720	64	25	22	16	127	25	624	72	46	767	60	22	14	31	127	1741
Approch %	2.2	87.8	8.6	1.4		50.4	19.7	17.3	12.6		3.3	81.4	9.4	6		47.2	17.3	11	24.4		
Total %	0.9	36.3	3.6	0.6	41.4	3.7	1.4	1.3	0.9	7.3	1.4	35.8	4.1	2.6	44.1	3.4	1.3	0.8	1.8	7.3	
Cars	16	586	56	10	668	60	22	22	16	120	25	615	69	46	755	59	19	14	31	123	1666
% Cars	100	92.7	90.3	100	92.8	93.8	88	100	100	94.5	100	98.6	95.8	100	98.4	98.3	86.4	100	100	96.9	95.7
Trucks	0	17	1	0	18	2	0	0	0	2	0	9	1	0	10	1	0	0	0	1	31
% Trucks	0	2.7	1.6	0	2.5	3.1	0	0	0	1.6	0	1.4	1.4	0	1.3	1.7	0	0	0	0.8	1.8
Heavys	0	25	5	0	30	1	1	0	0	2	0	0	2	0	2	0	0	0	0	0	34
% Heavys	0	4	8.1	0	4.2	1.6	4	0	0	1.6	0	0	2.8	0	0.3	0	0	0	0	0	2
Cyclists	0	4	0	0	4	1	2	0	0	3	0	0	0	0	0	0	3	0	0	3	10
% Cyclists	0	0.6	0	0	0.6	1.6	8	0	0	2.4	0	0	0	0	0	0	13.6	0	0	2.4	0.6

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Page No : 3

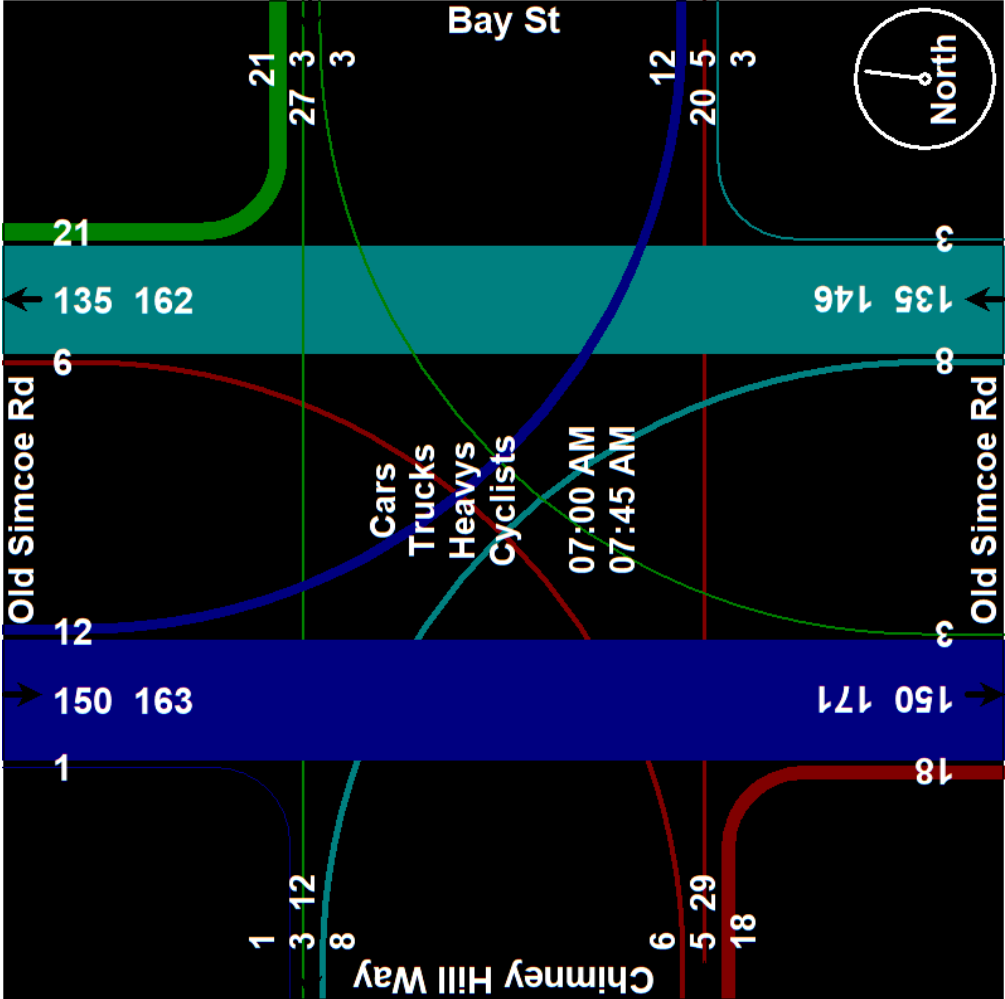
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Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	25	4	0	29	3	1	1	1	6	1	19	3	1	24	4	1	1	0	6	65
07:15 AM	0	37	0	2	39	5	0	2	2	9	1	42	3	2	48	6	2	0	0	8	104
07:30 AM	0	46	3	2	51	4	0	0	0	4	1	32	1	3	37	2	1	1	2	6	98
07:45 AM	1	42	5	0	48	9	2	0	0	11	0	42	1	1	44	6	1	4	0	11	114
Total Volume	1	150	12	4	167	21	3	3	3	30	3	135	8	7	153	18	5	6	2	31	381
% App. Total	0.6	89.8	7.2	2.4		70	10	10	10		2	88.2	5.2	4.6		58.1	16.1	19.4	6.5		
PHF	.250	.815	.600	.500	.819	.583	.375	.375	.375	.682	.750	.804	.667	.583	.797	.750	.625	.375	.250	.705	.836
Cars	1	134	12	4	151	20	3	3	3	29	3	131	8	7	149	18	5	6	2	31	360
% Cars	100	89.3	100	100	90.4	95.2	100	100	100	96.7	100	97.0	100	100	97.4	100	100	100	100	100	94.5
Trucks	0	8	0	0	8	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	12
% Trucks	0	5.3	0	0	4.8	0	0	0	0	0	0	3.0	0	0	2.6	0	0	0	0	0	3.1
Heavys	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
% Heavys	0	4.7	0	0	4.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.8
Cyclists	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
% Cyclists	0	0.7	0	0	0.6	4.8	0	0	0	3.3	0	0	0	0	0	0	0	0	0	0	0.5

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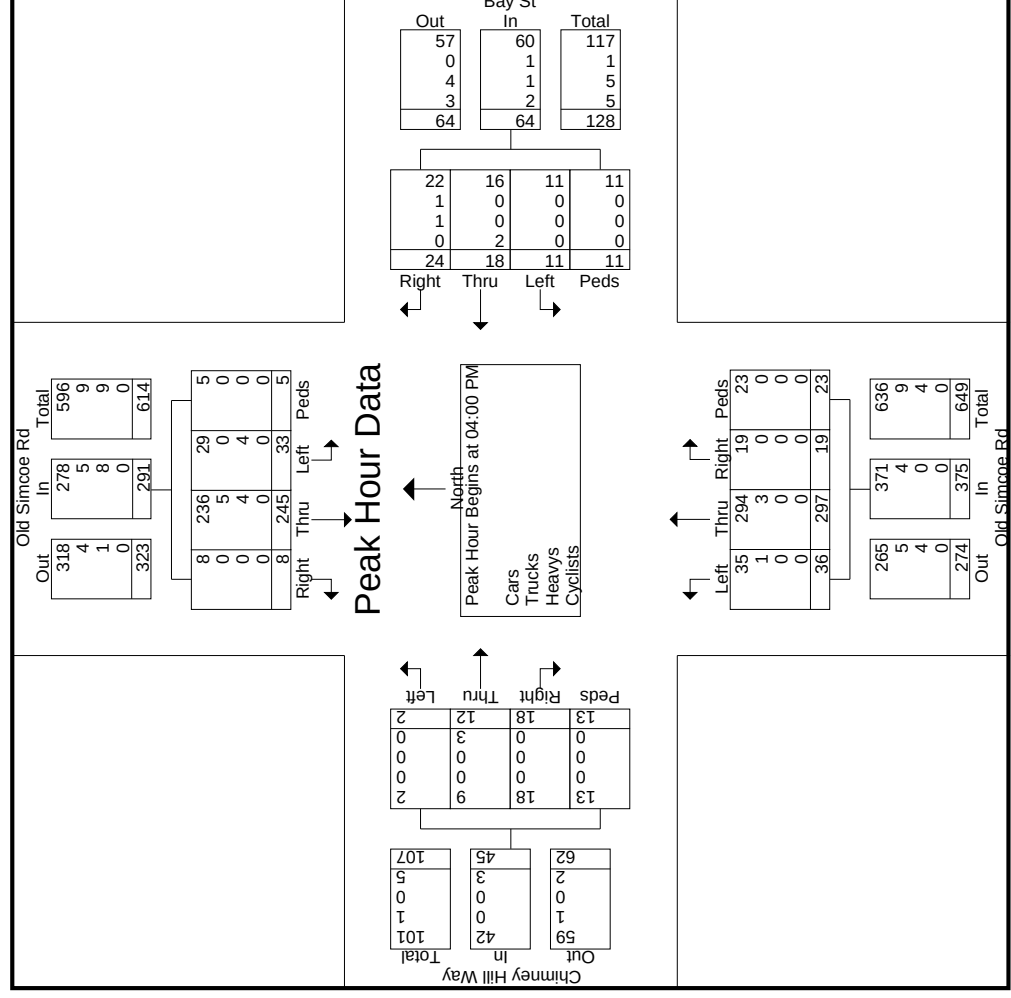
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Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total				
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																				
Peak Hour for Entire Intersection Begins at 04:00 PM																				
04:00 PM	2	60	13	0	75	10	5	1	5	21	4	101	8	12	125	238				
04:15 PM	2	61	8	1	72	4	6	6	5	21	4	73	13	7	97	201				
04:30 PM	1	73	2	1	77	2	4	3	0	9	5	63	7	2	77	171				
04:45 PM	3	51	10	3	67	8	3	1	1	13	6	60	8	2	76	165				
Total Volume	8	245	33	5	291	24	18	11	11	64	19	297	36	23	375	775				
% App. Total	2.7	84.2	11.3	1.7		37.5	28.1	17.2	17.2		5.1	79.2	9.6	6.1						
PHF	.667	.839	.635	.417	.945	.600	.750	.458	.550	.762	.792	.735	.692	.479	.750	.814				
Cars	8	236	29	5	278	22	16	11	11	60	19	294	35	23	371	751				
% Cars	100	96.3	87.9	100	95.5	91.7	88.9	100	100	93.8	100	99.0	97.2	100	98.9	96.9				
Trucks	0	5	0	0	5	1	0	0	0	1	0	3	1	0	4	10				
% Trucks	0	2.0	0	0	1.7	4.2	0	0	0	1.6	0	1.0	2.8	0	1.1	1.3				
Heavys	0	4	4	0	8	1	0	0	0	1	0	0	0	0	0	9				
% Heavys	0	1.6	12.1	0	2.7	4.2	0	0	0	1.6	0	0	0	0	0	1.2				
Cyclists	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	5				
% Cyclists	0	0	0	0	0	0	11.1	0	0	3.1	0	0	0	0	0	0.6				

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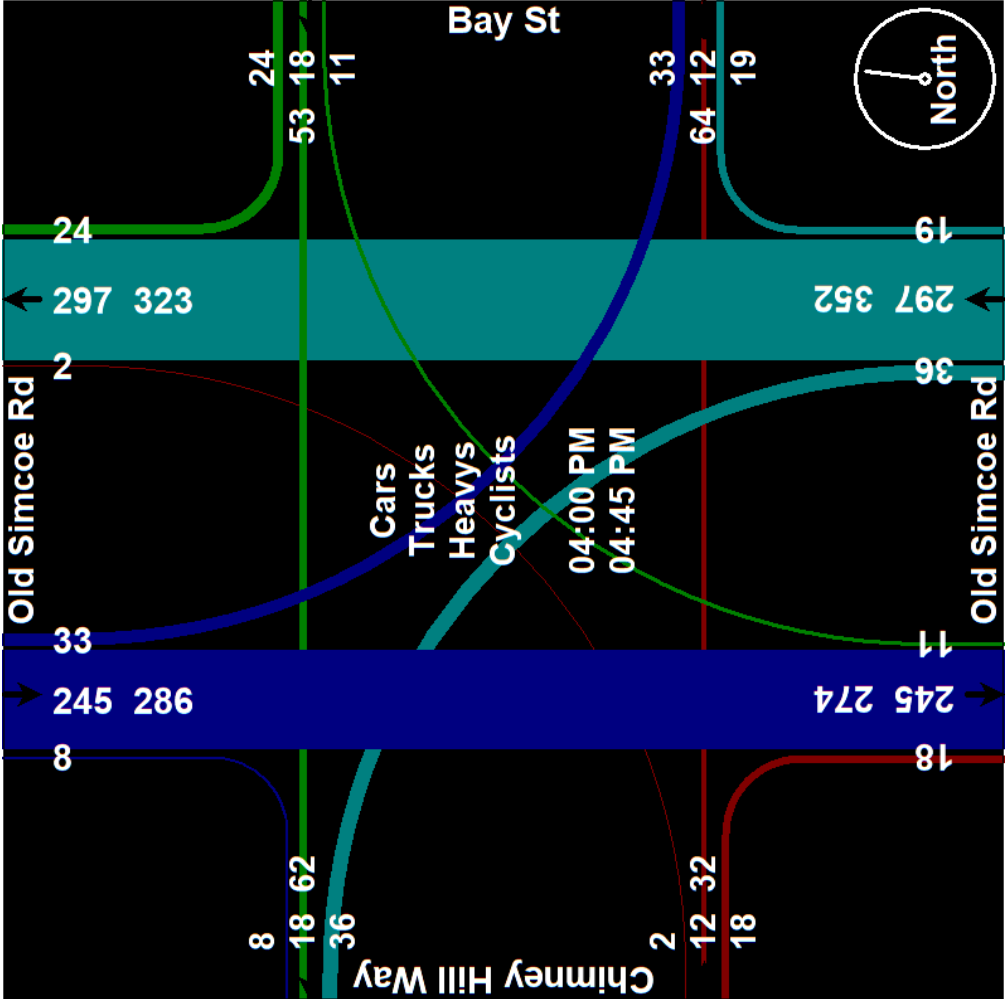


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APPENDIX E

Capacity Analysis

HCM Unsignalized Intersection Capacity Analysis

1: Old Simcoe Road & Chimney Hill Way/Bay Street

2021 Existing AM Peak Hour

09/28/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	5	18	3	3	21	8	135	3	12	150	1
Future Volume (Veh/h)	6	5	18	3	3	21	8	135	3	12	150	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	5	20	3	3	23	9	147	3	13	163	1
Pedestrians		2			3			7			4	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		0			0			1			0	
Right turn flare (veh)												
Median type	None								None			
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	386	362	172	388	362	156	166			153		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	386	362	172	388	362	156	166			153		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	98	99	99	97	99			99		
cM capacity (veh/h)	547	557	869	543	558	890	1422			1436		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	32	29	159	177								
Volume Left	7	3	9	13								
Volume Right	20	23	3	1								
cSH	714	789	1422	1436								
Volume to Capacity	0.04	0.04	0.01	0.01								
Queue Length 95th (m)	1.1	0.9	0.1	0.2								
Control Delay (s)	10.3	9.7	0.5	0.6								
Lane LOS	B	A	A	A								
Approach Delay (s)	10.3	9.7	0.5	0.6								
Approach LOS	B	A										
Intersection Summary												
Average Delay			2.0									
Intersection Capacity Utilization			24.1%	ICU Level of Service				A				
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

1: Old Simcoe Road & Chimney Hill Way/Bay Street

2021 Existing PM Peak Hour

09/28/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	12	18	11	18	24	36	297	19	33	245	8
Future Volume (Veh/h)	2	12	18	11	18	24	36	297	19	33	245	8
Sign Control		Stop				Stop			Free			Free
Grade		0%				0%			0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	13	20	12	20	26	39	323	21	36	266	9
Pedestrians		13				11			23			5
Lane Width (m)		3.5				3.5			3.5			3.5
Walking Speed (m/s)		1.1				1.1			1.1			1.1
Percent Blockage		1				1			2			0
Right turn flare (veh)												
Median type	None								None			
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	808	788	306	814	782	350	288	355				
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	808	788	306	814	782	350	288	355				
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.3	4.1	4.2				
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.4	2.2	2.3				
p0 queue free %	99	96	97	95	93	96	97	97				
cM capacity (veh/h)	254	298	714	255	301	668	1253	1134				
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	35	58	383	311								
Volume Left	2	12	39	36								
Volume Right	20	26	21	9								
cSH	440	380	1253	1134								
Volume to Capacity	0.08	0.15	0.03	0.03								
Queue Length 95th (m)	2.0	4.0	0.7	0.7								
Control Delay (s)	13.9	16.2	1.1	1.2								
Lane LOS	B	C	A	A								
Approach Delay (s)	13.9	16.2	1.1	1.2								
Approach LOS	B	C										
Intersection Summary												
Average Delay	2.8											
Intersection Capacity Utilization	39.6%			ICU Level of Service					A			
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

1: Old Simcoe Road & Chimney Hill Way/Bay Street

2024 FB AM Peak Hour

09/28/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	5	18	3	3	21	8	148	3	12	164	1
Future Volume (Veh/h)	6	5	18	3	3	21	8	148	3	12	164	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	5	20	3	3	23	9	161	3	13	178	1
Pedestrians		2			3			7			4	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		0			0			1			0	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	416	392	188	418	390	170	181			167		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	416	392	188	418	390	170	181			167		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	98	99	99	97	99			99		
cM capacity (veh/h)	523	536	853	520	537	874	1404			1419		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	32	29	173	192								
Volume Left	7	3	9	13								
Volume Right	20	23	3	1								
cSH	693	770	1404	1419								
Volume to Capacity	0.05	0.04	0.01	0.01								
Queue Length 95th (m)	1.1	0.9	0.1	0.2								
Control Delay (s)	10.4	9.9	0.4	0.6								
Lane LOS	B	A	A	A								
Approach Delay (s)	10.4	9.9	0.4	0.6								
Approach LOS	B	A										
Intersection Summary												
Average Delay			1.9									
Intersection Capacity Utilization			24.9%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

1: Old Simcoe Road & Chimney Hill Way/Bay Street

2024 FB PM Peak Hour

09/28/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	12	18	11	18	24	36	325	19	33	268	8
Future Volume (Veh/h)	2	12	18	11	18	24	36	325	19	33	268	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	13	20	12	20	26	39	353	21	36	291	9
Pedestrians		13			11			23			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		1			1			2			0	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	863	844	332	870	838	380	313			385		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	863	844	332	870	838	380	313			385		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.3	4.1			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.4	2.2			2.3		
p0 queue free %	99	95	97	95	93	96	97			97		
cM capacity (veh/h)	231	277	691	233	279	643	1227			1104		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	35	58	413	336								
Volume Left	2	12	39	36								
Volume Right	20	26	21	9								
cSH	414	354	1227	1104								
Volume to Capacity	0.08	0.16	0.03	0.03								
Queue Length 95th (m)	2.1	4.4	0.7	0.8								
Control Delay (s)	14.5	17.1	1.1	1.2								
Lane LOS	B	C	A	A								
Approach Delay (s)	14.5	17.1	1.1	1.2								
Approach LOS	B	C										
Intersection Summary												
Average Delay			2.8									
Intersection Capacity Utilization			41.4%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

1: Old Simcoe Road & Chimney Hill Way/Bay Street

2024 FT AM Peak Hour

09/28/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	6	22	3	4	21	9	148	3	12	164	1
Future Volume (Veh/h)	7	6	22	3	4	21	9	148	3	12	164	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	7	24	3	4	23	10	161	3	13	178	1
Pedestrians		2			3			7			4	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		0			0			1			0	
Right turn flare (veh)												
Median type	None								None			
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	418	394	188	424	392	170	181			167		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	418	394	188	424	392	170	181			167		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	99	97	99	99	97	99			99		
cM capacity (veh/h)	520	535	853	510	535	874	1404			1419		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	39	30	174	192								
Volume Left	8	3	10	13								
Volume Right	24	23	3	1								
cSH	689	756	1404	1419								
Volume to Capacity	0.06	0.04	0.01	0.01								
Queue Length 95th (m)	1.4	0.9	0.2	0.2								
Control Delay (s)	10.5	10.0	0.5	0.6								
Lane LOS	B	A	A	A								
Approach Delay (s)	10.5	10.0	0.5	0.6								
Approach LOS	B	A										
Intersection Summary												
Average Delay			2.1									
Intersection Capacity Utilization			25.1%	ICU Level of Service				A				
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

101: Chimney Hill Way & Site Access

2024 FT AM Peak Hour
09/28/2021



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Volume (veh/h)	0	29	12	2	6	0
Future Volume (Veh/h)	0	29	12	2	6	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	32	13	2	7	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	15				46	14
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	15				46	14
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1603				964	1066
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	32	15	7			
Volume Left	0	0	7			
Volume Right	0	2	0			
cSH	1603	1700	964			
Volume to Capacity	0.00	0.01	0.01			
Queue Length 95th (m)	0.0	0.0	0.2			
Control Delay (s)	0.0	0.0	8.8			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	8.8			
Approach LOS			A			
Intersection Summary						
Average Delay		1.1				
Intersection Capacity Utilization		13.3%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

1: Old Simcoe Road & Chimney Hill Way/Bay Street

2024 FT PM Peak Hour

09/28/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	14	20	11	20	24	40	325	19	33	268	9
Future Volume (Veh/h)	2	14	20	11	20	24	40	325	19	33	268	9
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	15	22	12	22	26	43	353	21	36	291	10
Pedestrians		13			11			23			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		1			1			2			0	
Right turn flare (veh)												
Median type	None								None			
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	872	852	332	881	846	380	314				385	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	872	852	332	881	846	380	314				385	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.3	4.1				4.2	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.4	2.2				2.3	
p0 queue free %	99	95	97	95	92	96	96				97	
cM capacity (veh/h)	226	273	691	226	275	643	1226				1104	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	39	60	417	337								
Volume Left	2	12	43	36								
Volume Right	22	26	21	10								
cSH	408	346	1226	1104								
Volume to Capacity	0.10	0.17	0.04	0.03								
Queue Length 95th (m)	2.4	4.7	0.8	0.8								
Control Delay (s)	14.8	17.6	1.2	1.2								
Lane LOS	B	C	A	A								
Approach Delay (s)	14.8	17.6	1.2	1.2								
Approach LOS	B	C										
Intersection Summary												
Average Delay	2.9											
Intersection Capacity Utilization	42.4%			ICU Level of Service					A			
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

101: Chimney Hill Way & Site Access

2024 FT PM Peak Hour
09/28/2021



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↰		↰	
Traffic Volume (veh/h)	0	32	62	7	4	0
Future Volume (Veh/h)	0	32	62	7	4	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	35	67	8	4	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	75				106	71
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	75				106	71
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1524				892	991
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	35	75	4			
Volume Left	0	0	4			
Volume Right	0	8	0			
cSH	1524	1700	892			
Volume to Capacity	0.00	0.04	0.00			
Queue Length 95th (m)	0.0	0.0	0.1			
Control Delay (s)	0.0	0.0	9.1			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	9.1			
Approach LOS			A			
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			13.7%	ICU Level of Service	A	
Analysis Period (min)			15			