Traffic Impact Study

Chickadee Grove Community

Town of Caledon

GHD | 6705 Millcreek Drive Mississauga Ontario L5N 5M4 Canada

800 | Report No 3 | May 2, 2022

Executive Summary

GHD is please to provide this updated Traffic Impact Study for the proposed residential development located on the east and west side of Chickadee Lane in the community of Bolton, in the Town of Caledon. This update is in response to comments received from the Town on the first submission, a copy of these comments is included in Appendix A. Consistent with the original report, this update determines the site related traffic and the subsequent traffic-related impacts on the adjacent road network during the weekday a.m. and p.m. peak hours from the proposed development. These impacts are based on projected future background traffic and road network conditions derived for a 2031 planning horizon.

Proposed Site Characteristics

The proposed site plan prepared by Humphries Planning Group Inc., dated August 20, 2021 consists of 151 residential townhouse units and 1 single family detached residential unit.

New Site Traffic

The total subject development is estimated to generate a total of 77 two-way trips during the a.m. peak hour consisting of 17 inbound and 60 outbound trips and a total of 86 two-way trips during the p.m. peak hour consisting of 55 inbound and 31 outbound trips.

Future Intersection Operating Characteristics

Based on the results of the capacity analysis, the subject development is expected to have a negligible impact on intersection operations at Chickadee Lane and De Rose Avenue. Emil Kolb Parkway and De Rose Avenue will experience some issues with the westbound left-turn lane which can be mitigated with the signalization of the intersection.

A signal warrant was completed for the intersection of Emil Kolb Parkway and De Rose Avenue which determined that traffic signals are not warranted under the 2031 total traffic scenario. It is recommended that the Region continue to monitor this intersection and that traffic signals be installed by the Region when the warrants are satisfied.

We trust that this satisfies your requirements, but do not hesitate to contact the undersigned if you have any questions.

Sincerely,

GHD

William Maria, P.Eng.
Transportation Planning Lead

Table of Contents

Figure Index

Table Index

1. Introduction

1.1 Retainer and Objective

GHD was retained to prepare a Traffic Impact Study (TIS) for the proposed residential development located on the east and west side of Chickadee Lane in the community of Bolton, in the Town of Caledon, to determine the following:

- Establish baseline traffic conditions for the study area and update the existing traffic conditions to derive the future background operating conditions for the study intersections at a future 2031 planning horizon; and
- Determine the traffic volumes anticipated to be generated by the proposed development during the weekday a.m. and p.m. peak hours; to assess the impact of this traffic on the study intersections and if needed, to recommend improvements to accommodate the forecasted traffic volumes.

Figure 1 Site Location

1.2 Study Team

The GHD team involved in the preparation of the study are

- William Maria, P.Eng., Senior Project Manager
- Adam Mildenberger, B.A., C.E.T., Transportation Planner

2. Site Characteristics

2.1 Study Area

The study area includes the following intersections:

- Emil Kolb Parkway at De Rose Avenue; and
- Chickadee Lane at De Rose Avenue

2.2 Site Plan

The proposed site plan prepared by Humphries Planning Group Inc., dated August 20, 2021 consists of 151 residential townhouse units, and 1 single family detached residential unit.

The proposed site plan is shown in **Figure 2**.

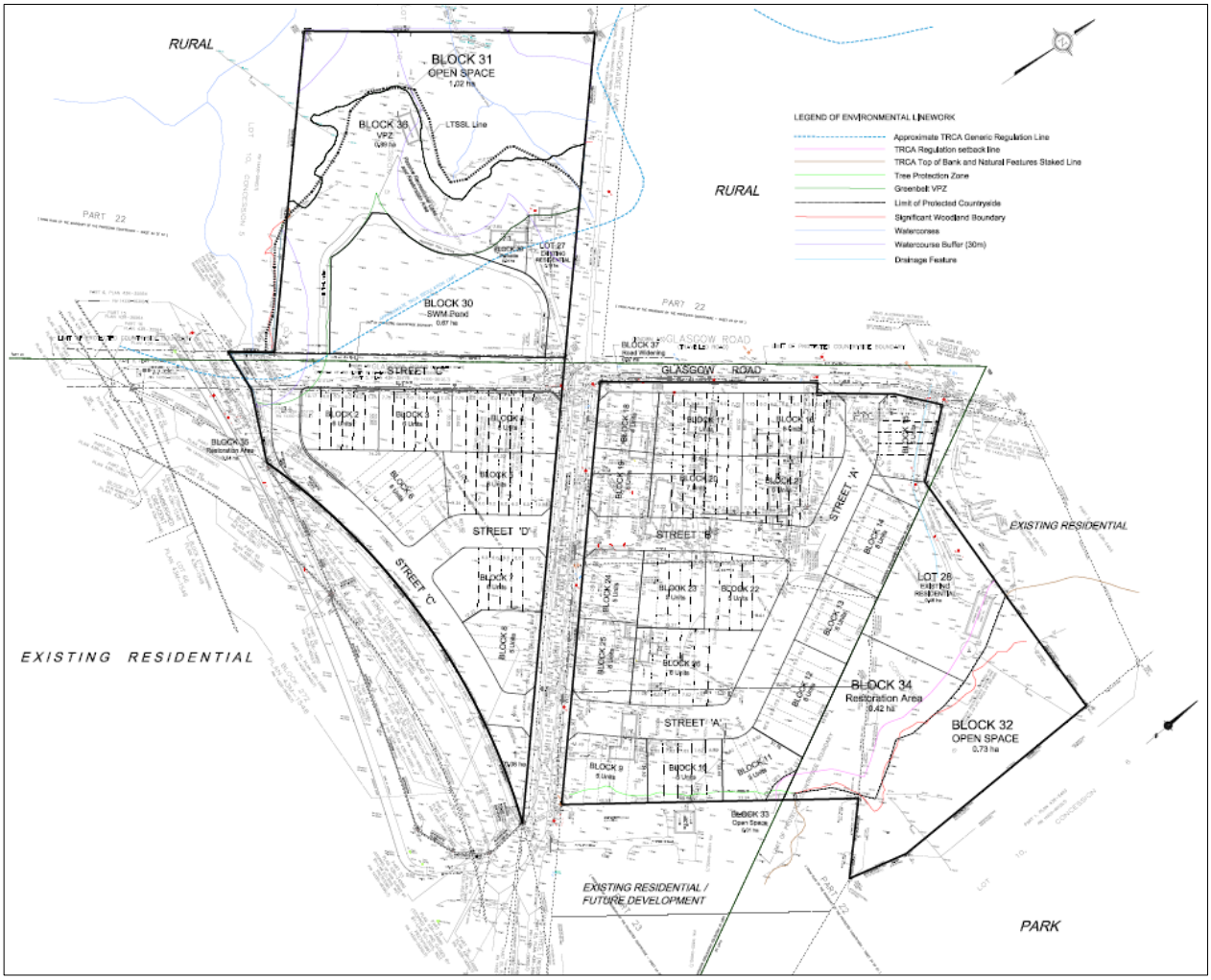


Figure 2 Site Plan

3. Existing Conditions

3.1 Existing Road Network

Emil Kolb Parkway is an arterial road with a posted speed limit of 60 km/h and a four-lane cross-section through the study area. The road is oriented north-south. It has a southbound auxiliary left-turn lane and a northbound auxiliary right-turn lane at the connecting road to Chickadee Lane.

Chickadee Lane is a minor two-lane collector road with a posted speed limit of 40 km/h. The road is oriented north-south and connects De Rose Avenue in the south to Glasgow Road to the north.

De Rose Avenue is a short section of road connecting Emil Kolb Parkway with Chickadee Lane. It is a four-lane road with auxiliary left and right turn at its intersection with Emil Kolb Parkway and Chickadee Lane.

3.2 Existing Traffic Data

GHD collected a.m. and p.m. peak hour turning movement counts at the study area intersections. These counts are included in **Appendix B**.

Figure 4 summarizes the adopted existing traffic volumes during the weekday a.m. and p.m. peak hours.

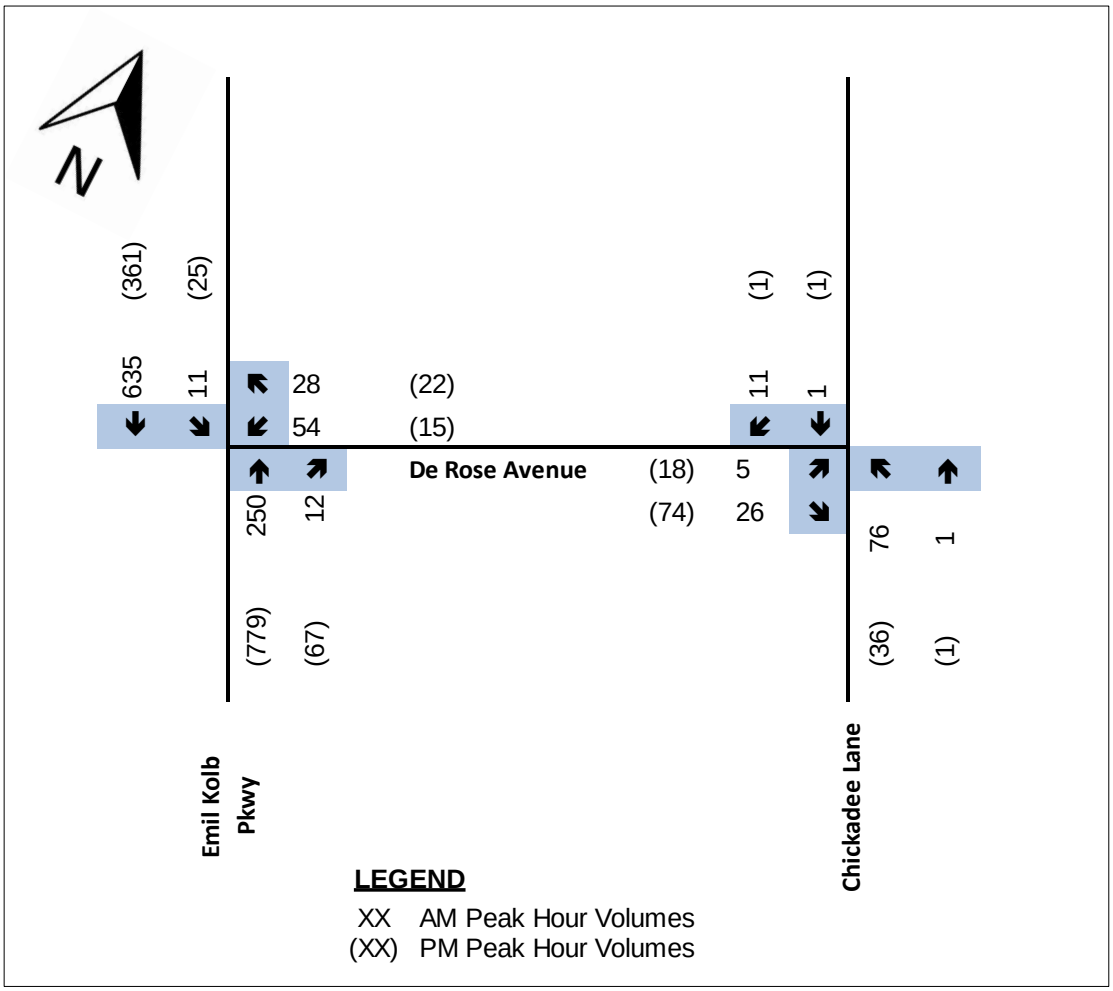


Figure 3 2017 Existing Traffic Volumes

4. Future Background Conditions

4.1 Background Growth

A planning horizon of 2031 was selected to be consistent with the Bolton Residential Expansion Study completed by Paradigm Transportation Solutions Ltd. which was used to establish future background traffic volumes for the unsignalized intersection of Emil Kolb Parkway and the De Rose Avenue. The p.m. northbound and southbound through movements of the 2031 future total volumes along Emil Kolb Parkway were used for the p.m. future background volumes. Since the

study did not include data for the a.m. peak hour, the future background volumes for the a.m. peak hour were derived by using the same percentage growth calculated for the p.m. between the 2017 and 2031 future background volumes in the Bolton Residential Expansion Study. The growth percentage of the p.m. southbound Emil Kolb Parkway through movement was 9%, and the northbound movement was 7%. These percentages were applied to opposite directions in the a.m. peak hour to reflect existing traffic patterns.

For the unsignalized intersection of Chickadee Lane and the De Rose Avenue, the 2031 future background volumes remained the same as the 2017 existing traffic volumes. The volumes at this intersection could only have an origin/destination within the surrounding residential area, and currently the surrounding areas are fully built-out with no plans for future development besides the subject site. As a result, no growth in future background traffic is expected.

4.2 Future Background Traffic

The 2031 future background traffic volumes are presented in **Figure 4**.

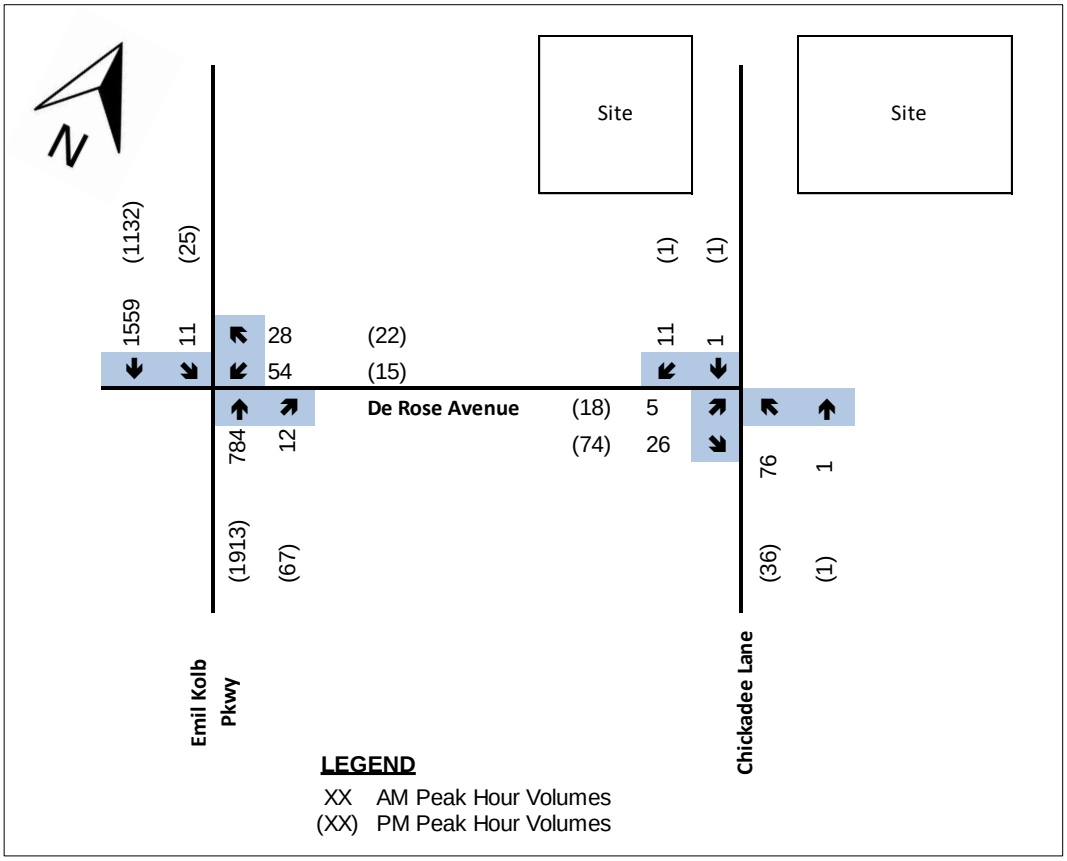


Figure 4 2031 Future Background Traffic Volumes

5. Site Generated Traffic

5.1 Site Trip Generation

Trip generation during the weekday peak hours for the proposed residential development was estimated using the Institute of Transportation Engineer's (ITE) 10th Edition Land Use Code (LUC) #230 for residential condominium/townhouses, as presented in **Table 1**. A comparison of the fitted curve equations and average rates resulted in greater trip generation for the fitted curve equation; therefore, the fitted curve equation was applied as a conservative measure.

Table 1 Site Trip Generation

Land Use Code	Units	Parameters	Peak Hour Trip Generation					
			Weekday AM			Weekday PM		
			In	Out	Total	In	Out	Total
Residential Townhouse (LUC 230)	151	Trip Rate	0.106	0.364	0.470	0.358	0.205	0.563
		Trip Ratio	23%	77%	-	63%	37%	-
		New Trips	16	55	71	54	31	85
Single Family Detached (LUC 210)	1	Trip Rate	1.000	5.000	6.000	1.00	1.00	2.00
		Trip Ratio	25%	75%	-	63%	37%	-
		New Trips	1	5	6	1	0	4
New Trips			16	60	77	55	31	86

The total subject development is estimated to generate a total of 77 two-way trips during the a.m. peak hour consisting of 17 inbound and 60 outbound trips and a total of 86 two-way trips during the p.m. peak hour consisting of 55 inbound and 31 outbound trips.

5.2 Site Trip Distribution and Assignment

Trips generated by the proposed development were distributed to the roadway system based on the existing traffic patterns and the available road network.

A review of existing traffic flows in the area (see Figure 4) confirmed that from the approximately 135 existing residential units along De Rose Avenue, Tomel Crescent and Bowes Crescent located south of the subject site, only one inbound and one outbound vehicle was observed during both the a.m. and p.m. peak hours heading north on Chickadee Lane and using Glasgow Road to exit the subdivision onto King Street West or Highway 50. It is therefore evident that Glasgow Road is currently not an attractive alternative for residents exiting the subdivision over using Emil Kolb Parkway and therefore no site traffic from the subject site was assigned to Glasgow Road.

The directional trip distributions for site traffic are summarized in Table 2.

Table 2 Site Trip Distribution

Trip Orientation	A.M. Peak		P.M. Peak	
	In	Out	In	Out
North on Emil Kolb Parkway	50%	30%	30%	60%
South on Emil Kolb Parkway	50%	70%	70%	40%
Total	100%	100%	100%	100%

The estimated site trips generated by the proposed development, as assigned to the nearby road network for the weekday a.m. and p.m. peak hours, is shown in **Figure 5**.

Figure 5 Site Generated Trips

6. Future Total Traffic

The future total traffic conditions for the peak study hours was derived by combining the projected future background traffic with the corresponding estimate of the total site generated traffic.

Figure 6 summarizes the future total traffic volumes at the 2031 planning horizon during the weekday a.m. and p.m. peak hours.

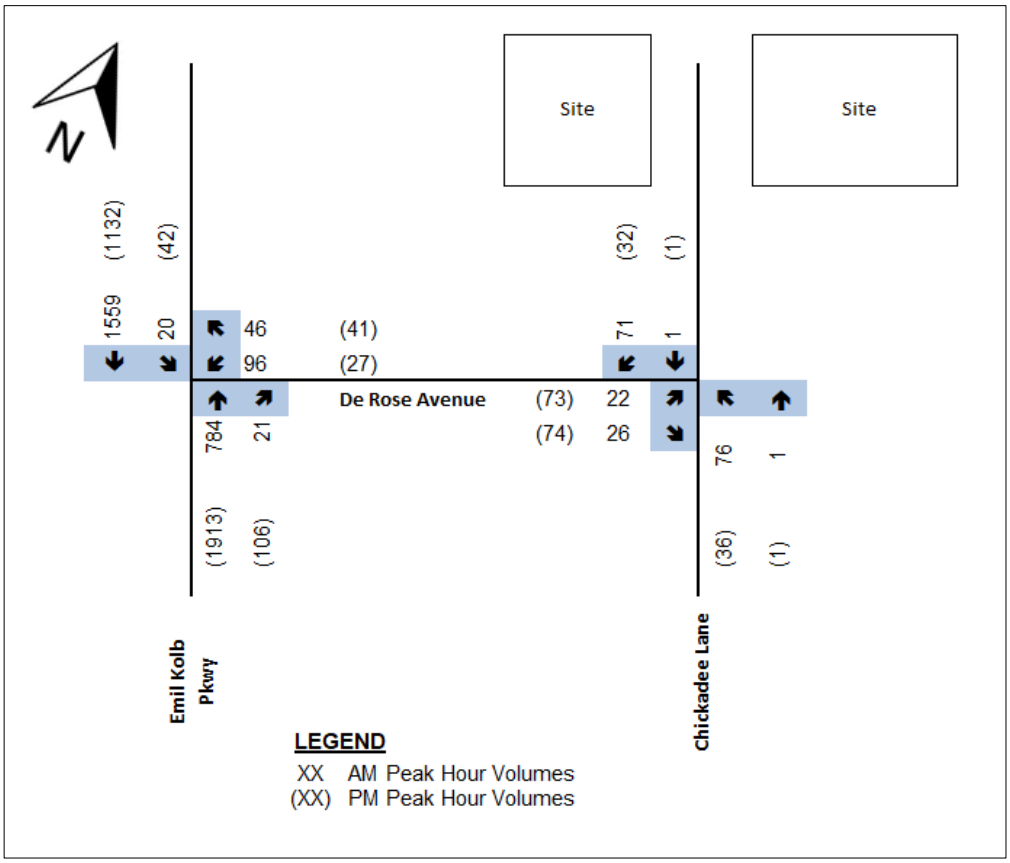


Figure 6 2031 Future Total Traffic Volumes

7. Intersection Capacity Analysis

The capacity analysis identifies how well the intersections and driveways are operating. The analysis contained within this report utilized the Highway Capacity Manual (HCM) 2000 procedure 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. Queuing characteristics are reported as the predicted 95th percentile queue for each turning movement.

The following analysis includes identification of conditions at signalized intersections where:

- Volume/capacity (v/c) ratios for through movements or shared through/turning movements increased to 0.85 or above;
- V/c ratios for exclusive movements increased to 0.90 or above; or
- 95th percentile queues for an individual movement are projected to exceed available turning lane storage.

The analysis includes identification of conditions at unsignalized intersections where:

- Level of service if LOS "D" or greater; or
- 95th percentile queues for an individual movement are projected to exceed available turning lane storage.

The following tables summarize the HCM capacity results for the study intersections during the weekday a.m. and p.m. hours under existing 2017, future background 2031 and future total 2031 traffic conditions. The detailed calculation sheets are provided in **Appendix C**.

7.1 Emil Kolb Parkway at De Rose Avenue

Unsignalized and proposed signalized capacity analyses for this intersection during the weekday a.m. and p.m. peak hours are summarized in **Table 3**.

Table 3 Capacity Analyses for Emil Kolb Parkway at De Rose Avenue

Traffic Condition	Movement v/c (LOS) 95th Percentile Queue	
	AM Peak Hour	PM Peak Hour
Existing 2017	WBL: 0.13 (B) <1 veh WBR: 0.03 (A) <1 veh SBL: 0.38 (A) <1 veh	WBL: 0.08 (C) <1 veh WBR: 0.04 (B) <1 veh SBL: 0.03 (A) <1 veh
Future Background 2031	WBL: 0.59 (F) 20 m WBR: 0.05 (B) <1 veh SBL: 0.01 (A) <1 veh	WBL: **0.97** (F) 18 m WBR: 0.10 (C) <1 veh SBL: 0.10 (C) <1 veh
Future Total 2031	WBL: **1.1** (F) 50 m WBR: 0.08 (B) <1 veh SBL: 0.02 (A) <1 veh	WBL: **1.96** (F) 32 m WBR: 0.18 (C) <1 veh SBL: 0.17 (C) <1 veh
Future Total 2031 (Signalized)	**Overall: 0.55 (A)** WBL: 0.25 (C) 27 m WBR: 0.03 (C) 8 m NBT: 0.33 (A) 35 m NBR: 0.01 (A) <1 veh SBL: 0.05 (A) <1 veh SBT: 0.66 (A) 93 m	**Overall: 0.64 (B)** WBL: 0.07 (C) 11 m WBR: 0.08 (C) 12 m NBT: 0.83 (B) 151 m NBR: 0.07 (A) <1 veh SBL: 0.53 (C) 22 m SBT: 0.49 (A) 58 m

Under the future background traffic conditions in 2031, this intersection is expected to have acceptable operational characteristics, with ample reserve capacity, acceptable levels of delay and no queueing issues during the weekday a.m. peak hour. During the p.m. peak hour, the westbound left-turn movement is expected to be over capacity. All other movements are expected to operate satisfactorily during the p.m. peak hour.

Under 2031 future total conditions with the added site traffic, the intersection continues to operate very similarly to the future background conditions, with any increase in v/c ratios, level of service, and queueing noticeable. The westbound left-turn lane is expected to continue to operate over capacity in both the a.m. and p.m. peak hours. However, these issues are expected to be mitigated with the signalization of the intersection.

There are no geometric improvements recommended at this intersection in response to the site traffic generated from the subject development.

7.2 Chickadee Lane at De Rose Avenue

Unsignalized capacity analyses for this intersection during the weekday a.m. and p.m. peak hours are summarized in **Table 4**.

Table 4 Capacity Analyses for Chickadee Lane at De Rose Avenue

Traffic Condition	Movement v/c (LOS) 95th Percentile Queue	
	AM Peak Hour	PM Peak Hour
Existing 2017	EBL: 0.00 (A) <1 veh NBLT: 0.10 (A) <1 veh SBTR: 0.01 (A) <1 veh	EBL: 0.01 (A) <1 veh NBLT: 0.05 (A) <1 veh SBTR: 0.00 (A) <1 veh
Future Background 2031	EBL: 0.00 (A) <1 veh NBLT: 0.10 (A) <1 veh SBTR: 0.01 (A) <1 veh	EBL: 0.01 (A) <1 veh NBLT: 0.05 (A) <1 veh SBTR: 0.00 (A) <1 veh
Future Total 2031	EBL: 0.02 (A) <1 veh NBTL: 0.13 (B) <1 veh SBTR: 0.08 (A) <1 veh	EBL: 0.05 (A) <1 veh NBTL: 0.06 (B) <1 veh SBTR: 0.04 (A) <1 veh

Under 2031 future background conditions there was no corridor growth at the unsignalized intersection, therefore there was no change to the operation of the intersection.

Under 2031 future total conditions with the added site traffic, the intersection continues to operate very similarly to the future background conditions, with any increase in v/c ratios, level of service, and queueing considered negligible. Any impacts from the proposed site traffic are not expected to be identifiable from the driver's perspective.

There are no geometric improvements recommended at this intersection in response to the site traffic generated from the subject development.

8. Signal Warrant Analysis

GHD completed a signal warrant analysis for the intersection of Emil Kolb Parkway and De Rose Way according to the Ontario Traffic Manual Book 12 (Justification 7 for Projected Volumes). The results of the signal warrant for the 2031 future total traffic planning horizon is attached in **Appendix D**.

According to the signal warrant calculations, neither Justification 1 – Minimum Vehicle Volume or Justification 2 – Delay to Cross Traffic meet the necessary compliance percentage to justify the installation of traffic signals at this intersection under future traffic conditions.

9. Functional Design Study

GHD has undertaken a functional design study to ensure the proposed road network meets the Town's design standards. As per the Town's *Development Standards, Policies and Guidelines* (2019), "*Roadway geometric design will be in accordance with the Town of Caledon Geometric Design Standards and Road Sections as outlined in Town Standard Drawings*."[1]

The Town's Geometric Design Standards are provided in Figure 7 below for reference throughout this section.

TABLE 1.2
TOWN OF CALEDON
GEOMETRIC ROAD DESIGN STANDARDS

	ADT	Posted Speed (km/h)	Hor. Curve Rad. (m)	Vert. Curve (Min. k) Sag	Vert. Curve (Min. k) Crest	Road Grade Max. (%)	Road Grade Min. (%)	Grade at Intersections Stop	Grade at Intersections Through	R.O.W Width (m)	Pav't Width (m)	Inter-section Angle	Cul-de-sac Radius Pav (m)	Cul-de-sac Max Grade
Local Residential	<1000	50	90	12	8	6.0%	0.75%	2.0%	3.0%	18	7.9	85->95	15	3.0%
Local Industrial	<1000	50	115	18	15	4.0%	0.75%	2.0%	3.0%	22.5	10.4	85->95	20	3.0%
Residential Collector	1000 to 3000	60	130	18	15	6.0%	0.75%	2.0%	3.0%	20	8.9	85->95	N/A	N/A
Industrial Collector	1000 to 3000	70	190	25	25	6.0%	0.75%	2.0%	3.0%	26	13.9	85->95	N/A	N/A
Arterial	> 6000	80	250	30	35	6.0%	0.75%	2.0%	3.0%	30	7.0-15.0	85->95	N/A	N/A

Figure 7: Town's Geometric Design Standards

9.1 Right-of-way (ROW) Width

The Town's right-of-way width for local residential roads (<1000 ADT) is 18 metres. The site's proposed roads (Streets A, B, C and D) are to have 18.0 metre ROWs, except for a portion of Street 'C' which is proposed to have a 16 metre ROW due to property limitations associated with the adjacent curved Emil Kolb Parkway ROW.

This section of Street 'C' will provide direct access to only 8 residential townhouse units for a short portion of its east side, with its primary function being a secondary road connection between

[1] Development Standards, Policies and Guidelines, 2019, p.59

Street's 'A', 'D' and 'C' on the west side of Chickadee Lane. The proposed subdivision layout results in a very nominal level of ADT (average daily traffic) expected to use Street 'C' with really only traffic generated from the aforementioned 8 units expected to use this section.

This Section of Street 'C' is to be referred to as a "Local Window Street' as per the Town's Road Section of the same name (Standard No. 201), which permits a 16.0 metre ROW. The cross-section elements proposed to be included (i.e. sidewalks, boulevard, travel lanes, etc.) are expected to be consistent with the Town's cross-section drawing.

Chickadee Lane is currently a collector road with a ROW of approximately 20 metres, which is consistent with the Town's standards.

9.2 Posted Speed

Although the Town's standard for posted speed limit on local residential roads is 50 km/h, Chickadee Lane is currently posted at 40 km/h. Therefore, it is recommended this posted speed limit be maintained and also be applied to the proposed local residential streets internal to the site.

9.3 Horizontal Curves

Noticeable horizontal curves are proposed on Street 'C' and Street 'A', however the curved portions of the roadway will be designed in accordance with Standard Drawing No. 214 for "Local Residential Road Elbow Design" which includes a centerline radius of approximately 14 metres.

9.4 Vertical Curves

The vertical grades of the proposed local residential roads are designed to not fall outsides of the Town's standard range (0.75% to 6.0%).

9.5 Road Grades

The intersection approach grades of the proposed intersections are designed to not exceed the Town's standards of 2.0% for stop-controlled approaches and 3.0% for free flow approaches.

9.6 Intersection Angles

The intersection angles of the proposed intersections are generally designed to not fall outside of the Town's standard ranges (85 to 95 degrees).

9.7 Cross-Sections

The proposed cross-section for the 16.0 metre ROW will be consistent with the Town's Standard No. 201, which includes an 8.5 metre roadway, 7.9 metre pavement, one travel lane per direction, and sidewalk on one side of the roadway. The sidewalk will be constructed on the east side of Street 'C' fronting the proposed units, with no sidewalk on the west side required for pedestrian connectivity.

The proposed cross-section for the 18.0 metre ROW will be consistent with the Town's Standard No. 202, which includes an 8.5 metre roadway, 7.9 metre pavement, one travel lane per direction, and sidewalks on both sides of the roadway.

The proposed cross-section for the 20.0 metre ROW on Chickadee Lane will be consistent with the Town's Standard No. 203, which includes a 9.3 metre roadway, 8.7 metre pavement, one travel lane per direction, and sidewalks on both sides of the roadway.

The noted cross-sections are appended.

9.8 Traffic Calming

Traffic calming measures are not warranted for the following reasons:

- Based on the existing and proposed road network, significant traffic infiltration through the proposed subdivision is not expected;
- The proposed road network does not include any long lineal tangent road lengths that could potentially result in aggressive driving behavior;
- As per the Town's standards, "Traffic calming designs should not be required on roads that carry local traffic only with less than 500 ADT";
- As per the Town's standards, "Traffic calming will not be supported on roadways that do not have more than 200 metres of uncontrolled length;" and
- The proposed combination of short tangent lengths and multiple horizontal curves together act as a suitable form of traffic calming.

9.9 Intersection Control

The following intersections and traffic control are proposed:

- Street B / Street D at Chickadee Lane (stop controlled on Streets B and D);
- Street D at Street C (stop controlled on Street D);
- Street A at Street B (stop controlled on Street B);
- Street C / Street A at Chickadee Lane (stop controlled on Streets C and A); and
- Street A at Glasgow Road (stop controlled on Street A).

9.9.1 All-way Stop Control

As per the Ontario Ministry of Transportation's (MTO) Ontario Traffic Manual (OTM) Book 5 Regulatory Signs, an all-way stop is warranted when:

- Total vehicle volume on all intersection approaches exceeds 350 for the highest hour recorded; and
- Volume split does not exceed 75/25 for three-way control or 65/35 for four-way control. Volume is defined at vehicles only.

As per the forecasted 2031 future total volumes on Chickadee Road presented in this report, the a.m. and p.m. peak hour volumes are expected to very low (76 vehicles southbound and 20 vehicles northbound during the a.m. peak hour; 29 vehicles southbound and 73 vehicles northbound during the p.m. peak hour) compared to the aforementioned 350 vehicle threshold as per OTM.

Of these peak hour volumes on Chickadee Lane, the majority of volumes are expected to be vehicles generated from the subject site, thus being inbound and outbound volumes from the proposed intersecting roads on Chickadee Lane, with the small remainder expected to be background volumes (through movements) on Chickadee Lane travelling through the site. This is evident in reviewing the trip figures presented in this report (i.e. Future Background Volumes, Site Trips, and Future Total Volumes).

It is therefore strongly expected that peak hour volumes at the site intersections on Chickadee Lane and on Glasgow Road will not exceed the required 350 vehicle threshold as required for an all-way stop to be warranted.

9.9.2 Traffic Signals

Furthermore, the volume thresholds are much higher for traffic signals as per OTM Book 12 Traffic Signals, and consequently traffic signals are not expected to be warranted at the site intersections on Chickadee Lane and on Glasgow Road.

9.9.3 Roundabouts

As per the Town's standards, "intersections meeting warrants for signalization or all-way stop control MUST first be analyzed for the intersection of a roundabout prior to proceeding with intersection control." As a result of all-way stops or signals not being warranted, roundabouts are not recommended.

10. Parking Assessment

10.1 Existing Site Specific Zoning By-Law Requirement

The proposed development is subject to the Town's By-Law 2006-50 Table 5.1, which requires the following minimum parking rates:

Dwelling, Townhouse

Resident parking: 2 spaces per dwelling unit

- 2.0 x 151 units = 302 parking spaces required

Visitor parking: 0.25 spaces per dwelling unit

- 0.25 x 151 units = 38 visitor parking spaces required

As per the Town's Zoning By-Law, the proposed development requires a minimum of 302 resident parking spaces and 38 visitor parking spaces.

10.2 Proposed Site Parking

The following parking supply is proposed for the development:

- A total of 302 resident parking spaces including one garage space and one driveway space.
- A total of 87 on-street visitor parking spaces.

The proposed development meets the minimum parking requirement for resident parking and exceeds the visitor parking requirement.

11. Active Transportation

Sidewalks are proposed on both sides of all internal roads with the exception of Street C which contains a sidewalk on the east side only. The proposed sidewalks will provide residents with direct connections to the existing Multi-use Trail on Emil Kolb Parkway.

A potential Trail system is also proposed that travels along Glasgow Road, around the SWM Pond and down Chickadee Lane and De Rose Avenue to connect to the Multi-use Trail on Emil Kolb Parkway.

12. Conclusions and Recommendations

The proposed site plan prepared by Humphries Planning Group Inc., dated August 20, 2021 consists of 151 residential townhouse units, and 1 single family detached residential unit.

The total subject development is estimated to generate a total of 77 two-way trips during the a.m. peak hour consisting of 17 inbound and 60 outbound trips and a total of 86 two-way trips during the p.m. peak hour consisting of 55 inbound and 31 outbound trips.

Based on the results of the capacity analysis, the subject development is expected to have a negligible impact on intersection operations at Chickadee Lane and De Rose Avenue. The intersection of Emil Kolb Parkway and De Rose Avenue will experience some issues with the westbound left-turn lane, but these issues can be mitigated with the signalization of the intersection once signal warrants are satisfied.

The subject site provides a total of 2 resident parking spaces per unit which meets the By-Law requirement. A total of 87 on-street visitor parking spaces are provide which exceeds the zoning By-Law requirement.

Appendices

Appendix A

Town and Region Comments

	STAFF COMMENTS	ACTION BY	RESPONSE
Town of Caledon, Planning Department Cassandra Jasinski, Heritage Planner - December 2, 2021			
Cultural Heritage Impact Statement (CHIS):			
1.	In the first submission heritage comments, a CHIS evaluating the impact of the proposed development on cultural heritage resources was requested, mainly to assess the impact of the development on the Glasgow Road Steel Truss Bridge, which is designated under Part IV of the *Ontario Heritage Act*.		No Action Required
2.	Following discussion with Town of Caledon Transportation Engineering staff, who have reviewed the revised Transportation studies provided as part of the second submission, Heritage staff are satisfied that the requirement for a CHIS is not necessary at this time. Heritage staff will continue to work with Transportation Engineering staff to determine future use of the Glasgow Road Streel Truss Bridge.		No Action Required
3.	Should the development proposal change significantly in scope or design, a CHIS or additional cultural heritage investigations may be required.		No Action Required
Archeological Assessment			
1.	The proponent submitted a Stage 1-2 Archaeological Assessment, dated August 4, 2021, prepared by Irvin Heritage Inc., as part of their second submission.		
2.	Heritage staff received an associated Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) acceptance letter, dated November 5, 2021. The letter references an archaeological assessment with the same Project Information Form (PIF) identifying number for the assessment but a different date and title. The date of the archaeological assessment referenced in the letter is August 25, 2021.		
3.	The proponent shall provide the archaeological assessment with the title and date corresponding to that referenced in the MHSTCI acceptance letter.		
4	If the conclusions of the archaeological assessment remain the same between the two versions, no further assessment is anticipated for the subject lands.		
5.	The following archaeological conditions are to be included in all agreements associated with the applications: • The proponent shall avoid and/or mitigate, to the satisfaction of the MHSTCI and the Town, any archaeological resources that are identified through new information or documentation which may be received following the acceptance of archaeological assessment(s) by the MHSTCI and clearance of archaeological concerns for the subject lands by the Town. • The proponent shall immediately stop all work on the Subject Lands and notify the Town's Heritage staff, Director of Planning, and the MHSTCI in the event that deeply buried archaeological resources are found during the course of any grading or related works on the Subject Lands. Any and all work related to the discovery of deeply buried archaeological resources shall be carried out by the proponent, at their expense, to the satisfaction of the MHSTCI and the Town's Heritage staff.		
TRCA Planning & Development Permits Jason Wagler, Senior Planner - March 22, 2022			
Subject Proposal			
1.	We understand that the Official Plan Amendment proposes to redesignate the lands from Prime Agricultural Area and Environmental Policy Area (EPA) to a Residential Policy Area to permit the development of single detached, semi-detached and various forms of townhouse units with a site-specific density.		No Action Required
2.	We note the Draft Plan of Subdivision proposes to create 154 dwellings consisting of 3 single detached dwellings, 151 rear lane townhouse dwellings, a stormwater management pond, environmental blocks and a park block.		No Action Required
3.	The Zoning By-law Amendment proposes to rezone the lands from Agricultural (A1), Rural Residential (RR), Open Space (OS) and Environmental Policy Area 2 Zone (EPA2) to Mixed Density Residential – Exception XXX (RMD-XXX), Rural Residential (RR), Open Space (OS) and Environmental Policy Area 2 Zone (EPA2) to permit site specific uses and standards to implement the draft plan of subdivision.		No Action Required

	STAFF COMMENTS	ACTION BY	RESPONSE
TRCA Recommendation:			
1.	Given the supplementary documents and constructive submissions to date, TRCA's key priority issues that were identified in our letter dated March 5, 2021, have been adequately addressed for this stage of the planning process. Our specific review comments on the resubmission are identified in Appendix B. Based on this review, TRCA has no objection in-principle to the Proposed Official Plan Amendment, Draft Plan of Subdivision (revised October 24, 2021), Zoning By-law Amendment as currently submitted and TRCA staff are in position to provide Conditions of Draft Plan Approval that are attached as Appendix A.		No Action Required
2.	Further, as part of TRCA's technical environmental advisory role as per the existing MOUs between the TRCA and Town and TRCA and Region, it is our opinion that the proposed plan is consistent with the PPS, Greenbelt Plan, Growth Plan, Town Official Plan, and Region Official Plan. However, the municipalities are the designated approval authority and are responsible for ensuring consistency and conformity with the applicable policies.		No Action Required
Town of Caledon – Parks **Eva Li - March 29, 2022**			
Official Plan & Zoning By-Law Amendments:			
1.	Park Planning has no objection to proposed Official Plan amendment to change the designation of the property from Prime Agricultural Area and Environmental Policy Area to Residential Policy Area and to rezone the subject site from the Agricultural (A1), Rural Residential (RR), Open Space (OS) and Environmental Policy Area 2 Zone (EPA2) to Mixed Density Residential with Exception XXX (RMD-XXX), Rural Residential (RR), Open Space (OS) and Environmental Policy Area 2 Zone (EPA2), subject to the requirements and conditions outlined below:		No Action Required
Parkland Dedication:			
1.	Park Block 29 will not be accepted by the Town as current proposed Park Block does not conform to Section 2.2 in the Town of Caledon Parkland By-law 2013-104 and Section 2.1.2 'Parks Classifications' in the Town of Caledon Development Standards Manual. Payment of money in lieu of conveyance of parkland will be required for the proposed draft plan of subdivision according to the Town of Caledon's Official Plan Policies pursuant to the section 51.1 of the Planning Act, prior to the registration of the plan of subdivision.		The parkette block as been removed from the plan per the revised draft plan. Parkland will be provided by cash in lieu only. No land will be set aside .
2.	In accordance with the sections 2.1 a) and 3.1 of the Town's Parkland Dedication By-law - 2013-104 and Official Plan policy 6.2.12.1 a) and 6.2.12.2 a), payment of money in lieu of conveyance of parkland will be required at equivalent market value of 0.25 ha or 2.5% of the development land. The value of the land will be determined as of the day before registration of subdivision.		Understood tbc
3.	Prior to registration of the plan of subdivision, the owner will provide a narrative appraisal report prepared for The Corporation of the Town of Caledon for the purposes of calculating the amount of payment in lieu of conveyance of parkland. The narrative appraisal report shall be prepared by a qualified appraiser who is a member in good standing of the Appraisal Institute of Canada, and shall be subject to the review and approval of the Director of Community Services or their designate.		Understood
4.	Appraisals are considered valid for a maximum period of six months. We recommend providing the appraisal to Parks staff at least 2 months prior to registration of subdivision to avoid delays.		Understood
Summary:			

<table>
<tr><th></th><th>STAFF COMMENTS</th><th>ACTION BY</th><th>RESPONSE</th></tr>
<tr><td>1.</td><td>The above comments represent Parks review of the proposed development. Based on the current information provided, Parks would support the proposed development subject to the comments, requirements and conditions outlined above.</td><td></td><td>No Action Required</td></tr>
<tr><td colspan="4">Dufferin-Peel Catholic District School Board
Krystina Koops, Planner - January 15, 2021</td></tr>
<tr><td></td><td>The applicant proposes the development of 3 detached and 151 townhouse units which are anticipated to yield:

• 14 Junior Kindergarten to Grade 8 Students; and
• 6 Grade 9 to Grade 12 Students

The proposed development is located within the following school catchment areas which currently operate under the following student accommodation conditions:

<table><tr><th>Catchment Area</th><th>School</th><th>Enrolment</th><th>Capacity</th><th># of Portables / Temporary Classrooms</th></tr><tr><td>Elementary School</td><td>St. Nicholas</td><td>512</td><td>808</td><td>0</td></tr><tr><td>Secondary School</td><td>St. Michael</td><td>1037</td><td>1266</td><td>0</td></tr></table></td><td></td><td>No Action Required</td></tr>
<tr><td>1.</td><td>That the applicant shall agree in the Servicing and/or Subdivision Agreement to include the following warning clauses in all offers of purchase and sale of residential lots until the permanent school for the area has been completed.</td><td></td><td>Agreed</td></tr>
<tr><td>a)</td><td>"Whereas, despite the best efforts of the Dufferin-Peel Catholic District School Board, sufficient accommodation may not be available for all anticipated students from the area, you are hereby notified that students may be accommodated in temporary facilities and/or bussed to a school outside of the neighbourhood, and further, that students may later be transferred to the neighbourhood school."</td><td></td><td>Agreed</td></tr>
<tr><td>b)</td><td>"That the purchasers agree that for the purpose of transportation to school, the residents of the subdivision shall agree that children will meet the bus on roads presently in existence or at another place designated by the Board."</td><td></td><td>Agreed</td></tr>
<tr><td>2.</td><td>The Board will be reviewing the accommodation conditions in each elementary and secondary planning area on a regular basis and will provide updated comments if necessary.</td><td></td><td>Understood</td></tr>
<tr><td colspan="4">Peel District School Board
Julian Wigle, Planning Officer - March 3, 2021</td></tr>
<tr><td></td><td>The anticipated yield from this plan is as follows: 42 K-8
13 9-12

The students are presently within the following attendance areas:

<table><tr><th>School</th><th>Enrolment</th><th>Capacity</th><th># of Portables</th></tr><tr><td>Macville P.S.</td><td>318</td><td>323</td><td>0</td></tr><tr><td>Humberview S.S.</td><td>1,294</td><td>1,437</td><td>4</td></tr></table></td><td></td><td>No Action Required</td></tr>
</table>

	STAFF COMMENTS	ACTION BY	RESPONSE
	The Board requires the inclusion of the following conditions in the Development Agreement as well as the Engineering Agreement:		Understood
1.	Prior to final approval, the Town of Caledon shall be advised by the School Board(s) that satisfactory arrangements regarding the provision and distribution of educational facilities have been made between the developer/applicant and the School Board(s) for this plan.		Agreed
2.	The Peel District School Board requires the following clause be placed in any agreement of purchase and sale entered into with respect to any units on this plan, within a period of five years from the date of registration of the development agreement:		Agreed
a)	"Whereas, despite the efforts of the Peel District School Board, sufficient accommodation may not be available for all anticipated students in the neighbourhood schools, you are hereby notified that some students may be accommodated in temporary facilities or bused to schools outside of the area, according to the Board's Transportation Policy. You are advised to contact the School Accommodation department of the Peel District School Board to determine the exact schools."		Agreed
b)	"The purchaser agrees that for the purposes of transportation to school the residents of the development shall agree that the children will meet the school bus on roads presently in existence or at another designated place convenient to the Peel District School Board."		Agreed
3.	The developer shall agree to erect and maintain signs at the entrances to the development which shall advise prospective purchases that due to present school facilities, some of the children from the development may have to be accommodated in temporary facilities or bused to schools, according to the Peel District School Board's Transportation Policy."		Agreed
4.	The Board wishes to be notified of the decision of Council with respect to this proposed application.		Understood
Urban Design – John G. Williams Limited Architect David Stewart – November 22, 2021			
Plan of Subdivision:			
1.	Revisions to the draft plan have occurred north of Street 'C' Glasgow Rd. Extension related to reconfiguration of SWM and open space uses. The existing residential lot (Lot 2) has decreased on size and no longer contains the existing structures.		No Action Required
2.	The number of lots remains the same as the previous submission. 154 residential units are proposed for the subject lands, including 2 existing residential lots. Proposed built form will include 151 new townhouse units on lot frontages of 6.0m (132 units) and 7.62m (19 units) and 1 new single detached dwelling.		No Action Required
Community Design Plan & Urban Design Brief:			
	The CDP/UDB has been revised to address most of our previous comments. There are just a couple of very minor comments as shown on the attached marked-up copy of the UDB:		Noted
3.	Pg. 38 – Text regarding sidewalks needs to be updated to match with sidewalk plan.		Text has been undated
4.	Pg. 42 - The Priority Lot Plan (PLP) should be updated. Refer to comments made on pg. 21 of ADG.		PLP has been updated
5.	Figure 18 – Information regarding Conceptual Townhouse Elevations is missing (blank pages).		Elevations have now been included
Architectural Design Guidelines:			
	The ADG has been revised to address most of our previous comments. There are just a couple of very minor comments as shown on the attached marked-up copy of the ADG:		Noted
6.	Pg. 21 - Section 3.0 (Priority Lot Dwellings); please update the Priority Lot Plan as per marked-up redline comments on page 21.		Updates have been undertaken per comments provided
Canada Post Christopher Fearon - December 1, 2021			
	In order to establish mail service, we request that the following be included in the project's Conditions of Draft Approval:		Noted
1.	The owner/developer will consult with Canada Post to determine suitable permanent locations for the placement of Community Mailboxes and to indicate these locations on appropriate servicing plans;		Noted
2	The owner/developer will confirm to Canada Post that the final secured permanent locations for the Community Mailboxes will not be in conflict with any other utility; including hydro transformers, bell		Noted

	STAFF COMMENTS	ACTION BY	RESPONSE
	pedestals, cable pedestals, flush to grade communication vaults, landscaping enhancements (tree planting) and bus pads;		
3.	The owner/developer will install concrete pads at each of the Community Mailbox locations as well as any required walkways across the boulevard and any required curb depressions for wheelchair access as per Canada Post's concrete pad specification drawings;		Noted
4.	The owner/developer will agree to prepare and maintain an area of compacted gravel to Canada Post's specifications to serve as a temporary Community Mailbox location. This location will be in a safe area away from construction activity in order that Community Mailboxes may be installed to service addresses that have occupied prior to the pouring of the permanent mailbox pads. This area will be required to be prepared a minimum of 30 days prior to the date of first occupancy;		Noted
5.	The owner/developer will communicate to Canada Post the excavation date for the first foundation (or first phase) as well as the expected date of first occupancy.		Noted
6.	The owner/developer agrees, prior to offering any of the units for sale, to place a "Display Map" on the wall of the sales office in a place readily available to the public which indicates the location of all Canada Post Community Mailbox site locations, as approved by Canada Post and the Town of Caledon;		Noted
7.	The owner/developer agrees to include in all offers of purchase and sale a statement, which advises the prospective new home purchaser that mail delivery will be from a designated Community Mailbox, and to include the exact locations (list of lot #s) of each of these Community Mailbox locations; and further, advise any affected homeowners of any established easements granted to Canada Post;		Noted
8.	The owner/developer will be responsible for officially notifying the purchasers of the exact Community Mailbox locations prior to the closing of any home sales with specific clauses in the Purchase offer, to which the homeowner(s) will sign off.		Noted
Bell Canada November 22, 2021			
1.	Existing and/or proposed Bell Canada underground plant are indicated on the attached plan.		Noted
2.	Not for PUCC approval - Mark up only		Noted
3.	Caution - Bell has plant around proposed area. Tie-in measurements are a guideline only and physical verification may be required by applicant to determine the true separation between plant. Call for locates. Maintain min 0.6m horizontal clearance and min 0.3m vertical clearance when crossing Bell. Within 1m of Bell and when crossing Bell, hand dig.		Noted
Procedures to Follow:			Noted
1.	Request locates prior to construction 1-800-400-2255		Noted
2.	If exact location and depth are critical – test pits are recommended date		Noted
3.	Bell Canada plant location information is approximate		Noted
4.	If the location of your proposed design changes, it will be necessary to re-apply		Noted
5.	Permits expire six (6) months from approval		Noted
Town of Caledon – Development Planning Daniel Oh, Senior Engineering Project Coordinator - March 25, 2022			
Section A: The owner is required to amend the Studies and/or Drawings to address the following comments and resubmit for the review and acceptance by the Town staff **prior to Draft Plan of Subdivision** Approval:			Understood
1.	In accordance with the new Excess Soil Regulations, it is essential that the sediment from the forebay is dry and remains dry until it is hauled off the site. Therefore, as requested in our previous comments, an adequately sized sediment drying area must be identified to the satisfaction of the Town prior to draft plan approval.	Candevcon	A sediment drying area has been accommodated beside the swm pond as detailed in the engineering drawing no. XXX.
2.	The Town has been in consultation with TRCA staff regarding the location of the SWM Pond outlet and emergency spillway. The Town preferred outlet location is to Option 1 (Reach A4) due to ease of access and future maintenance activities. We understand that TRCA is supportive on the basis that the development will mitigate erosion potential through on-site retention of 15mm. Subsequent submissions of the SWM Report	**PALMER**	Acknowledged

	STAFF COMMENTS	ACTION BY	RESPONSE
	and design drawings should reflect discharge to Outlet 1 and provide the erosion mitigation measures to the satisfaction of the TRCA and the Town.		
3.	The Town supports the TRCA requirement for 15 mm retention to mitigate the impacts of the development on existing water balance and erosion conditions, however we offer the following direction with respect to the form of retention on private and public property:		
a)	Retention on private property - The applicant is encouraged to maximize retention on private property through a combination of reuse, evapotranspiration, infiltration and/or bioretention measures. However, we wish to note that due to low hydraulic conductivity of the soil and high groundwater conditions, the potential for infiltration measures on private property is limited. As such, we recommend that any infiltration measures in private rear yards should not exceed 25% of the usable amenity space of the rear yard and should be set back at least 4 metres from building foundations.	**PALMER**	Acknowledged
b)	Retention of public property – due to the physical constraints of the subject lands, the Town is not supportive of perforated pipe in the within the public ROW due to the increased potential for operations and maintenance issues. However, we would support increased erosion control within the SWM Pond and/or a pocket wetland at the pond outfall.	**PALMER**	Acknowledged
4.	A section of the bypass sewer, pond access road and emergency spillway must be located within the pond block. Given some of the essential components of SWM pond cannot fit inside the proposed SWM pond block, Town staff are of the opinion that the proposed pond block is undersized and the draft plan should be revised accordingly.	CANDEVCON	
5.	The existing road profile of Glasgow Road is very flat with a highpoint located approximately 30m west of the proposed intersection with Street A. Given the overall elevation of Glasgow Road fronting this development will increase significantly, Town staff is uncertain how the major system flows from the eastern portion of the proposed development to this location will reach the SWM pond.The grading and storm drainage plans should be revised to demonstrate that all major system flows will be captured and controlled by the SWM Pond. This may be done by upsizing the storm sewer to capture and convey major system flows on Street A to the pond and if the applicant wishes to explore this option, the next submission should be updated accordingly. Please note that any remnant areas not controlled by the SWM Pond must be identified on a plan and adequate justification must be provided to the satisfaction of Development Engineering to ensure no negative impacts of uncontrolled drainage.	CANDVECON	
6.	Figure 6 from Community Design Plan shows a pedestrian connection to Emil Kolb Parkway via the proposed sidewalks on Chickadee Lane and De Rose Avenue. The Town would prefer to see a multi-use trail (MUT) design that directly connects a MUT on Glasgow Road to Emil Kolb Parkway. This is in line with the TRCA's Trail Strategy to develop pedestrian/cycling infrastructure to connect the Emil Kolb Bikeway with the Humber Valley Heritage Trail. Upon investigation, if a direct connection is deemed too be too challenging due to grading constraints, a MUT can be constructed on Chickadee Lane ensure a MUT connection to Emil Kolb Parkway. However, in order to ensure both a MUT and sidewalk can be constructed as per the Town's design guideline, the ROW width of Chickadee Lane should be increased to 22.0 m.	CANDEVCON	A connection will be accommodated in between Glasgow Road and Emil Kolb Parkway.
7.	According to the Noise Impact Study prepared by Candevcon Ltd., dated March 26th 2019, updated August 27th 2021, the study determined that for Block 2, the Town's maximum allowable noise wall height of 2.4 meters is insufficient to meet the Town's noise criteria of 55 dBA and hence a berm is required. This requirement will impact the proposed Draft Plan of Subdivision as it will need to be revised to accommodate a berm between Block 2 and Street 'C.'	CANDEVCON	The lotting within the block as been adjusted on the draft plan to allow for berm and wall combination to address noise mitigation requirements. No changes to the noise report are required.
	Upon reviewing the Preliminary Grading Plan (PG-1), dated September 28th, 2021, Development Engineering has the following comments:		
a)	The minimum and maximum permitted longitudinal roadway gradients are 0.75% and 6.0% respectively. In addition, ensure that a maximum 1.5% road grade change is proposed as per the Town standards. Changes greater than 1.5% require the introduction of vertical curvatures or road redesign to reduce these grade changes to 1.5% or less. In addition, in the detail design phase, gutter grades are to be shown on the grading drawing, ensuring minimum gutter slopes.	CANDEVCON	

	STAFF COMMENTS	ACTION BY	RESPONSE
b)	RIM elevations of MH5A and MH9 shown on the Preliminary Servicing Plan (PS- 1) do not match the Grading Plan.	CANDEVCON	
c)	According to the Grading Plan, the centerline elevation of Glasgow Road and Chickadee Lane will increase significantly. However, the Grading Plan should be revised to show the extent of external grading works required to raise the elevation of the existing roads and demonstrate how the impact on surrounding properties and roads can be minimized.	CANDEVCON	
d)	More grading information is required where Chickadee Lane transitions to DeRose Avenue and at the DeRose Avenue/Emil Kolb Parkway intersection. Given the proposed centerline elevation at Chickadee Lane, Street A is approximately 1.0m higher than the existing road elevation. Please investigate how the existing drainage pattern on DeRose Avenue can be maintained.	CANDEVCON	
e)	The proposed storm drainage plan does not identify any external drainage entering from DeRose Avenue. Please show the elevation of the high point and its location on Chickadee Lane on the Grading Plan.	CANDEVCON	
f)	Please ensure the following information should be included in the Grading Plan in the next submission: • Boundary elevations; • Proposed elevations along the center line of any existing or proposed roads (max. 20m apart); • Retaining walls, if required; • Noise barriers with berm; • Fencing both existing and proposed. A note is required on this drawing indicating that all proposed fencing is to be located on private property • Existing contours and elevations within the plan and at least 30 meters externally. The external contours are to be extended far enough to determine the existing drainage pattern, including external drainages. • Percent street grades for all roads within the development and the distance of the particular grade shall also be included;	CANDEVCON	
Section B: The following comments should be addressed at the detail design phase:			
1.	The proposed grading work may have an impact on the existing 13921 Chickadee Lane driveway. Please show the proposed centerline elevation in front of the 13921 Chickadee Lane driveway. At the detail design stage, the applicant must provide cross-sectional drawings of this driveway from the centerline of the road to the property line and show the external grading works required to match the existing driveway grade. This work must be completed to the satisfaction of the Town.	CANDEVCON	Noted for detail design
2.	Based on the findings of the geotechnical report, the applicant must investigate if a clay liner is required in order to prevent groundwater seepage and impacts to stability of the side slopes. A subdrain system could also be required to promote drainage of the groundwater. These details must be provided at the detail design phase.	**PALMER**	Acknowledged
3.	A detailed erosion and sediment plan should be submitted at the detail design for the Town's review and approval.		Noted for detail design
Ministry of Heritage, Sport, Tourism, and Culture Industries **Zeeshan Abedin, Archeology Review Officer - November 5, 2021**			
	This office has reviewed the above-mentioned report, which has been submitted to this ministry as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18.[1] This review has been carried out in order to determine whether the licensed professional consultant archaeologist has met the terms and conditions of their licence, that the licensee assessed the property and documented archaeological resources using a process that accords with the 2011 *Standards and Guidelines for Consultant Archaeologists* set by the ministry, and that the archaeological fieldwork and report recommendations are consistent with the conservation, protection and preservation of the cultural heritage of Ontario.		No Action Required
	The report documents the assessment of the study area as depicted in Maps 8 and 9 of the above titled report and recommends the following:		

	STAFF COMMENTS	ACTION BY	RESPONSE
	Given the results and conclusions of the completed Stage 1 &2 assessment, the following recommendations are made:		
1.	It is the professional opinion of the archaeological licensee, Thomas Irvin (P379) that the Study Area has been sufficiently assessed and is free of further archaeological concern.		No Action Required
2.	Notwithstanding the above recommendations, the provided Advice On Compliance With Legislation shall take precedent over any recommendations of this report should deeply buried archaeological resources or human remains be found during any future earthworks within the Study Area.		No Action Required
Town of Caledon – Planning Department Aleah Clarke - March 25, 2022			
General (Advisory) Comments:			
1.	For property tax purposes, these eight sites (0 Emil Kolb Parkway/0 King Street W, 550 Glasgow Road, 600 Glasgow Road, 615 Glasgow Road, 13935 Chickadee Lane, 13951 Chickadee Lane, 13977 Chickadee Lane and 13999 Chickadee Lane) are currently assessed as Residential (total $9.8 million CVA). The Town's share of taxes levied, based on current value assessments is approximately $52,000. As at March 24, 2022, the property tax account for each property is determined to be current. *(Town of Caledon, Finance Department)*		No Action Required
2.	If the proposed development (includes 154 residential dwellings) were to proceed as planned, the property's taxable assessment value would change to reflect the developments that would have taken place. *(Town of Caledon, Finance Department)*		No Action Required
3.	Development Charges will be levied at the Residential rates that were in place on the date when the were:		
a)	Town of Caledon: (a) $31,315.35 per single detached dwelling; and (b) $23,840.98 per townhouse dwelling.		Noted
b)	Region of Peel: (a) $53,083.06 per single detached dwelling; and (b) $ 43,489.23 per townhouse dwelling. Effective February 1, 2016, the Region of Peel began collecting directly for most hard service development charges (i.e. water, wastewater and roads) for residential developments, at the time of subdivision agreement execution.		Noted
c)	Go-transit: (a) $581.30 per single detached dwelling. The same rate applies to per townhouse dwelling.		Noted
d)	School Boards: (a) $4,572 per any residential unit.		Noted
4.	Interest on Development Charges will apply for the period January 12, 2021 through to the date on which those charges are received by the Town. *(Town of Caledon, Finance Department)*		Noted
5.	The Development Charges comments and estimates above are as at March 24, 2022 and are based upon information provided to the Town by the applicant, current By-laws in effect and current rates, which are indexed twice a year. For site plan or rezoning applications dated on or after January 1, 2020, Development Charges are calculated at rates applicable on the date when an application is determined to be complete; and are payable at the time of building permit issuance. Interest charges will apply for affected applications. For site plan or rezoning applications dated prior to January 1, 2020, Development Charges are calculated and payable at building permit issuance date. Development Charge by-laws and rates are subject to change. Further, proposed developments may change from the current proposal to the building permit stage. Any estimates provided will be updated based on changes in actual information related to the construction as provided in the building permit application. *(Town of Caledon, Finance Department)*		Noted
6.	Existing and/or proposed Bell Canada underground plants are indicated on the attached plan. (Not for PUCC approval - Mark up only). *(Bell Canada)*		Noted
7.	Caution - Bell has plant(s) around proposed area. Tie-in measurements are a guideline only and physical verification may be required by applicant to determine the true separation between plant. Call for locates. Maintain min 0.6m horizontal clearance and min 0.3m vertical clearance when crossing Bell. Within 1m of Bell and when crossing Bell, hand dig. *(Bell Canada)*		Noted
8.	Please refer to the attached Application for Plant Location and Consent memo from Bell for more information. *(Bell Canada)*		Noted
9.	Comments from Hydro One and a drawings representing Hydro One distribution Lines for 550-13999 Glasgow Road and 0 Emil Kolb Parkway are attached for your review. *(Hydro One)*		Noted

	STAFF COMMENTS	ACTION BY	RESPONSE
10.	The date of the Archaeological Report referenced in the Ministry of Heritage, Sport, Tourism, and Culture Industries Review and Entry into the Ontario Public Register of Archaeological Reports Letter does not match the submitted Stage 1 & 2 Archaeological Assessment. Please submit the most recent copy of the Archaeological Assessment. *(Town of Caledon, Planning Department, Development Planning)*		**Clarification required**
11.	Please refer to the attached Review and Entry into the Ontario Public Register of Archaeological Reports Letter. *(Ministry of Heritage, Sport, Tourism, and Culture Industries)*		Noted
12.	Enbridge Gas Inc. does not object to the proposed application(s) however, we reserve the right to amend or remove development conditions. This response does not constitute a pipe locate, clearance for construction or availability of gas. The applicant shall contact Enbridge Gas Inc.'s Customer Connections department by emailing SalesArea20@Enbridge.com to determine gas availability, service and meter installation details and to ensure all gas piping is installed prior to the commencement of site landscaping (including, but not limited to: tree planting, silva cells, and/or soil trenches) and/or asphalt paving. In the event that easement(s) are required to service this development, and any future adjacent developments, the applicant will provide the easement(s) to Enbridge Gas Inc. at no cost. *(Enbridge Gas Inc.)*		Noted
13.	Canada Post Corporation has reviewed the proposal and determined that the future residential project will be serviced via Community Mailbox (CMB). *(Canada Post Corporation)*		Noted
14.	The current addresses of all properties will cease to exist and will be renumbered in accordance with the proposed development and approved driveway locations. *(Town of Caledon, Planning Department, Municipal Numbering)*		Noted
15.	A municipal number will be issued to each dwelling, in accordance with the Town's Municipal Number By-law and Guidelines. *(Town of Caledon, Planning Department, Municipal Numbering)*		Noted
16.	Municipal numbers are issued at draft approval, site servicing approval and prior to registration (clearing of conditions). In order for municipal numbers to be issued, staff will require digital copies of the plan (pdf and cad) in accordance with the submission standards, a certificate of lot area and lot frontage and confirmation of approved street names. Please note that once the required information is received, it will take staff a minimum of 2 weeks to issue the numbers. *(Town of Caledon, Planning Department, Municipal Numbering)*		Noted
17.	Please refer to the attached Dufferin-Peel Catholic District School Board letter. *(Dufferin- Peel Catholic District School Board)*		Noted
18.	Please refer to the attached Peel District School Board Letter. *(Peel District School Board)*		Noted
19.	Please refer to attached Heritage and Design Services comments for information relating to the Heritage Policy Framework. *(Town of Caledon, Planning Department, Heritage)*		Noted
20.	In the first submission heritage comments, a CHIS evaluating the impact of the proposed development on cultural heritage resources was requested, mainly to assess the impact of the development on the Glasgow Road Steel Truss Bridge, which is designated under Part IV of the Ontario Heritage Act. Following discussion with Town of Caledon Transportation Engineering staff, who have reviewed the revised Transportation studies provided as part of the second submission, Heritage staff are satisfied that the requirement for a CHIS is not necessary at this time. Heritage staff will continue to work with Transportation Engineering staff to determine future use of the Glasgow Road Streel Truss Bridge. Should the development proposal change significantly in scope or design, a CHIS or additional cultural heritage investigations may be required. *(Town of Caledon, Planning Department, Heritage)*		Noted
21.	Please refer to the attached TRCA comments letter for detailed comments and Conditions of Draft Plan Approval. *(Toronto Region Conservation Authority)*		Noted
Comments to be Addressed Prior to the Official Plan Amendment			
22.	Various letters, emails and telephone calls have been received from members of the public raising their concerns with the proposed applications. Comments that have been received since May 7, 2021 will be sent		All matters have been addressed as the LOPA has proceeded for approval purposes

	STAFF COMMENTS	ACTION BY	RESPONSE
	under separate cover, please prepare a document which includes responses to these comments. *(Town of Caledon, Planning Department, Development Planning)*		
23.	Prior to a recommendation report being brought forward, the tax account must be current. *(Town of Caledon, Finance Department)*		Noted
24.	The Official Plan Amendment is acceptable in principle; however, there remain issues related to Conformity to the Greenbelt Plan and the technical wording of the Official Plan Amendment text which need to be resolved prior to a Staff Report being brought forward. Please refer to the comments below for more detail.		Conformity issue has been addressed with the removal of the park block from the plan and adjustment of swm pond block and maintenance access to be located outside buffer areas.
25.	Planning Justification Report ("PJR") and Official Plan Amendment ("OPA") Comments:		
a)	The ROPA 30 polices must be addressed and analyzed by the applicant, including the applicability of policies relating to Affordable Housing and Phasing.		**This was addressed and confirmed by Region of Peel correspondence dated XXX**
b)	Please provide justification for why Block 34 will remain in private ownership with a conservation easement, rather than transferred to public ownership.	Frank F	Client to confirm if block to remain in private ownership
c)	The submitted EIS does not reflect the revised Draft Plan. Updates to the report are required to properly analyze the new plan including the location of the Parkette and a New Dwelling in the Prime Agricultural Designation in the Greenbelt Protected Countryside.	**PALMER**	The parkette and the dwelling on the north side of Glasgow Road have been removed, and all SWM facilities and trails are located outside of the MVPZ. No updates to the EIS report are proposed as Greenbelt policies are now met.
d)	The submitted EIS and PJR have not provided sufficient information to satisfy staff that the policies of the Greenbelt Plan are being met. i. The EIS notes that the proposed recreational trail will be located on lands graded to accommodate the SWM Pond. Please note, no new lot creation is permitted for the recreational trail as per Greenbelt Plan Policy 4.6.1. ii. The proposed parkette block identified on the Draft Plan is located within the Greenbelt Protected Countryside and Prime Agricultural Area as identified by the Region of Peel and Town of Caledon Official Plans. No analysis of the Parkette was included in the EIS and this analysis is required to identify how the Parkette will meet the Greenbelt Policies 4.1.2, relating to the establishment of a major recreational use in the Natural Heritage System and 4.6 relating to lot creation. Policy 4.6 of the Greenbelt Plan prohibits lot creation for a parkette in the Prime Agricultural Area. Further analysis on conformity with the Greenbelt Plan is required. iii. Please clarify if the existing dwelling on Lot 27 will be rebuilt as the existing dwelling is not fully contained within the lot lines.	**PALMER**	The parkette and the dwelling on the north side of Glasgow Road have been removed, and all SWM facilities and trails are located outside of the MVPZ. No updates to the EIS report are proposed as Greenbelt policies are now met.
e)	Page 36 needs to be revised to include analysis of the entirety of the subject lands, not only the lands on the south side of Glasgow Road. The PJR should identify that the subject lands are also designated Rural System on Schedule D, Rural system outside of ORMCPA on Schedule D1, Natural Heritage System on Schedule D3, Agricultural and Rural Area/ Greenbelt on Schedule D4, and Greenbelt Plan Area on Figure 2. Analysis of schedule B is also required, which identifies a portion of the subject lands as Prime Agricultural Area. *(Town of Caledon, Planning Department, Development Planning)*		LOPA has been resolved no analysis is required.
26.	Draft Official Plan Amendment Comments:		LOPA has been finalized no further changes required.
a)	The Official Plan Amendment wording does not align with the "Take outs" of A Place to Grow, 2020, please revise.		LOPA has been finalized no further changes required.
b)	Schedule A-1 of the Town OP is amended by Schedule A (Not Schedule B)		LOPA has been finalized no further changes required.
c)	Schedule C of Town OP is amended by Schedule B (Not Schedule C).		LOPA has been finalized no further changes required.
d)	Figure 1 needs to be amended to Schedule C "Designated Greenfield Area" (Not "Delineated Greenfield Area" and not Schedule D). Please provide in pdf and cad (georeferenced) format.		LOPA has been finalized no further changes required.

	STAFF COMMENTS	ACTION BY	RESPONSE
e)	Schedule A, F, J, K, L, O, P, P-1, P-2, S, Appendix 1, Appendix 2 and Appendix 3 also need to be amended. Please provide in pdf and cad (georeferenced) format.		LOPA has been finalized no further changes required.
Comments to be Addressed Prior to Draft Plan Approval			
27.	The tax account must be current. *(Town of Caledon, Finance Department)*		Noted
28.	As per policy 7.13.3.2.1.5 of the Town of Caledon Official Plan, any parkland proposed in the Natural Heritage System of the Greenbelt Plan would not count towards the development's parkland dedication requirements. Please provide a response as to how parkland dedication will be provided for the proposed residential plan of subdivision. *(Town of Caledon, Planning Department, Development Planning and Community Services Department, Parks)*		Parkland contribution will be addressed by cash in lieu only
29.	Transportation Engineering has the following comments related to the Traffic Impact Study:		
a)	Comments on the future background traffic calculations will be deferred to the Region.		
b)	The traffic analyses for future conditions identifies capacity issues and long delays at the Emil Kolb Parkway/Connecting Road intersection. As per the Region's request, a Traffic Signal Warrant was conducted and determined that signalization is not warranted under future conditions. The Traffic Impact Study (TIS) recommends that "the Region continue to monitor this intersection and that traffic signals be installed by the Region when the warrants are satisfied."	**GHD**	
c)	In the Response to Comments letter, for Comment #2: the assumption that as the delay increases motorists are likely to redistribute to alternate routes is reasonable. However, assuming that it will happen only to existing traffic is not reasonable. Site traffic is just as likely to adopt alternate routes as the delay increases. The response further explains that the only alternate route available is Glasgow Road and is the least desirable route due to lower speed limit and difficult road geometry. The response concludes that Glasgow Road is not an attractive route.	**GHD**	
d)	The response to Comment #2 is self-contradictory. The response assumes Glasgow Road to be a preferred choice for existing traffic to redistribute as the delay at Emil Kolb Parkway increases but assumes the opposite for the proposed site traffic. Given that the existing traffic on Chickadee Lane to/from the north is most likely either from the land uses where the proposed site will be developed or from the land-uses that abut the proposed site, the assumption is not reasonable and as such is not likely to result in any significant capacity improvement at the Emil Kolb Parking/Connecting Road intersection for future conditions.	**GHD**	GHD's response to Comment #2 may have been misinterpreted. GHD is of the opinion that both existing traffic and future site trips from the subject site will redistribute to alternate routes if the delays turning left onto Emil Kolb become excessive. The two options we believe include turning right onto Emil Kolb and using the roundabout to turn around and head south, or to use Deer Valley Drive to King Street East. It continues to be our opinion that using Glasgow Road and Hickman to Hwy 50 is unlikely given the geometric constraints and low speeds.
e)	We acknowledge that due to the travel speed and road geometry, heading east on Glasgow Road, especially beyond Deer Valley Drive, is not an attractive route. However, no recommendations were provided to address the forecasted capacity issues and long delays in the interim period for the Emil Kolb Parkway/Connecting Road intersection. The applicant should recommend mitigation measures for any forecasted operational issues at the intersection for the interim period.	**GHD**	It is expected that motorists will use the path of least resistance when travelling to/from the subject site. If delays for the westbound left become excessive for some drivers, they have the option to turn right onto Emil Kolb and travel north and use the roundabout to head back south on Emil Kolb. The additional travel length is expected to add an estimated 1 minute to the travel time to get to the intersection of Emil Kolb and Harvest Moon Drive/King Street East over making a left turn directly onto Emil Kolb. Alternatively, motorists could use Glasgow Road and Deer Valley Drive to head south to the same intersection. This movement is expected to add an estimated 3 minutes to the travel time. Both options provide an alternative route during the peak hours until such time as traffic signals are warranted. Both routes provide travel times that are significantly less than waiting for the left turn directly on Emil Kolb however the route option of using the roundabout at King and Emil Kolb is preferred as it minimizes the total delay.
f)	There are several errors in Table 3 - Capacity Analyses for Emil Kolb Parkway at De Rose Avenue. Under Future Total 2031 conditions in the PM peak hour 995 is the delay but is reported as the 95th percentile queue; other values in the table do not match the Synchro Reports provided in Appendix C. Please revise the table accordingly.	**GHD**	Errors in Table 3 have been corrected in the updated traffic study.
g)	The Traffic Impact Study should include a review of parking requirements based on the Town's zoning by-law and compared to the proposed supply.	**GHD**	A parking section has been added to the report.
h)	A direct multi-use path connecting Glasgow Road to Emil Kolb Parkway should be provided as close as possible to the roundabout. Due to the significant grade, we acknowledge that the planned trail connection to Emil Kolb Parkway though DeRose Avenue will act as an AODA-compliant alternative connection.		Noted

	STAFF COMMENTS	ACTION BY	RESPONSE
i)	All multi-use pathways should have a width of 3.0 metres, as per the Town's Standard No. 220 Multi-Use Recreational Pathway. Please note that the active transportation facilities provided on Glasgow Road should be coordinated with the facilities being recommended in the Town's Glasgow Road EA, which is currently in progress.		Noted
30.	Please refer to the attached Urban Design comments letter and marked-up PDF copy of the Community Design Plan and Urban Design Brief, and Architectural Control Guidelines documents for detailed urban design comments. *(Town of Caledon, Urban Design)*		No Action Required
31.	Sidewalks and pedestrian routes are currently not identified on the plans. *(Town of Caledon, Planning Department, Landscape)*	**HPGI**	
32.	Site entrances/gateways have not been specifically identified on the plans. *(Town of Caledon, Planning Department, Landscape)*	**HPGI**	
33.	Heritage staff have the following comments related to the Archaeological Assessment:		
a)	The proponent submitted a Stage 1-2 Archaeological Assessment, dated August 4, 2021, prepared by Irvin Heritage Inc., as part of their second submission.		Clarification required
b)	Heritage staff received an associated Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) acceptance letter, dated November 5, 2021. The letter references an archaeological assessment with the same Project Information Form (PIF) identifying number for the assessment but a different date and title. The date of the archaeological assessment referenced in the letter is August 25, 2021.		Clarification required
c)	The proponent shall provide the archaeological assessment with the title and date corresponding to that referenced in the MHSTCI acceptance letter.		Clarification required
d)	If the conclusions of the archaeological assessment remain the same between the two versions, no further assessment is anticipated for the subject lands.		Noted
e)	The following archaeological conditions are to be included in all agreements associated with the applications: i. The proponent shall avoid and/or mitigate, to the satisfaction of the MHSTCI and the Town, any archaeological resources that are identified through new information or documentation which may be received following the acceptance of archaeological assessment(s) by the MHSTCI and clearance of archaeological concerns for the subject lands by the Town. ii. The proponent shall immediately stop all work on the Subject Lands and notify the Town's Heritage staff, Director of Planning, and the MHSTCI in the event that deeply buried archaeological resources are found during the course of any grading or related works on the Subject Lands. Any and all work related to the discovery of deeply buried archaeological resources shall be carried out by the proponent, at their expense, to the satisfaction of the MHSTCI and the Town's Heritage staff.		Understood
34.	Please refer to the attached Peer Review Comments for the Noise Impact Study. Additional noise mitigation is noted to be required for Block 2 (the barrier/berm adjacent to Street C), but has not been detailed in the updated Noise Impact Study. *(Town of Caledon, Engineering Services Department, Development Engineering)*	**CANDEVCON**	
35.	Please refer to the attached TRCA comments letter for detailed comments and Conditions of Draft Plan Approval. *(Toronto Region Conservation Authority)*		Noted
36.	Please refer to the attached Town of Caledon Development Engineering letter for detailed comments. Road design and geometry comments will be provided later under separate cover. *(Town of Caledon, Engineering Services, Development Engineering)*		Noted
37.	Please refer to the attached comments letters from the Region of Peel. Please note, some comments have been carried forward from the first comments letter as they were not addressed in the second submission. *(Region of Peel)*		Noted
38.	Prior to draft plan approval, street names are to be issued to the satisfaction of the Town. *(Town of Caledon, Planning Department, Municipal Numbering)*		Noted
39.	Based on the alignment proposed, 4 street names will be required as part of this application.		Noted

	STAFF COMMENTS	ACTION BY	RESPONSE
40.	Confirmation that street segment facing Blocks 2, 3 and 4 on Glasgow Road will be extended to Emil Kolb Parkway. *(Town of Caledon, Planning Department, Street Naming)*		Noted
41.	Please be advised that on October 29, 2019, Town Council approved updates to the Town's Corporate Policy on Street Naming. In accordance with these updates, this application will require:		Noted
a)	A minimum of one street name of local historical significance to be used; and		Noted
b)	A minimum of one additional street name recognizing a Caledon-based Veteran who lost their life while serving in the Canadian Armed Forces be used.		Noted
c)	Special signage entailing a poppy symbol be used for all streets named in honour of Veterans. See attached sample.		Noted
42.	Please see the lists of available street names approved for use in Caledon (heritage names, veteran names and non-heritage names). The lists of available names can be found by visiting https://www.caledon.ca/en/town-services/street-naming.aspx. *(Town of Caledon, Planning Department, Street Naming)*		Noted
43.	Please be advised that the names on these lists are available on a "first come first serve basis" and are subject to change at any time based on qualifying development requests. Staff will do their best to keep the list as up to date as possible. *(Town of Caledon, Planning Department, Street Naming)*		Noted
44.	Due to local historical significance, some heritage names are intended for use in specific areas of the Town and are identified as such. *(Town of Caledon, Planning Department, Street Naming)*		Noted
45.	Some documents (i.e. the Noise Impact Study) show a previous iteration of the Draft Plan of Subdivision. Please ensure all documents are coordinated. *(Town of Caledon, Planning Department, Landscape)*		All documents have been updated to reflect current plan
46.	A satisfactory digital submission is required from the applicant in accordance with the Town's Digital Submission Standards. *(Town of Caledon, Information Technology, GIS Department)*		Noted
Comments to be Addressed as Conditions of Draft Plan Approval:			
47.	Please find attached a DRAFT set of Draft Plan Conditions. Those conditions which have been requested to date have been included in black font, and potential (unconfirmed) conditions are included in red font. It is important to note that the document is a working draft and is subject to change and refinement (including condition addition, deletion and amendment).		Noted condition of draft plan approval
48.	The Town will require as a condition of draft approval, that prior to offering units for sale and in a place readily available to the public, the owner will display information regarding universal design options that may be available for purchase within the development prior to offering units for sale. This has been included in the attached DRAFT Draft Plan Conditions document. *(Town of Caledon, Corporate Services Department, Accessibility)*		Noted condition of draft plan approval
49.	Prior to registration, a Zoning By-law for the development of these lands is to be passed under Section 34 of the Planning Act, R.S.O. 1990, c.P.13, as amended, and be in full force and effect. This has been included in the attached DRAFT Draft Plan Conditions document. *(Town of Caledon, Planning Department, Zoning)*		Noted condition of draft plan approval
50.	Prior to registration, the Owner shall provide a Certificate of Lot Area and Lot Frontage signed by an Ontario Land Surveyor, to the satisfaction of the Town. This has been included in the attached DRAFT Draft Plan Conditions document. *(Town of Caledon, Planning Department, Zoning)*		Noted condition of draft plan approval
51.	The following condition is to be incorporated in the conditions of draft approval:		
a)	Prior to any servicing, the Owner shall provide a Traffic Control Plan, at a scale of 1:1000 or larger showing all roadways, driveways, fire hydrants, Canada Mail Boxes, sidewalks (c/w widths), bike paths, street lighting, on street parking areas, traffic signage (including all regulatory, warning and information signs), street trees and pavement markings all to the satisfaction of the Town. The Owner is responsible for supplying and installing all traffic (including No Parking), pedestrian and bicycle control signs and markings where required by the Town. This has been included in the attached DRAFT Draft Plan Conditions document.		Noted condition of draft plan approval
52.	Please refer to the conditions in the attached Dufferin-Peel Catholic District School Board letter. These conditions have been included in the attached DRAFT Draft Plan Conditions document. *(Dufferin-Peel Catholic District School Board)*		Noted condition of draft plan approval
53.	Please refer to the conditions in the attached Peel District School Board Letter. These conditions have been included in the attached DRAFT Draft Plan Conditions document. *(Peel District School Board)*		Noted condition of draft plan approval

	STAFF COMMENTS	ACTION BY	RESPONSE
54.	The following paragraphs are to be included as a condition of approval:		
a)	"The Owner acknowledges and agrees to convey any easement(s) as deemed necessary by Bell Canada to service this new development. The Owner further agrees and acknowledges to convey such easements at no cost to Bell Canada."		Noted condition of draft plan approval
b)	The Owner agrees that should any conflict arise with existing Bell Canada facilities where a current and valid easement exists within the subject area, the Owner shall be responsible for the relocation of any such facilities or easements at their own cost." This condition has been included in the attached DRAFT Draft Plan Conditions document. *(Bell Canada)*		Noted condition of draft plan approval
55.	The Owner is advised to contact Bell Canada at planninganddevelopment@bell.ca during the detailed utility design stage to confirm the provision of communication/telecommunication infrastructure needed to service the development. This condition has been included in the attached DRAFT Draft Plan Conditions document. *(Bell Canada)*		Noted condition of draft plan approval
56.	It shall be noted that it is the responsibility of the Owner to provide entrance/service duct(s) from Bell Canada's existing network infrastructure to service this development. In the event that no such network infrastructure exists, in accordance with the Bell Canada Act, the Owner may be required to pay for the extension of such network infrastructure. If the Owner elects not to pay for the above noted connection, Bell Canada may decide not to provide service to this development. This condition has been included in the attached DRAFT Draft Plan Conditions document. *(Bell Canada)*		Noted condition of draft plan approval
57.	Prior to registration, the Owner shall provide a Certificate of Lot Area and Lot Frontage signed by an Ontario Land Surveyor, to the satisfaction of the Town.		Noted condition of draft plan approval
a)	Prior to registration, the Owner shall obtain municipal address numbers from the Town.		
b)	A clause shall be included in the Subdivision Agreement requiring that these numbers be permanently embedded in or attached to the exterior of each dwelling once the dwelling is built and/or a permanent municipal address number sign be installed immediately upon receipt of a Building Permit as per the Town's Municipal Numbering By-law and Guidelines.		Noted - subdivision agreement matter
c)	A clause shall be included in the Subdivision Agreement requiring that both the lot or block/unit number and corresponding municipal address be displayed on all lots and blocks in a prominent location, until such time that the lot/block is transferred. This condition has been included in the attached DRAFT Draft Plan Conditions document. *(Town of Caledon, Planning Department, Municipal Numbering)*		Noted - subdivision agreement matter
58.	Please refer to the conditions within the attached comments letters from the Region of Peel. These conditions have been included in the attached DRAFT Draft Plan Conditions document. *(Region of Peel)*		Noted condition of draft plan approval
59.	Please refer to the attached TRCA comments letter for detailed comments and Conditions of Draft Plan Approval. These conditions have been included in the attached DRAFT Draft Plan Conditions document. *(Toronto Region Conservation Authority)*		Noted condition of draft plan approval
60.	In order to establish mail service, Canada Post request's that the following be included in the project's Conditions of Draft Approval:		Noted condition of draft plan approval
a)	The owner/developer will consult with Canada Post to determine suitable permanent locations for the placement of Community Mailboxes and to indicate these locations on appropriate servicing plans;		Noted condition of draft plan approval
b)	The owner/developer will confirm to Canada Post that the final secured permanent locations for the Community Mailboxes will not be in conflict with any other utility; including hydro transformers, bell pedestals, cable pedestals, flush to grade communication vaults, landscaping enhancements (tree planting) and bus pads;		Noted condition of draft plan approval
c)	The owner/developer will install concrete pads at each of the Community Mailbox locations as well as any required walkways across the boulevard and any required curb depressions for wheelchair access as per Canada Post's concrete pad specification drawings;		Noted condition of draft plan approval

	STAFF COMMENTS	ACTION BY	RESPONSE
d)	The owner/developer will agree to prepare and maintain an area of compacted gravel to Canada Post's specifications to serve as a temporary Community Mailbox location. This location will be in a safe area away from construction activity in order that Community Mailboxes may be installed to service addresses that have occupied prior to the pouring of the permanent mailbox pads. This area will be required to be prepared a minimum of 30 days prior to the date of first occupancy;		Noted condition of draft plan approval
e)	The owner/developer will communicate to Canada Post the excavation date for the first foundation (or first phase) as well as the expected date of first occupancy.		Noted condition of draft plan approval
f)	The owner/developer agrees, prior to offering any of the units for sale, to place a "Display Map" on the wall of the sales office in a place readily available to the public which indicates the location of all Canada Post Community Mailbox site locations, as approved by Canada Post and the Town of Caledon;		Noted condition of draft plan approval
g)	The owner/developer agrees to include in all offers of purchase and sale a statement, which advises the prospective new home purchaser that mail delivery will be from a designated Community Mailbox, and to include the exact locations (list of lot #s) of each of these Community Mailbox locations; and further, advise any affected homeowners of any established easements granted to Canada Post;		Noted condition of draft plan approval
h)	The owner/developer will be responsible for officially notifying the purchasers of the exact Community Mailbox locations prior to the closing of any home sales with specific clauses in the Purchase offer, to which the homeowner(s) will sign off.		Noted condition of draft plan approval
Comments to be Addressed During Detailed Design of the Subdivision			
61.	Please confirm if municipal numbers are to be issued for any environmental and open space blocks, by working with the appropriate agency. Please inform municipal numbering staff accordingly. *(Town of Caledon, Planning Department, Municipal Numbering)*		Noted detailed design matter
62.	Exterior paths of travel, including outdoor sidewalks and walkways, shall have a minimum clear width of 1.5 metres, a surface which is firm, stable and slip resistant and otherwise comply with the Integrated Accessibility Standards (IAS) within the Accessibility for Ontarians with Disabilities Act (AODA). *(Town of Caledon, Corporate Services Department, Accessibility)*		Noted detailed design matter
63.	Where a path of travel has any opening, such as a sewer grate, the opening must not allow passage of an object that has a diameter of more than 20 mm and such opening must be oriented perpendicular to the direction of travel. *(Town of Caledon, Corporate Services Department, Accessibility)*		Noted detailed design matter
64.	All exterior paths of travel shall be accessible, such as when crossing over from one side of a street to another, by inclusion of features such as a curb ramp with a minimum clear width of 1,200 mm exclusive of any flared sides. Curb ramps shall have raised profile tactile walking surface indicators located at the bottom of the curb ramp and extending the full width of the ramp. Curb ramps shall comply fully with the IAS within the AODA. *(Town of Caledon, Corporate Services Department, Accessibility)*		Noted detailed design matter
65.	If a community mail box is installed, the area shall be well lit via a light standard and a curb depression, complying with the IAS within the AODA, shall be provided from the sidewalk and/or roadway to the mail box landing area. *(Town of Caledon, Corporate Services Department, Accessibility)*		Noted detailed design matter
66.	Any lighting on exterior routes of travel shall comply with the Town's lighting standard. *(Town of Caledon, Corporate Services Department, Accessibility)*		Noted detailed design matter
67.	Should the Park Block or Open Space areas include an outdoor play space, the design shall incorporate accessibility features such as sensory and active play components for children and caregivers with various disabilities. Such outdoor play space shall have a ground surface that is firm, stable and has impact attenuating properties for injury prevention and sufficient clearance to provide children and caregivers with various disabilities the ability to move through, in and around the outdoor play space. *(Town of Caledon, Corporate Services Department, Accessibility)*		Noted detailed design matter
68.	Should any traffic control signal systems with pedestrian controls be newly installed or replaced, they shall comply fully with the requirements of the IAS such as by inclusion of features like tactile arrows that align with the direction of crossing and audible and vibro-tactile walk indicators. *(Town of Caledon, Corporate Services Department, Accessibility)*		Noted detailed design matter

	STAFF COMMENTS	ACTION BY	RESPONSE
69.	Please refer to the attached Urban Design comments letter and marked-up PDF copy of the Community Design Plan and Urban Design Brief and Architectural Control Guidelines documents for detailed urban design comments. *(Town of Caledon, Urban Design)*		Noted detailed design matter
70.	Please refer to the attached comments letters from the Region of Peel. Please note, some comments have been carried forward from the first comments letter as they were not addressed in the second submission. *(Region of Peel)*		Noted detailed design matter
71.	Please refer to the attached Town of Caledon Development Engineering letter for detailed comments. Road design and geometry comments will be provided later under separate cover. *(Town of Caledon, Engineering Services, Development Engineering)*		Noted detailed design matter
72.	Please refer to the attached TRCA comments letter for detailed comments for detailed design. *(Toronto Region Conservation Authority)*		Noted detailed design matter
73.	Transportation Engineering has the following comments related to the Traffic Impact Study:		
a)	The Functional Design Study section of the Traffic Impact Study references the Town's 2009 Development Standards, Policies and Guidelines. Please note that the review should follow the latest version, the Town's 2019 Development Standards Manual.	**GHD**	The 2019 Development Standards manual was reviewed and found to provide same standards as those in Figure 7. The report has been updated to refer to the 2019 guideline.
b)	An AutoTURN assessment should be provided to ensure the design of the Street 'A' and Street 'B' intersection can accommodate all vehicle activities for snowplows, fire and garbage truck vehicles.	**GHD**	The Street A/B intersection has been revised to provide a 90 degree intersection angle.
c)	Please identify the intersection controls for the intersections noted in Section 9.9 of the TIS.	**GHD**	Intersection controls have been provided in the updated study.
d)	Please include all intersection and roadway curb radii in the Draft Plan of Subdivision. *(Town of Caledon, Engineering Services Department, Transportation Engineering)*	**HPGI**	
74.	The land qualifier on all the Properties is LT Conversion Qualified and must be converted to LT Absolute Plus in order to register a plan of subdivision. *(Town of Caledon, Planning Department, Development Planning)*	**Owner**	Noted registration matter
75.	When an agreement is required, postponements of all mortgages will be required prior to agreement(s) being registered on title. *(Town of Caledon, Planning Department, Development Planning)*		Noted registration matter
76.	The PINS on the draft M Plan are to be updated to reflect the recent consolidation of PINs. *(Town of Caledon, Planning Department, Development Planning)*		Noted registration matter
77.	Location and installation of pressurized fire hydrants shall be provided in accordance with the Region of Peel Standards. *(Town of Caledon, Fire and Emergency Services)*		Noted detailed design matter
Comments to be Addressed Prior to Zoning By-Law Amendment:			
78.	The formatting of the Draft Zoning By-law should be revised to ensure that the RR-XXX and RM-XXX are properly aligned with the 'Permitted Uses' and 'Special Standards' rows. *(Town of Caledon, Planning Department, Development Planning)*	**HPGI**	Formatted appropriately. See attached revised Draft Zoning By-law Amendment.
79.	A maximum building area must be provided through the site specific RR zone, or the exemption can be removed and the standard for the parent zone will be applied. Eliminating the building area maximum is not appropriate. *(Town of Caledon, Planning Department, Development Planning)*	**HUNT / HPGI**	Provision for RR Zone added for 35% maximum building area. See attached revised Draft Zoning By-law Amendment.
80.	The proposed frontage, and yards are significantly reduced from the parent RR zone. Please provide justification for these reductions in the Planning Justification Report. *(Town of Caledon, Planning Department, Development Planning)*	**HPGI**	To accommodate the SMW pond and the rural residential lot, the lot frontage had to be reduced to 7.5m. The rural residential lots are intended to be serviced by the proposed development therefore requires a smaller lot frontage.
81.	The proposed rear yard setback of 7.0 metres for the RR zone does not meet engineering standards, a setback of 7.5 metres should be provided instead. *(Town of Caledon, Planning Department, Development Planning)*	**HPGI**	7.5m setback provided, see attached revised Draft Zoning By-law Amendment.
82.	A maximum building area is to be provided through the site specific RMD zone, or the exemption can be removed and the standard for the parent zone will be applied. Eliminating the building area maximum is not appropriate. *(Town of Caledon, Planning Department, Development Planning)*	**HPGI**	Provision for RMD zone added for maximum building area, 65% is required to facilitate current building designs. See attached revised Draft Zoning By-law Amendment.
83.	The proposed single detached dwelling front yard setback in the proposed RMD zone is a significant reduction from the parent zone. Justification is required in the Planning Justification Report. *(Town of Caledon, Planning Department, Development Planning)*	**HUNT**	The single detached dwelling on lot 1 (flankage unit) front yard requires a 4.5m setback to aesthetically please the architecture surrounding houses. 7.5m will not work. (See attachment)
84.	Please ensure that the minimum backyard amenity area will be achieved on the RMD and RR zoned lots. *(Town of Caledon, Planning Department, Development Planning)*	**HUNT**	Backyard area meets the required amenity area (min. 37 sq.m. as per parent by law)

	STAFF COMMENTS	ACTION BY	RESPONSE
85.	The proposed detached dwelling rear yard setback of 1.5m in the RMD-XXX zone is a significant reduction from the required 7.5m setback in the parent zone. Please clarify how a sufficient amenity area for the unit will be provided. *(Town of Caledon, Planning Department, Development Planning)*	**HUNT**	As per the definitions in the parent by law for "LOT LINE REAR" means, except for corner lots, any lot line which is not a front lot line, an exterior side lot line, or an interior side lot line. For corner lots, rear lot line means a lot line which intersects an exterior side lot line. It a lot has less than four lot lines, there shall be deemed to be no rear lot line. • Lot, one consists of an exterior, front, sight triangle line, and side lot line. It complies with the min. required amenity area. The rear lot line would be taken from the intersection of the exterior and side lot line (see pdf attached) If Caledon agrees with this sketch, no rear yard reduction is required for lot 1. Refer to lot 1 sketch.
86.	Section 4.26 of the Zoning By-law permits encroachments. The proposed encroachments in the site specific zoning appear to be captured by section 4.26. Please remove this provision from the site specific zoning, or provide justification for the alternate provision. *(Town of Caledon, Planning Department, Development Planning)*	**HUNT**	Porticos are included in the list of permitted encroachments. See attached Zoning inquiry email.
87.	The Town's zoning by-law measures building height by metres, not storeys. Please remove the reference to storeys in the site specific by-law text. *(Town of Caledon, Planning Department, Development Planning)*	**HPGI**	References to storeys removed, refer to revised Zoning By-law Amendment.
88.	The Entrance setback is proposed to be reduced from 9m to 5m, please provide analysis in the PJR as to why this is necessary and appropriate. *(Town of Caledon, Planning Department, Development Planning)*	**HUNT / HPGI**	The entrance setback or sight triangle is reduced from 9m to 5m because the by law states a requirement of 2 parking spaces. In section 4.34.2. any portion of a parking space is prohibited in a sight triangle. The designs meet the requirement by showing one parking space in the garage and one on the driveway. It is necessary to meet both, and by reducing the sight triangle, it will. 5m daylighting triangles are common for local roads across various municipalities across the GTA. We note that all the roads proposed or existing are considered to be a local classification.
89.	The schedule of Frontage and Area indicates that the frontage is calculated at 6m, whereas the zone is proposing front yards of 4.5 m and 6 m. A proposed definition for Lot Frontage was added to the draft by-law to clarify how the lot frontage shall be calculated. *(Town of Caledon, Planning Department, Zoning)*	**HUNT**	6.0 minimum lot frontage is required to facilitate townhouse units, we agree with the Lot Frontage definition provided by the Town.
90.	Lot Area for Lot 1 does not comply with the minimum requirement. Relief is to be added in the draft zoning by-law. *(Town of Caledon, Planning Department, Zoning)*	**HUNT**	Revised. Refer to draft zoning by-law amendment.
91.	Staff note that future detached dwellings and all townhouse dwelling sitings will be reviewed at a later date through the appropriate application(s). *(Town of Caledon, Planning Department, Zoning)*	**HUNT**	Noted.
92.	Please note that where existing uses or structures are to be maintained, sections 4.23 and 4.24 respecting non-conforming uses and non-complying buildings and structures may apply. *(Town of Caledon, Planning Department, Zoning)*	**HPGI**	Replacement homes on existing lots will comply with RR provisions in the Zoning By-law.
93.	Please review the attached draft zoning by-law template with track changes. *(Town of Caledon, Planning Department, Zoning)*	**HPGI**	Comments addressed, see attached for revised Zoning By-law Amendment.
94.	Please refer to the attached Urban Design comments letter and marked-up PDF copy of the Community Design Plan and Urban Design Brief document for detailed urban design comments. *(Town of Caledon, Urban Design)*	**HUNT**	Designs comply to the Urban Design Guidelines.
95.	Please refer to the attached TRCA comments letter for detailed comments and Conditions of Draft Plan Approval. *(Toronto Region Conservation Authority)*		
The following agencies and departments have no concerns:			
	OPP (Caledon Detachment) – January 18, 2021		Noted
Conclusion:			
	A comment review meeting will be arranged with the appropriate internal and external commenting agencies to discuss the comments in the letter, assisting you in ensuring that the next submission will be complete and address all comments as required. I ask that you provide an agenda a minimum of three (3) days prior to the comment review meeting.		This has been completed
	Partial resubmissions, which do not address all deficiencies listed in the letter, will not be accepted for processing. In preparing your resubmission, please provide the following with your next submission:		
1.	Recirculation Fee for Draft Plan of Subdivision - $5,623.26		
2.	Cover Letter and Response Matrix Addressing All Comments Contained in this Letter and Attachments.		
3.	Response Matrix to Members of the Public comments, questions, concerns etc.		

	STAFF COMMENTS	ACTION BY	RESPONSE
4.	Revised Draft Zoning By-law Amendment (PDF and Microsoft Word) and Schedule (PDF and CAD)		This was provided to staff by email on XXXXX
5.	Revised Draft Official Plan Amendment (PDF and Microsoft Word) and Schedule (PDF and CAD)		This document has been finalized and adopted by town council
6.	Revised Draft Plan of Subdivision (PDF and CAD)		This has been provided to staff
7.	Revised Planning Justification Report		As draft plan was modified to remove parkette and adjust swm block – no pjr update is required.
8.	Revised Community Design Plan and Urban Design Brief		This has been undertaken and provided to staff
9.	Stage 1-2 Archaeological assessment dated August 25, 2021, in accordance with the received Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) acceptance letter, dated November 5, 2021.		Clarification on the matter has been undertaken
10.	Revised Architectural Design Guidelines		
11.	Revised Arborist Report/ Tree Preservation Plan		
12.	Revised Traffic Impact Study		
13.	Revised Stormwater Management Plans and Report		
14.	Revised Grading Plan		
15.	Erosion and Sediment Control Plan		
16.	Revised Function Servicing Report		
17.	Revised Engineering Drawings		
18.	Revised Environmental Noise Report		
19.	Revised Zoning Matrix		
20.	Revised Block Elevations		
21.	Demonstration sittings for Lot 1, Block 8 and townhouse units with 2-car garages		
22.	Revised Noise Impact Study		
Region of Peel – Public Works **Patrick Amaral, Intermediate Planner - February 11, 2022**			
Planning & Development:			
	Regional Official Plan policies note that the Bolton Residential Expansion Settlement (BRES) Area will contribute to the development of a complete community by planning for an appropriate mix of jobs, employment lands and housing, among other services and land uses to accommodate 11,100 people and 3,600 jobs. Notwithstanding that the subject lands are located on the periphery of the urban boundary and considered rounding out of the existing development, ROPA 30 policies remain applicable including with respect to the phasing of development and the provision of affordable housing. Recognizing that the applicant has been able to address several technical requirements related to servicing the subject lands, Region staff will continue to work with the applicant in addressing ROPA 30 policies through conditions of draft approval. On this basis we anticipate the Region will have no objections to the Local Official Plan Amendment and issuance of Draft Plan Approval provided the final LOPA wording reflects the comments below and the Region's conditions are included in the Draft Plan Approval.		No Action Required
	Regional staff have reviewed the Planning Justification Report prepared by Humphries Planning Group Inc and direct the following comments to the Town of Caledon for consideration:		
Natural Environment:			
1.	The Conservation Authorities (CAs) are the Region's technical advisors on matters related to the environment. The subject lands are located within the Toronto and Region Conservation Authority (TRCA) regulatory limit. The Region relies on the environmental expertise of the TRCA staff for the review of development applications located within or adjacent to their regulation area in Peel and their potential impacts on the natural environment. Regional Planning staff therefore request that Town staff consider comments from the TRCA and incorporate their conditions of approval appropriately. Final approval of this application requires all environmental concerns to be addressed to the satisfaction of the TRCA.	**PALMER**	Acknowledged
2.	A small parkette block (Block 29) is proposed in the plan of subdivision north of Street C in the Greenbelt Plan Protected Countryside along with blocks for open space and vegetation protection zone purposes. The transfer and dedication of these and other open space/restoration blocks in the plan of subdivision are permitted in accordance with the natural heritage designations associated with the lands.		The parkette has been removed from the plan. Open space areas north of Glasgow Road will be transferred in to public ownership.

	STAFF COMMENTS	ACTION BY	RESPONSE
a)	The Town of Caledon should confirm that the parkette block and other blocks in the Greenbelt Plan Natural Heritage System overlay satisfy requirements for lot creation in Section 4.6 of the Greenbelt Plan and are not being provided to satisfy parkland dedication requirements as a condition of approval for development within the settlement area in accordance with policy 2.2.10.4.17 of the Regional Official Plan. A similar policy (Policy 7.13.3.2.1.5 (p. 7-213)) is included in the Town of Caledon Official Plan.		The parkette has been removed from the plan.
Location of the Stormwater Management Pond Block			
3.	The Town of Caledon should confirm that stormwater servicing alternatives have been considered and the proposed stormwater management pond block location outside the settlement boundary and within the Protected Countryside of the Greenbelt Plan is a technically preferred location from a servicing perspective.	**CANDEVCON**	The location of swm pond block has been agreed in principle by the TRCA and is permitted per Town of Caledon
General Comments: **Sanitary Sewer Facilities**			
1.	Municipal sanitary sewer facilities consist of 375mm dia. sanitary sewer on Emil Kolb Parkway and 250mm sanitary sewer on DeRose Avenue.		Noted
2.	An updated Functional Servicing Report (FSR) showing proposed sanitary sewer servicing plans for the development and provision for the adjacent land, if any, is required for review and approval by the Region prior to the engineering submission.	**Candevcon**	
3.	External easements and construction may be required.	**Candevcon**	
Water Facilities			
1.	The lands are located within Water Pressure Zone 6 supply system.	**Candevcon**	
2,	Existing infrastructure consist of a 300mm dia. watermain on Glasgow Road and Chickadee Lane and 150mm on Chickadee Lane.	**Candevcon**	Noted
3.	An updated Functional Servicing Report (FSR) showing proposed water servicing plans for the development and provision for the adjacent land, if any, is required for review and approval by the Region prior to the engineering submission.	**Candevcon**	
4.	The Owner is advised that the Region will be undertaking a Class Environmental Assessment (EA) study to identify water and wastewater infrastructure requirements to service growth in Bolton. This site will be within the study area and may be impacted by potential water and wastewater infrastructure. The owner is encouraged to contact the Region and participate in the EA process.		Noted
5.	External easements and construction may be required		Noted
Regional Roads:			
1.	The proposed development abuts Emil Kolb Parkway (Regional Road #150) which is a four-lane arterial road under the jurisdiction of the Region of Peel.		Noted
2.	Region of Peel will not permit any changes to grading within Emil Kolb Parkway ROW along the frontage of proposed development.		Noted
3.	No lots or blocks shall have direct access to Emil Kolb Parkway. Any future access shall be in accordance with The Region Access Control By-law.		Noted
4.	Under no circumstance should the flow of storm water be diverted along the Regional right of way (by pipe or channel) to accomplish the relocation of a drainage feature with-in or adjacent to the Regional right of way, without the prior written consent of the Region.	**Candevcon**	Noted
Traffic Development:			
Traffic Impact Study:			
1.	Future background traffic volumes were obtained from the Bolton Residential Expansion Study, which used the growth rates of 9% for the southbound through movement and 7% for the northbound through movement in the PM (percentages applied to opposite direction for the AM); the growth rates calculated by the Region's Transportation Planning group is 3%. Considering the BRES future total volumes would equate to more conservative results, we are satisfied with their usage for this analysis.	**GHD**	
2.	Region staff require further justification to substantiate the trip distribution used for the analysis via existing traffic patterns, TTS, etc.	**GHD**	Distribution of site traffic to the intersection of Emil Kolb and De Rose assumed the same distribution as existing traffic patterns from the 135 residential units located south of De Rose Avenue along De Rose Avenue, Tomel Crescent and Bowes Crescent. During the AM and PM

	STAFF COMMENTS	ACTION BY	RESPONSE
			peak hours, only one vehicle from this residential development was observed heading north on Chickadee Lane, all other traffic was destined to/from the intersection of De Rose and Emil Kolb.
3.	The study highlights capacity issues for the westbound left-turn movement during the AM and PM peak hour at the intersection of Emil Kolb Parkway at De Rose Avenue, and suggests that these issues are expected to be mitigated with the signalization of the intersection – however, as per the signal warrant analysis, traffic signals are not warranted for this intersection as per the Future Total 2031 volumes. Region staff require recommendations on mitigation measures for the interim period until such time that signals are warranted.	**GHD**	It is expected that motorists will use the path of least resistance when travelling to/from the subject site. If delays for the westbound left become excessive for some drivers, they have the option to turn right onto Emil Kolb and travel north and use the roundabout to head back south on Emil Kolb. The additional travel length is expected to add an estimated 1 minute to the travel time to get to the intersection of Emil Kolb and Harvest Moon Drive/King Street East over making a left turn directly onto Emil Kolb. Alternatively, motorists could use Glasgow Road and Deer Valley Drive to head south to the same intersection. This movement is expected to add an estimated 3 minutes to the travel time. Both options provide an alternative route during the peak hours until such time as traffic signals are warranted. Both routes provide travel times that are significantly less than waiting for the left turn directly on Emil Kolb however the route option of using the roundabout at King and Emil Kolb is preferred as it minimizes the total delay.
Land Requirements:			
	As a condition of registration of the plan of subdivision or any phase thereof, the Developer will be required to gratuitously dedicate, free and clear of all encumbrances and to the satisfaction of the Region:		
1.	A road widening pursuant to the Region's Official Plan along Regional Road 150 ("Emil Kolb Parkway"). The Region's Official Plan road widening requirement for mid-block along Emil Kolb Parkway is 45 metres right-of-way (22.5 metres from the centerline). Additional property pursuant to the Region's Official Plan will be required within 245 metres of intersections as a result of design necessities to protect for the provision of but not limited to; utilities, sidewalks, multiuse pathways and transit bay/shelters: 50.5 metres for a single left turn lane intersection configuration (25.25 metres from the centerline of Emil Kolb Parkway);		Peel Region is to be provide the applicant with as built plans in acad format to determine if further lands are required.,
2.	0.3 metre reserve along the frontage of Emil Kolb Parkway Road behind the property line and daylight triangle;		
3.	To support the confirmation of any land requirements, the applicant can obtain record information as it relates to the Regional road network through our records department at 905-791-7800 extension 7882 or by e-mail at PWServiceRequests@peelregion.ca		Peel Region is to be provide the applicant with as built plans in acad format to determine if further lands are required.,
Engineering Requirements:			
1.	The Owner will be required to provide to the Region's Public Works Department a Letter of Credit in the amount of $325,000 (HST included) for future traffic control signals at the intersection Emil Kolb Parkway and De Rose Avenue;		Noted
2.	The Owner will also be required to provide to the Region's Public Works Department, a certified cheque in the amount of $71,190.00 (HST included) for maintenance of future traffic control signals at the intersection of Emil Kolb Parkway at De Rose Avenue.		Noted
Landscaping & Encroachments:			
1.	Landscaping, signs, fences, gateway features or any other encroachments are not permitted within the Region's easements and/or right-of-way limits.		Noted
Public Health			
1.	Through ROPA 27, the Region is implementing the Healthy Development Framework (HDF), a collection of Regional and local, context-specific tools that assess the health promoting potential of development applications. All tools in the HDF incorporate evidence-based health standards to assess the interconnected Core Elements of healthy design: density, service proximity, land use mix, street connectivity, streetscape characteristics and efficient parking. A key policy of ROPA 27 is to inform decision-makers, in this case Caledon Council, of the health promoting potential of planning applications. As such, Town Staff is working collaboratively with the Region to ensure health is considered as part of the review of development applications, and where warranted is communicated to local Council.		Noted
a)	After review of the Healthy Development Assessment, the Community Design Guidelines and the Draft Plan of Subdivision, there are further opportunities to enhance the site's built form. As noted in the HDA, some of the pedestrian amenities to be included on site such as the street trees, the lighting, benches and bicycle parking		Noted

	STAFF COMMENTS	ACTION BY	RESPONSE
	will be shown in further detail within the Street ROWs. Regional staff look forward to seeing through the detail design stage.		
b)	The Community Design Guidelines suggest that sidewalks will be located on both sides of the street for the minor collector and local roads, which is a positive factor to encourage physical activity and overall walkability in the community. Regional staff recommend having the sidewalk widths increased to 1.8m on the minor collector road. While sidewalks can encourage physical activity, if a sidewalk is in poor condition or inaccessible, it is shown to act as a barrier to walking, especially in seniors.	**Candevcon**	
Waste Management:			
1.	The Region of Peel will provide curbside collection service of garbage, recyclable materials, household organics and yard waste to the proposal provided the requirements of Section 2 and 3 of the Waste Collection Design Standards Manual (WCDSM) are met, such as the turning radii, the road width and appropriate set out area.		Noted
2.	A Waste Management Plan illustrating and describing how the proposal will satisfy the storage and set-out area requirements identified in Section 3 of the WCDSM may be beneficial and is requested at the detailed design stage.		Noted
3.	The Waste Collection Design Standards Manual (WCDSM) is available at https://www.peelregion.ca/public-works/design-standards/pdf/waste- collection-design-standards-manual.pdf		Noted
Hydrogeology:			
1.	The consultant (Palmer Environmental Consulting Group Inc) provides brief information of a review of the MECP WWRs database with a total of 34 records identified within the 500 meters area.	**PALMER**	Acknowledged
2.	A map showing the location of the records is also provided.	**PALMER**	Acknowledged
3.	The consultant also mentioned that a roadside water well screening was also done with a total of 14 properties potentially on private wells.	**PALMER**	Acknowledged
4.	It is mentioned that a door-to-door survey will be completed during detailed design.	**PALMER**	Acknowledged
5.	Groundwater levels were taken from six monitoring wells drilled within the project area and information for a few times in 2018 is provided in a table. The consultant is clear in mentioning that the period in which the water levels were taken is unlikely to be representative of seasonal highs.	**PALMER**	Groundwater levels were collected in March, April, May and June 2018, and are considered to represent the seasonal high groundwater levels, suitable for LID design and planning. Statements about seasonal fluctuation are standard text making all parties aware that groundwater levels can differ from those reported.
6.	Groundwater quality is also provided in the report.	**PALMER**	Acknowledged
7.	The consultant does not provide any monitoring data after August 2018, neither is a monitoring plan is proposed.	**PALMER**	No impacts to groundwater quantity or quality and no off-site changes to off-site groundwater levels will occur given the low permeability soils and maintenance of the water balance. No construction phase or post-construction phase groundwater monitoring is recommended.
8.	The proponent provides information on a water balance that details before and after construction and dewatering calculation, but there is no contingency plan as part of the report	**PALMER**	An additional 10 mm (15 mm total) will now be managed on site providing contingency to the water balance calculations.
9.	Prior to the first engineering submission, an updated Hydrogeology report with a contingency plan is required to the satisfaction of the Region of Peel.	**PALMER**	An additional 10 mm (15 mm total) will now be managed on site providing contingency to the water balance calculations. Additional contingency is not warranted for this hydrogeologically low risk project.
Financial Impact:			
Development Charges:			
1.	The Owner acknowledges that the lands are subject to the current Region's Development Charges By-law. The applicable development charges shall be paid in the manner and at the times provided by this By-law.		Noted
Capital Budget:			
1.	There is no negative impact upon the Regional Capital Budget as this development does not create a need for sanitary sewer, watermain, or road improvements in the Five-Year Capital Budget and Forecast.		Noted
Noise Study:			
1.	The Noise Impact Study identifies mitigation measures in Figure 4 of the study. Please note that acoustical walls shall generally not exceed 2.0 metres unless approved by the area municipality.		Noted
2.	Further detailed noise comments will be provided under a separate cover.		None provided
Region of Peel – Public Works			

	STAFF COMMENTS	ACTION BY	RESPONSE
Adrian Smith – March 4, 2022			
	On February 11, 2022, the Region provided a letter to the Town inclusive of our comments and conditions of draft approval for the above noted applications. This letter will add some additional clarity and context that may be useful in your administration of our requested conditions and provide a basis for confirming the Region's interests with respect to the ROPA 30 policies have been addressed.		noted
	The February 11th letter advised that the Region will be undertaking a Class Environmental Assessment (EA) study regarding water and wastewater improvements for the ROPA 30 lands and may construct a new Bolton Booster Water Station in the vicinity of the Development. The letter also noted that Lot 1 on the Draft Plan of Subdivision may be required for consideration to support the development of the new Bolton Booster Water Station in conjunction with the Region owned lands fronting Emil Kolb which are the primary lands being considered for the facility. Should Lot 1 be required, it is anticipated that the property would be acquired through negotiated acquisition or expropriation.		Noted
	The Region confirms that the development can proceed to connect to the existing system, in a single phase. Also, it is not a prerequisite that the EA be completed. The only external works required, which will be completed by the Developer as part of the servicing, include the watermain on Glasgow/King Street extension, which is not tied to the ultimate servicing solution for ROPA30, however will provide the required security of supply and minimum level of service.		Noted
	Regarding the intersection at Emil Kolb Parkway and DeRose Avenue, the Region will require securities for the construction of potential traffic control signals in the form of a Letter of Credit in the order of $325,000 (HST included). Traffic signals are currently not warranted at this intersection; however, the Region will continue to monitor the intersection for the requirements of signals through the traffic control signal warrant analysis or direction from Regional Council.		Noted
	Consideration in the future for a potential release of the securities will also be given, should the necessary requirements be met to the satisfaction of the Region. Through a condition of draft approval and prior to submission of the first detailed engineering package the applicant will need to revise the Traffic Impact Study (TIS) to identify any mitigation measures to address queuing at this intersection.		Noted
	With respect to the remaining conditions of draft approval, the Region looks forward to working with the applicant and the Town of Caledon to address the requirements. We continue to advise the Region has no objections to the Local Official Plan Amendment and issuance of Draft Plan Approval provided the final LOPA wording reflects the comments from our February 11 letter and the Region's conditions are included in the Draft Plan Approval.		Noted
Region of Peel – Public Works (Functional Servicing Report) **Elizabeth Trent- November 25, 2021**			
	We acknowledge receiving the Functional Servicing Report revised August 27th, 2021, prepared by Candevcon Limited. The subject land is located at 13935, 13951, 13977 and 13999 Chickadee Lane, 0 King Street and 550, 600 and 615 Glasgow Road with total of 10.08 ha area in the Town of Caledon. The proposed development will consist of two (2) blocks with single detached residential homes, twenty-five (25) Blocks with 151 Street Townhouses. Total estimated population is provided as 476 persons for the development.		No Action Required
General:			
1.	The proposed development is included under SGU 2124-0992, 2124-1208, 2124-0449 which forecasts a population growth of 0 persons and employment growth of 30 persons. This development does not fall within Region's SGU forecast.	Candevcon	

	STAFF COMMENTS	ACTION BY	RESPONSE
	In addition, the Region's recommended criteria for townhomes is 3.2 PPU, which results in population of 529 persons. The change in population must be revised and consistent through the report.		
Sanitary:			
1.	There are no issues with the sewer capacity to service the proposed development.		noted
Water:			
1.	The proposed watermain through the development will connect to the existing 300 mm diameter watermain on Chickadee Lane and 300/150mm diameter watermain on Glasgow Road.		noted
2.	ADD, MDD, and PHD values must be updated with the population as per above in the provided single use demand tables and throughout the report. Only one table should be provided in the future revised report.	Candevcon	
3.	The provided draft hydraulic assessment (Appendix I in the FSR) is dated October 2020 and as "draft". Please provide updated/final hydraulic report.	Candevcon	
4.	Based on the draft hydraulic assessment in the FSR, the modelled results are not consistent with the hydrant flow test provided.	Candevcon	
5.	The draft hydraulic assessment proposal includes a new 300 mm diameter watermain on King Street (from Harvest Moon Drive to Glasgow Road). The hydraulic benefits resulting from this new watermain are unclear.	Candevcon	
6.	The hydraulic impacts of this development on existing and proposed conditions will need to be provided for the entirety of Zone 6. Generally low pressures have been historically validated in this area. The Region's nearest pressure logger located at Cedargrove Road also shows a slight reduction in typical pressures (46 to 45 psi) in the area in the 3 years since the hydrant flow test was completed. This indicates that there may be inadequate available fire flow and pressures to service the proposed development with the existing water infrastructure in Zone 6.	Candevcon	
7.	Based on existing conditions in Zone 6, there is insufficient capacity/available pressure to service this development, as the hydrant flow test suggests an available fire flow of 134.2 L/s at 20 psi (which is less than the 180 L/s required).	Candevcon	
8.	The proponent should provide a proposal how to alleviate the insufficient fire flow for this development.	Candevcon	
Town of Caledon – Development Engineering & Transportation Engineering March 29, 2022			
Development Comments:			
1.	Figure 6 from Community Design Plan shows a pedestrian connection to Emil Kolb Parkway via the proposed sidewalks on Chickadee Lane and De Rose Avenue. The Town would prefer to see a multi-use trail (MUT) design that directly connects a MUT on Glasgow Road to Emil Kolb Parkway. This is in line with the TRCA's Trail Strategy to develop pedestrian/cycling infrastructure to connect the Emil Kolb Bikeway with the Humber Valley Heritage Trail.		Noted and agreed, plan has been revised.
2.	According to the FSR, Block 1 is designated for a residential lot with a single detached dwelling. Dev. Eng. ask that the applicant show the driveway location to the satisfaction of the Town	Candevcon	
3.	Please be advised that Development Engineering and Transportation Engineering staff may provide additional comments based on consultation with Operations staff on non-standard road geometries shown on the draft plan of subdivision.	GHD	
Transportation Comments:			

	STAFF COMMENTS	ACTION BY	RESPONSE
1.	The AutoTURN diagrams for snow ploughs need to be cleaned up (make the turns at the intersections and curves smooth – see attached marked-up AT-103_TE Comments) to confirm that snow ploughs can be safely accommodated with the proposed road and intersection design.	GHD	Autoturn drawings have been cleaned up showing smooth curves at intersections.
2.	Please also provide AutoTURN diagrams for fire and garbage trucks considering the proposed roads do not meet the Town's Design standards.	GHD	Autoturn drawings for Waste and Fire Trucks have been completed and submitted to the Town for review.
3.	Please provide sufficient corner clearance for the driveway's adjacent intersections according to the TAC standards. The driveways next to the Street A/B intersection does not meet the TAC requirements. See attached marked-up AT-103_TE Comments.	GHD	Lot layout has been revised to provide proper clearance at Street A/B for driveways outside of the daylight triangle.
4.	Please be advised that Development Engineering and Transportation Engineering staff may provide additional comments based on consultation with Operations staff on non-standard road geometries shown on the draft plan of subdivision.		

Appendix **B**
Traffic Data

Morning Peak Diagram

Specified Period	One Hour Peak
From: 7:00:00	**From:** 8:00:00
To: 9:00:00	**To:** 9:00:00

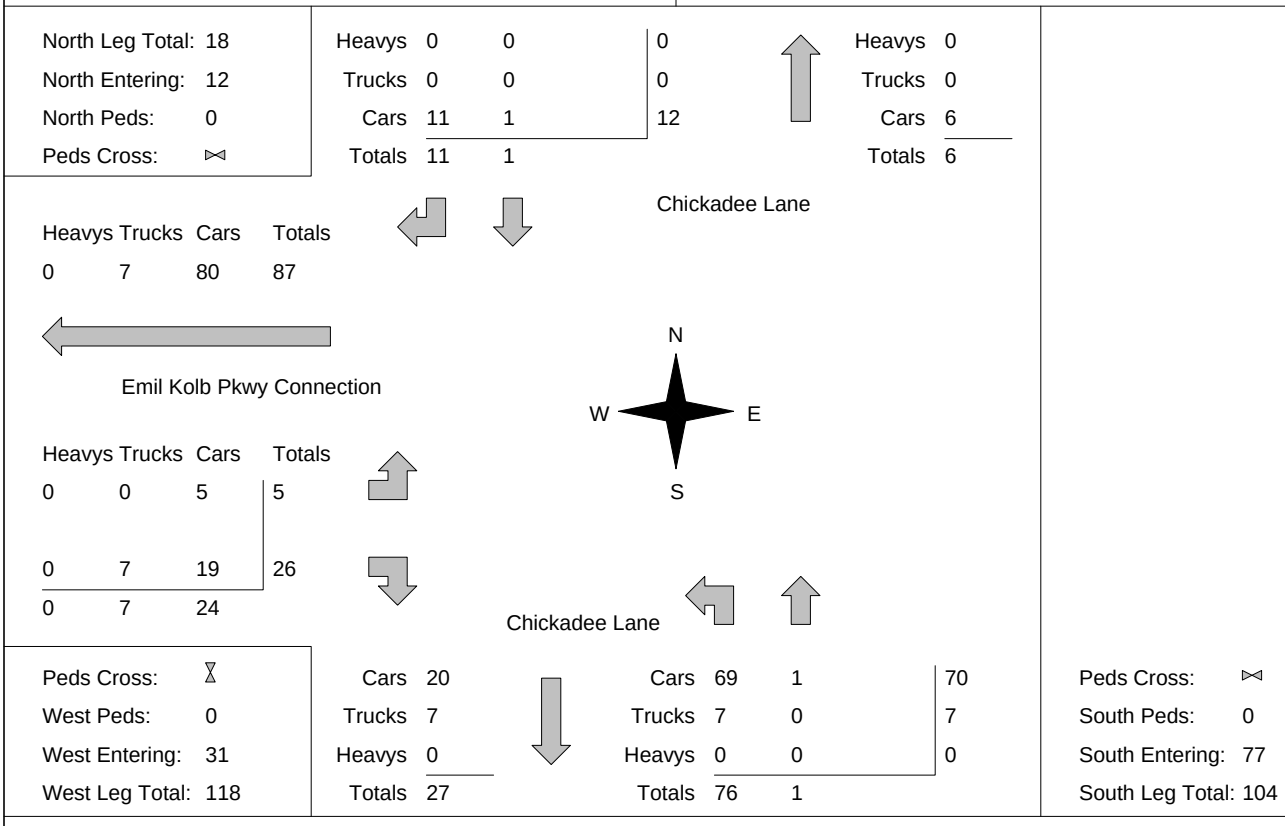
Municipality: Caledon
Site #: 1732600001
Intersection: Chickadee Lane & Emil Kolb Pkwy
TFR File #: 2
Count date: 31-Oct-17

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Chickadee Lane runs N/S



Comments

Afternoon Peak Diagram

Specified Period
From: 16:00:00
To: 18:00:00

One Hour Peak
From: 16:15:00
To: 17:15:00

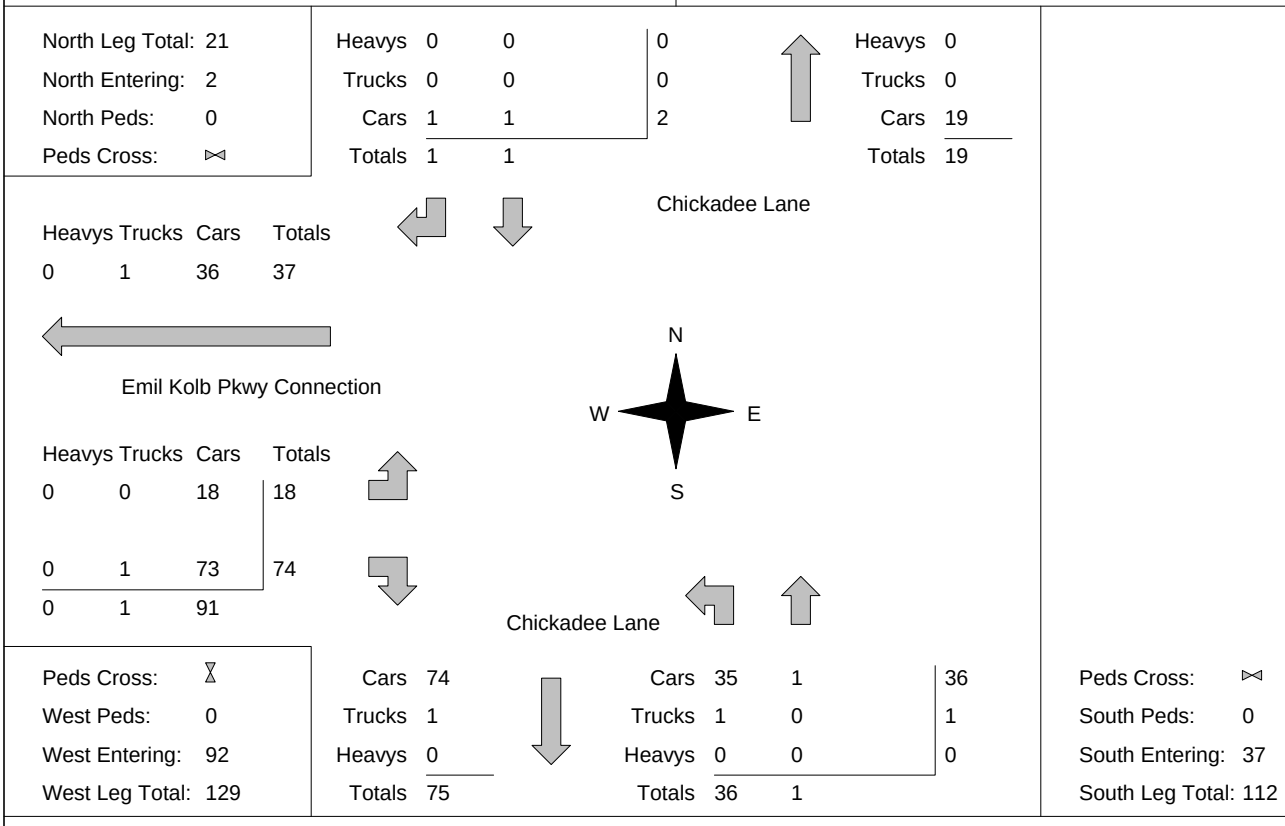
Municipality: Caledon
Site #: 1732600001
Intersection: Chickadee Lane & Emil Kolb Pkwy
TFR File #: 2
Count date: 31-Oct-17

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Chickadee Lane runs N/S



Comments

Total Count Diagram

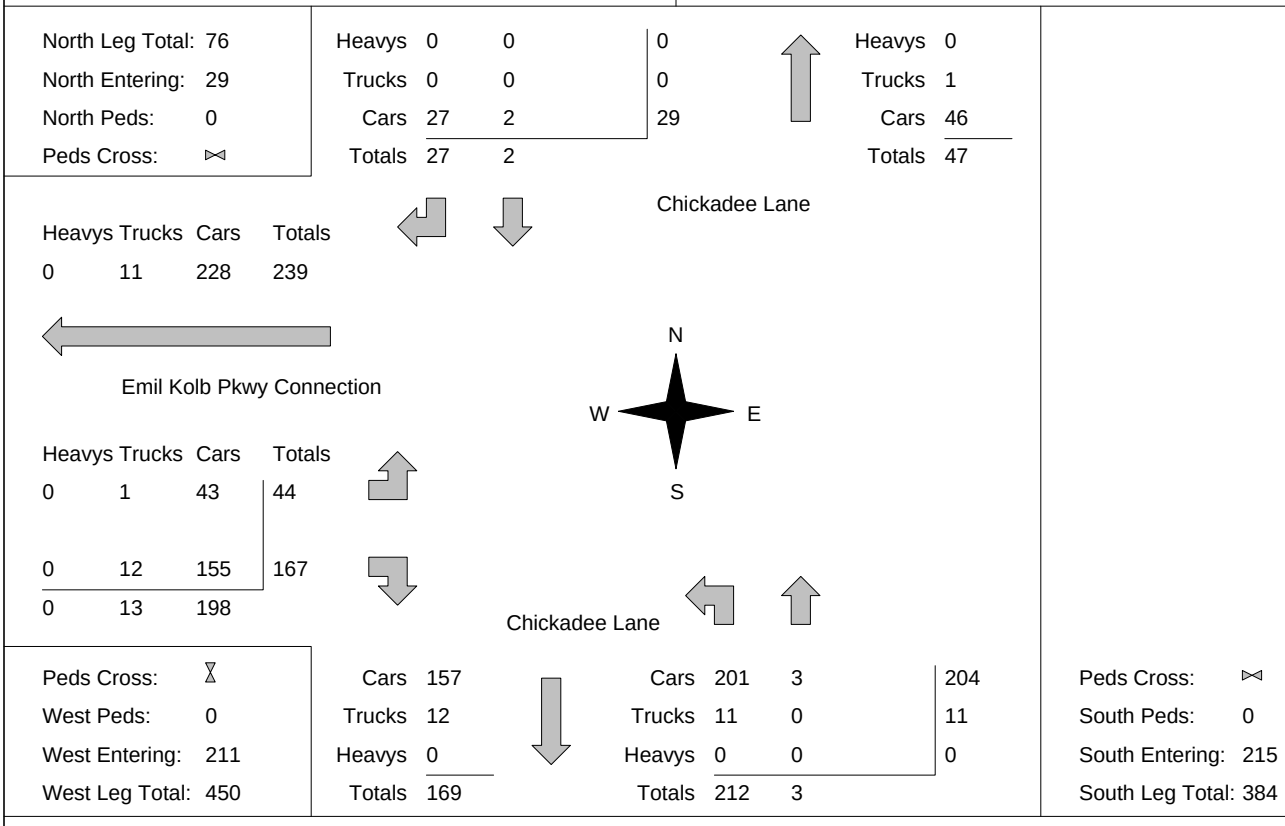
Municipality: Caledon
Site #: 1732600001
Intersection: Chickadee Lane & Emil Kolb Pkwy
TFR File #: 2
Count date: 31-Oct-17

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Chickadee Lane runs N/S



Comments

Traffic Count Summary

Intersection: Chickadee Lane & Emil Kolb Pkwy | **Count Date:** 31-Oct-17 | **Municipality:** Caledon

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	0	5	5	0	72
9:00:00	0	1	11	12	0	89
16:00:00	0	0	0	0	0	0
17:00:00	0	1	5	6	0	44
18:00:00	0	0	6	6	0	37
Totals:	0	2	27	29	0	242

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	67	0	0	67	0
9:00:00	76	1	0	77	0
16:00:00	0	0	0	0	0
17:00:00	37	1	0	38	0
18:00:00	30	1	0	31	0
	210	3	0	213	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	0	0	0	0	16
9:00:00	0	0	0	0	0	31
16:00:00	0	0	0	0	0	0
17:00:00	0	0	0	0	0	79
18:00:00	0	0	0	0	0	85
Totals:	0	0	0	0	0	211

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	5	0	11	16	0
9:00:00	5	0	26	31	0
16:00:00	0	0	0	0	0
17:00:00	15	0	64	79	0
18:00:00	19	0	66	85	0
	44	0	167	211	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	0:00	0:00	7:00	8:00	9:00	16:00	17:00	18:00
Crossing Values:	0	0	0	5	5	0	15	19

Count Date: 31-Oct-17 Site #: 1732600001

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Heavys - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	0	0	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	0	0	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00:00	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15:00	0	0	0	0	8	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30:00	0	0	0	0	12	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45:00	0	0	1	1	15	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00:00	0	0	1	0	16	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:01:06	0	0	1	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00:00	0	0	1	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15:00	0	0	1	0	20	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30:00	0	0	1	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45:00	0	0	2	1	21	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00:00	0	0	2	0	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15:00	0	0	2	0	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30:00	0	0	2	0	22	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45:00	0	0	2	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00:00	0	0	2	0	27	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15:00	0	0	2	0	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15:18	0	0	2	0	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Count Date: 31-Oct-17 Site #: 1732600001

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Heavys - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:01:06	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15:18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Count Date: 31-Oct-17 Site #: 1732600001

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Heavys - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	19	19	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	28	9	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	50	22	0	0	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0
8:00:00	64	14	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15:00	76	12	0	0	0	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0
8:30:00	99	23	1	1	0	0	5	1	0	0	0	0	0	0	0	0	0	0	0	0
8:45:00	115	16	1	0	0	0	6	1	0	0	0	0	0	0	0	0	0	0	0	0
9:00:00	133	18	1	0	0	0	10	4	0	0	0	0	0	0	0	0	0	0	0	0
9:01:06	133	0	1	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00:00	133	0	1	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15:00	144	11	1	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30:00	147	3	1	0	0	0	11	1	0	0	0	0	0	0	0	0	0	0	0	0
16:45:00	154	7	2	1	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00:00	169	15	2	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15:00	179	10	2	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30:00	186	7	2	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45:00	193	7	3	1	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00:00	199	6	3	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15:00	200	1	3	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15:18	201	1	3	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0

Count Date: 31-Oct-17 Site #: 1732600001

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Heavys - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	0	0	6	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	0	0	8	2	0	0	0	0	2	2	0	0	0	0	0	0	0	0
8:00:00	4	4	0	0	9	1	1	1	0	0	2	0	0	0	0	0	0	0	0	0
8:15:00	5	1	0	0	12	3	1	0	0	0	3	1	0	0	0	0	0	0	0	0
8:30:00	6	1	0	0	18	6	1	0	0	0	5	2	0	0	0	0	0	0	0	0
8:45:00	7	1	0	0	23	5	1	0	0	0	6	1	0	0	0	0	0	0	0	0
9:00:00	9	2	0	0	28	5	1	0	0	0	9	3	0	0	0	0	0	0	0	0
9:01:06	9	0	0	0	28	0	1	0	0	0	9	0	0	0	0	0	0	0	0	0
16:00:00	9	0	0	0	28	0	1	0	0	0	9	0	0	0	0	0	0	0	0	0
16:15:00	12	3	0	0	37	9	1	0	0	0	9	0	0	0	0	0	0	0	0	0
16:30:00	16	4	0	0	56	19	1	0	0	0	10	1	0	0	0	0	0	0	0	0
16:45:00	22	6	0	0	79	23	1	0	0	0	10	0	0	0	0	0	0	0	0	0
17:00:00	24	2	0	0	91	12	1	0	0	0	10	0	0	0	0	0	0	0	0	0
17:15:00	30	6	0	0	110	19	1	0	0	0	10	0	0	0	0	0	0	0	0	0
17:30:00	34	4	0	0	125	15	1	0	0	0	10	0	0	0	0	0	0	0	0	0
17:45:00	38	4	0	0	142	17	1	0	0	0	12	2	0	0	0	0	0	0	0	0
18:00:00	43	5	0	0	155	13	1	0	0	0	12	0	0	0	0	0	0	0	0	0
18:15:00	43	0	0	0	155	0	1	0	0	0	12	0	0	0	0	0	0	0	0	0
18:15:18	43	0	0	0	155	0	1	0	0	0	12	0	0	0	0	0	0	0	0	0

Morning Peak Diagram

Specified Period	One Hour Peak
From: 7:00:00	**From:** 7:30:00
To: 9:00:00	**To:** 8:30:00

Municipality: Caledon
Site #: 1732600002
Intersection: Emil Kolb Pkwy & Chickadee Lane
TFR File #: 1
Count date: 31-Oct-17

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Emil Kolb Pkwy runs N/S

North Leg Total: 924
North Entering: 646
North Peds: 0
Peds Cross: ⋈

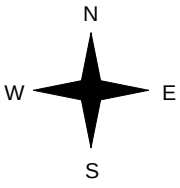
Heavys	0	0	0
Trucks	61	3	64
Cars	574	8	582
Totals	635	11	

Heavys	0
Trucks	45
Cars	233
Totals	278

East Leg Total: 106
East Entering: 82
East Peds: 1
Peds Cross: ⋈

Emil Kolb Pkwy

Cars	Trucks	Heavys	Totals
28	0	0	28
51	3	0	54
79	3	0	



Chickadee Lane Connection

Cars	Trucks	Heavys	Totals
18	6	0	24

Emil Kolb Pkwy

Cars	625
Trucks	64
Heavys	0
Totals	689

Cars	205	10	215
Trucks	45	2	47
Heavys	0	0	0
Totals	250	12	

Peds Cross: ⋈
South Peds: 0
South Entering: 262
South Leg Total: 951

Comments

Afternoon Peak Diagram

Specified Period
From: 16:00:00
To: 18:00:00

One Hour Peak
From: 16:15:00
To: 17:15:00

Municipality: Caledon
Site #: 1732600002
Intersection: Emil Kolb Pkwy & Chickadee Lane
TFR File #: 1
Count date: 31-Oct-17

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Emil Kolb Pkwy runs N/S

North Leg Total: 1187
North Entering: 386
North Peds: 0
Peds Cross: ⋈

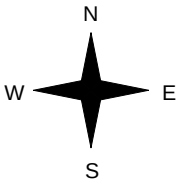
Heavys	0	0	0
Trucks	49	0	49
Cars	312	25	337
Totals	361	25	

Heavys	0
Trucks	39
Cars	762
Totals	801

East Leg Total: 129
East Entering: 37
East Peds: 3
Peds Cross: ⋈

Emil Kolb Pkwy

Cars	Trucks	Heavys	Totals
22	0	0	22
14	1	0	15
36	1	0	



Chickadee Lane Connection

Cars	Trucks	Heavys	Totals
91	1	0	92

Emil Kolb Pkwy

Cars	326
Trucks	50
Heavys	0
Totals	376

Cars	740	66	806
Trucks	39	1	40
Heavys	0	0	0
Totals	779	67	

Peds Cross: ⋈
South Peds: 0
South Entering: 846
South Leg Total: 1222

Comments

Total Count Diagram

Municipality: Caledon
Site #: 1732600002
Intersection: Emil Kolb Pkwy & Chickadee Lane
TFR File #: 1
Count date: 31-Oct-17

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

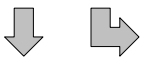
Major Road: Emil Kolb Pkwy runs N/S

North Leg Total: 3800
North Entering: 1819
North Peds: 0
Peds Cross: ⋈

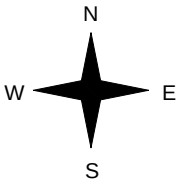
Heavys	0	0	0
Trucks	188	4	192
Cars	1562	65	1627
Totals	1750	69	

Heavys	0
Trucks	197
Cars	1784
Totals	1981

East Leg Total: 448
East Entering: 237
East Peds: 4
Peds Cross: ⋈



	Cars	Trucks	Heavys	Totals
	84	2	0	86
	142	9	0	151
	226	11	0	



	Cars	Trucks	Heavys	Totals
	198	13	0	211

Cars	1704
Trucks	197
Heavys	0
Totals	1901

Cars	1700	133	1833
Trucks	195	8	203
Heavys	0	0	0
Totals	1895	141	

Peds Cross: ⋈
South Peds: 0
South Entering: 2036
South Leg Total: 3937

Comments

Traffic Count Summary

Intersection: Emil Kolb Pkwy & Chickadee Lane | **Count Date:** 31-Oct-17 | **Municipality:** Caledon

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	7	520	0	527	0	807
9:00:00	13	585	0	598	0	848
16:00:00	0	1	0	1	0	1
17:00:00	21	357	0	378	0	1198
18:00:00	28	283	0	311	0	995
Totals:	69	1746	0	1815	0	3849

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	272	8	280	0
9:00:00	0	232	18	250	0
16:00:00	0	0	0	0	0
17:00:00	0	762	58	820	0
18:00:00	0	627	57	684	0
Totals:	0	1893	141	2034	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	42	0	30	72	1	73
9:00:00	63	0	24	87	0	87
16:00:00	0	0	0	0	0	0
17:00:00	22	0	20	42	3	42
18:00:00	24	0	12	36	0	36
Totals:	151	0	86	237	4	238

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	1	0	1	0
9:00:00	0	0	0	0	0
16:00:00	0	0	0	0	0
17:00:00	0	0	0	0	0
18:00:00	0	0	0	0	0
Totals:	0	1	0	1	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	0:00	0:00	7:00	8:00	9:00	16:00	17:00	18:00
Crossing Values:	0	0	0	43	63	0	22	24

Count Date: 31-Oct-17 Site #: 1732600002

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Heavys - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	2	2	109	109	0	0	0	0	8	8	0	0	0	0	0	0	0	0	0	0
7:30:00	5	3	200	91	0	0	0	0	17	9	0	0	0	0	0	0	0	0	0	0
7:45:00	5	0	325	125	0	0	1	1	34	17	0	0	0	0	0	0	0	0	0	0
8:00:00	6	1	472	147	0	0	1	0	48	14	0	0	0	0	0	0	0	0	0	0
8:15:00	9	3	618	146	0	0	1	0	64	16	0	0	0	0	0	0	0	0	0	0
8:30:00	13	4	774	156	0	0	3	2	78	14	0	0	0	0	0	0	0	0	0	0
8:45:00	13	0	903	129	0	0	3	0	89	11	0	0	0	0	0	0	0	0	0	0
9:00:00	17	4	998	95	0	0	3	0	107	18	0	0	0	0	0	0	0	0	0	0
9:01:06	17	0	999	1	0	0	3	0	107	0	0	0	0	0	0	0	0	0	0	0
16:00:00	17	0	999	0	0	0	3	0	107	0	0	0	0	0	0	0	0	0	0	0
16:15:00	18	1	1064	65	0	0	3	0	121	14	0	0	0	0	0	0	0	0	0	0
16:30:00	24	6	1148	84	0	0	3	0	136	15	0	0	0	0	0	0	0	0	0	0
16:45:00	32	8	1212	64	0	0	3	0	149	13	0	0	0	0	0	0	0	0	0	0
17:00:00	38	6	1303	91	0	0	3	0	160	11	0	0	0	0	0	0	0	0	0	0
17:15:00	43	5	1376	73	0	0	3	0	170	10	0	0	0	0	0	0	0	0	0	0
17:30:00	49	6	1445	69	0	0	3	0	174	4	0	0	0	0	0	0	0	0	0	0
17:45:00	59	10	1517	72	0	0	4	1	180	6	0	0	0	0	0	0	0	0	0	0
18:00:00	65	6	1560	43	0	0	4	0	186	6	0	0	0	0	0	0	0	0	0	0
18:15:00	65	0	1561	1	0	0	4	0	187	1	0	0	0	0	0	0	0	0	0	0
18:15:13	65	0	1562	1	0	0	4	0	188	1	0	0	0	0	0	0	0	0	0	0

Count Date: 31-Oct-17 Site #: 1732600002

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Heavys - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	11	11	0	0	10	10	1	1	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	17	6	0	0	15	5	2	1	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	30	13	0	0	25	10	3	1	0	0	0	0	0	0	0	0	0	0	1	1
8:00:00	39	9	0	0	30	5	3	0	0	0	0	0	0	0	0	0	0	0	1	0
8:15:00	49	10	0	0	35	5	4	1	0	0	0	0	0	0	0	0	0	0	1	0
8:30:00	68	19	0	0	43	8	5	1	0	0	0	0	0	0	0	0	0	0	1	0
8:45:00	80	12	0	0	50	7	6	1	0	0	0	0	0	0	0	0	0	0	1	0
9:00:00	97	17	0	0	52	2	8	2	0	0	2	2	0	0	0	0	0	0	1	0
9:01:06	97	0	0	0	52	0	8	0	0	0	2	0	0	0	0	0	0	0	1	0
16:00:00	97	0	0	0	52	0	8	0	0	0	2	0	0	0	0	0	0	0	1	0
16:15:00	109	12	0	0	55	3	8	0	0	0	2	0	0	0	0	0	0	0	1	0
16:30:00	110	1	0	0	57	2	9	1	0	0	2	0	0	0	0	0	0	0	2	1
16:45:00	117	7	0	0	58	1	9	0	0	0	2	0	0	0	0	0	0	0	2	0
17:00:00	118	1	0	0	72	14	9	0	0	0	2	0	0	0	0	0	0	0	4	2
17:15:00	123	5	0	0	77	5	9	0	0	0	2	0	0	0	0	0	0	0	4	0
17:30:00	130	7	0	0	78	1	9	0	0	0	2	0	0	0	0	0	0	0	4	0
17:45:00	136	6	0	0	79	1	9	0	0	0	2	0	0	0	0	0	0	0	4	0
18:00:00	142	6	0	0	84	5	9	0	0	0	2	0	0	0	0	0	0	0	4	0
18:15:00	142	0	0	0	84	0	9	0	0	0	2	0	0	0	0	0	0	0	4	0
18:15:13	142	0	0	0	84	0	9	0	0	0	2	0	0	0	0	0	0	0	4	0

Count Date: 31-Oct-17 Site #: 1732600002

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Heavys - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	65	65	1	1	0	0	13	13	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	105	40	1	0	0	0	26	13	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	164	59	3	2	0	0	35	9	1	1	0	0	0	0	0	0	0	0
8:00:00	0	0	221	57	7	4	0	0	51	16	1	0	0	0	0	0	0	0	0	0
8:15:00	0	0	282	61	8	1	0	0	54	3	2	1	0	0	0	0	0	0	0	0
8:30:00	0	0	310	28	11	3	0	0	71	17	2	0	0	0	0	0	0	0	0	0
8:45:00	0	0	357	47	17	6	0	0	91	20	3	1	0	0	0	0	0	0	0	0
9:00:00	0	0	394	37	20	3	0	0	110	19	6	3	0	0	0	0	0	0	0	0
9:01:06	0	0	394	0	20	0	0	0	110	0	6	0	0	0	0	0	0	0	0	0
16:00:00	0	0	394	0	20	0	0	0	110	0	6	0	0	0	0	0	0	0	0	0
16:15:00	0	0	570	176	31	11	0	0	129	19	6	0	0	0	0	0	0	0	0	0
16:30:00	0	0	728	158	48	17	0	0	139	10	7	1	0	0	0	0	0	0	0	0
16:45:00	0	0	940	212	69	21	0	0	147	8	7	0	0	0	0	0	0	0	0	0
17:00:00	0	0	1111	171	77	8	0	0	155	8	7	0	0	0	0	0	0	0	0	0
17:15:00	0	0	1310	199	97	20	0	0	168	13	7	0	0	0	0	0	0	0	0	0
17:30:00	0	0	1491	181	110	13	0	0	175	7	7	0	0	0	0	0	0	0	0	0
17:45:00	0	0	1611	120	121	11	0	0	185	10	8	1	0	0	0	0	0	0	0	0
18:00:00	0	0	1698	87	133	12	0	0	195	10	8	0	0	0	0	0	0	0	0	0
18:15:00	0	0	1699	1	133	0	0	0	195	0	8	0	0	0	0	0	0	0	0	0
18:15:13	0	0	1700	1	133	0	0	0	195	0	8	0	0	0	0	0	0	0	0	0

Count Date: 31-Oct-17 Site #: 1732600002

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Heavys - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00:00	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
8:15:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
8:30:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
8:45:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
9:00:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
9:01:06	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
16:00:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
16:15:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
16:30:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
16:45:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
17:00:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
17:15:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
17:30:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
17:45:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
18:00:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
18:15:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
18:15:13	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0

Appendix **C**

Synchro Reports

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	54	28	250	12	11	635
Future Volume (Veh/h)	54	28	250	12	11	635
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	55	29	255	12	11	648
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	601	128			267	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	601	128			267	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	87	97			99	
cM capacity (veh/h)	428	899			1294	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	55	29	128	128	12	11	324	324
Volume Left	55	0	0	0	0	11	0	0
Volume Right	0	29	0	0	12	0	0	0
cSH	428	899	1700	1700	1700	1294	1700	1700
Volume to Capacity	0.13	0.03	0.07	0.07	0.01	0.01	0.19	0.19
Queue Length 95th (m)	3.3	0.8	0.0	0.0	0.0	0.2	0.0	0.0
Control Delay (s)	14.6	9.1	0.0	0.0	0.0	7.8	0.0	0.0
Lane LOS	B	A				A		
Approach Delay (s)	12.7		0.0			0.1		
Approach LOS	B							

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	27.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	26	76	1	1	11
Future Volume (Veh/h)	5	26	76	1	1	11
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Hourly flow rate (vph)	6	33	96	1	1	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	0		26	12	45	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		26	12	45	0
tC, single (s)	4.1		7.1	6.5	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.0	4.0	3.3
p0 queue free %	100		90	100	100	99
cM capacity (veh/h)	1623		967	879	844	1085

Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	6	33	97	15
Volume Left	6	0	96	0
Volume Right	0	33	0	14
cSH	1623	1700	966	1065
Volume to Capacity	0.00	0.02	0.10	0.01
Queue Length 95th (m)	0.1	0.0	2.5	0.3
Control Delay (s)	7.2	0.0	9.1	8.4
Lane LOS	A		A	A
Approach Delay (s)	1.1		9.1	8.4
Approach LOS			A	A

Intersection Summary			
Average Delay	7.0		
Intersection Capacity Utilization	20.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	15	22	779	67	25	361
Future Volume (Veh/h)	15	22	779	67	25	361
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	16	23	820	71	26	380
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	1062	410			891	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1062	410			891	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	96			97	
cM capacity (veh/h)	211	591			757	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	16	23	410	410	71	26	190	190
Volume Left	16	0	0	0	0	26	0	0
Volume Right	0	23	0	0	71	0	0	0
cSH	211	591	1700	1700	1700	757	1700	1700
Volume to Capacity	0.08	0.04	0.24	0.24	0.04	0.03	0.11	0.11
Queue Length 95th (m)	1.9	0.9	0.0	0.0	0.0	0.8	0.0	0.0
Control Delay (s)	23.5	11.3	0.0	0.0	0.0	9.9	0.0	0.0
Lane LOS	C	B				A		
Approach Delay (s)	16.3		0.0			0.6		
Approach LOS	C							

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	31.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	18	74	36	1	1	1
Future Volume (Veh/h)	18	74	36	1	1	1
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	21	88	43	1	1	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	0		44	42	130	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		44	42	130	0
tC, single (s)	4.1		7.1	6.5	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.0	4.0	3.3
p0 queue free %	99		95	100	100	100
cM capacity (veh/h)	1623		948	839	751	1085

Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	21	88	44	2
Volume Left	21	0	43	0
Volume Right	0	88	0	1
cSH	1623	1700	945	887
Volume to Capacity	0.01	0.05	0.05	0.00
Queue Length 95th (m)	0.3	0.0	1.1	0.1
Control Delay (s)	7.2	0.0	9.0	9.1
Lane LOS	A		A	A
Approach Delay (s)	1.4		9.0	9.1
Approach LOS			A	A

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	18.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	54	28	784	12	11	1559
Future Volume (Veh/h)	54	28	784	12	11	1559
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	55	29	800	12	11	1591
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	1618	400			812	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1618	400			812	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	41	95			99	
cM capacity (veh/h)	93	600			810	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	55	29	400	400	12	11	796	796
Volume Left	55	0	0	0	0	11	0	0
Volume Right	0	29	0	0	12	0	0	0
cSH	93	600	1700	1700	1700	810	1700	1700
Volume to Capacity	0.59	0.05	0.24	0.24	0.01	0.01	0.47	0.47
Queue Length 95th (m)	20.9	1.2	0.0	0.0	0.0	0.3	0.0	0.0
Control Delay (s)	88.8	11.3	0.0	0.0	0.0	9.5	0.0	0.0
Lane LOS	F	B				A		
Approach Delay (s)	62.1		0.0			0.1		
Approach LOS	F							

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	53.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	26	76	1	1	11
Future Volume (Veh/h)	5	26	76	1	1	11
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Hourly flow rate (vph)	6	33	96	1	1	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	0		26	12	45	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		26	12	45	0
tC, single (s)	4.1		7.1	6.5	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.0	4.0	3.3
p0 queue free %	100		90	100	100	99
cM capacity (veh/h)	1623		967	879	844	1085

Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	6	33	97	15
Volume Left	6	0	96	0
Volume Right	0	33	0	14
cSH	1623	1700	966	1065
Volume to Capacity	0.00	0.02	0.10	0.01
Queue Length 95th (m)	0.1	0.0	2.5	0.3
Control Delay (s)	7.2	0.0	9.1	8.4
Lane LOS	A		A	A
Approach Delay (s)	1.1		9.1	8.4
Approach LOS			A	A

Intersection Summary			
Average Delay	7.0		
Intersection Capacity Utilization	20.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	15	22	1913	67	25	1132
Future Volume (Veh/h)	15	22	1913	67	25	1132
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	16	23	2014	71	26	1192
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	2662	1007			2085	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2662	1007			2085	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	3	90			90	
cM capacity (veh/h)	16	239			262	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	16	23	1007	1007	71	26	596	596
Volume Left	16	0	0	0	0	26	0	0
Volume Right	0	23	0	0	71	0	0	0
cSH	16	239	1700	1700	1700	262	1700	1700
Volume to Capacity	0.97	0.10	0.59	0.59	0.04	0.10	0.35	0.35
Queue Length 95th (m)	18.4	2.4	0.0	0.0	0.0	2.5	0.0	0.0
Control Delay (s)	526.4	21.7	0.0	0.0	0.0	20.2	0.0	0.0
Lane LOS	F	C				C		
Approach Delay (s)	228.7		0.0			0.4		
Approach LOS	F							

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	18	74	36	1	1	1
Future Volume (Veh/h)	18	74	36	1	1	1
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	21	88	43	1	1	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	0		44	42	130	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		44	42	130	0
tC, single (s)	4.1		7.1	6.5	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.0	4.0	3.3
p0 queue free %	99		95	100	100	100
cM capacity (veh/h)	1623		948	839	751	1085

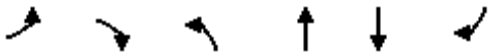
Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	21	88	44	2
Volume Left	21	0	43	0
Volume Right	0	88	0	1
cSH	1623	1700	945	887
Volume to Capacity	0.01	0.05	0.05	0.00
Queue Length 95th (m)	0.3	0.0	1.1	0.1
Control Delay (s)	7.2	0.0	9.0	9.1
Lane LOS	A		A	A
Approach Delay (s)	1.4		9.0	9.1
Approach LOS			A	A

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	18.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	96	46	784	21	20	1559
Future Volume (Veh/h)	96	46	784	21	20	1559
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	98	47	800	21	20	1591
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	1636	400			821	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1636	400			821	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	92			98	
cM capacity (veh/h)	89	600			804	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	98	47	400	400	21	20	796	796
Volume Left	98	0	0	0	0	20	0	0
Volume Right	0	47	0	0	21	0	0	0
cSH	89	600	1700	1700	1700	804	1700	1700
Volume to Capacity	1.10	0.08	0.24	0.24	0.01	0.02	0.47	0.47
Queue Length 95th (m)	50.4	1.9	0.0	0.0	0.0	0.6	0.0	0.0
Control Delay (s)	209.7	11.5	0.0	0.0	0.0	9.6	0.0	0.0
Lane LOS	F	B				A		
Approach Delay (s)	145.4		0.0			0.1		
Approach LOS	F							

Intersection Summary			
Average Delay	8.3		
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	22	26	76	1	1	71
Future Volume (Veh/h)	22	26	76	1	1	71
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Hourly flow rate (vph)	28	33	96	1	1	90
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	0		146	56	89	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		146	56	89	0
tC, single (s)	4.1		7.1	6.5	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.0	4.0	3.3
p0 queue free %	98		87	100	100	92
cM capacity (veh/h)	1623		743	821	787	1085

Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	28	33	97	91
Volume Left	28	0	96	0
Volume Right	0	33	0	90
cSH	1623	1700	744	1081
Volume to Capacity	0.02	0.02	0.13	0.08
Queue Length 95th (m)	0.4	0.0	3.4	2.1
Control Delay (s)	7.3	0.0	10.6	8.6
Lane LOS	A		B	A
Approach Delay (s)	3.3		10.6	8.6
Approach LOS			B	A

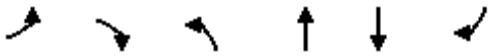
Intersection Summary			
Average Delay	8.1		
Intersection Capacity Utilization	20.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	98	47	800	21	20	1591
v/c Ratio	0.25	0.12	0.33	0.02	0.05	0.66
Control Delay	30.9	9.7	6.4	2.0	5.2	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.9	9.7	6.4	2.0	5.2	10.0
Queue Length 50th (m)	14.0	0.0	26.2	0.0	1.0	73.1
Queue Length 95th (m)	27.2	8.3	34.6	2.0	3.2	92.9
Internal Link Dist (m)	11.5		66.0			56.6
Turn Bay Length (m)				50.0	70.0	
Base Capacity (vph)	395	390	2429	1093	415	2429
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.12	0.33	0.02	0.05	0.66

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	96	46	784	21	20	1559
Future Volume (vph)	96	46	784	21	20	1559
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1789	1601	3579	1601	1789	3579
Flt Permitted	0.95	1.00	1.00	1.00	0.32	1.00
Satd. Flow (perm)	1789	1601	3579	1601	611	3579
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	98	47	800	21	20	1591
RTOR Reduction (vph)	0	37	0	7	0	0
Lane Group Flow (vph)	98	10	800	14	20	1591
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Actuated Green, G (s)	19.9	19.9	61.1	61.1	61.1	61.1
Effective Green, g (s)	19.9	19.9	61.1	61.1	61.1	61.1
Actuated g/C Ratio	0.22	0.22	0.68	0.68	0.68	0.68
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	395	353	2429	1086	414	2429
v/s Ratio Prot	c0.05		0.22			c0.44
v/s Ratio Perm		0.01		0.01	0.03	
v/c Ratio	0.25	0.03	0.33	0.01	0.05	0.66
Uniform Delay, d1	28.9	27.5	6.0	4.7	4.8	8.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.5	0.2	0.4	0.0	0.2	1.4
Delay (s)	30.4	27.6	6.3	4.7	5.0	9.7
Level of Service	C	C	A	A	A	A
Approach Delay (s)	29.5		6.3			9.7
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	55.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	22	26	76	1	1	71
Future Volume (Veh/h)	22	26	76	1	1	71
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Hourly flow rate (vph)	28	33	96	1	1	90
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (m)	79					
pX, platoon unblocked						
vC, conflicting volume	0		146	56	89	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		146	56	89	0
tC, single (s)	4.1		7.1	6.5	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.0	4.0	3.3
p0 queue free %	98		87	100	100	92
cM capacity (veh/h)	1623		743	821	787	1085

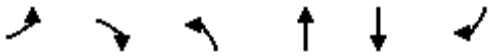
Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	28	33	97	91
Volume Left	28	0	96	0
Volume Right	0	33	0	90
cSH	1623	1700	744	1081
Volume to Capacity	0.02	0.02	0.13	0.08
Queue Length 95th (m)	0.4	0.0	3.4	2.1
Control Delay (s)	7.3	0.0	10.6	8.6
Lane LOS	A		B	A
Approach Delay (s)	3.3		10.6	8.6
Approach LOS			B	A

Intersection Summary			
Average Delay	8.1		
Intersection Capacity Utilization	20.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	27	41	1913	106	42	1132
Future Volume (Veh/h)	27	41	1913	106	42	1132
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	28	43	2014	112	44	1192
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	2698	1007			2126	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2698	1007			2126	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	82			83	
cM capacity (veh/h)	14	239			252	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	28	43	1007	1007	112	44	596	596
Volume Left	28	0	0	0	0	44	0	0
Volume Right	0	43	0	0	112	0	0	0
cSH	14	239	1700	1700	1700	252	1700	1700
Volume to Capacity	1.96	0.18	0.59	0.59	0.07	0.17	0.35	0.35
Queue Length 95th (m)	32.0	4.9	0.0	0.0	0.0	4.7	0.0	0.0
Control Delay (s)	994.9	23.3	0.0	0.0	0.0	22.2	0.0	0.0
Lane LOS	F	C				C		
Approach Delay (s)	406.5		0.0			0.8		
Approach LOS	F							

Intersection Summary			
Average Delay	8.7		
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	73	74	36	1	1	32
Future Volume (Veh/h)	73	74	36	1	1	32
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	87	88	43	1	1	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	0		212	174	262	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		212	174	262	0
tC, single (s)	4.1		7.1	6.5	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.0	4.0	3.3
p0 queue free %	95		94	100	100	96
cM capacity (veh/h)	1623		688	681	608	1085

Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	87	88	44	39
Volume Left	87	0	43	0
Volume Right	0	88	0	38
cSH	1623	1700	688	1064
Volume to Capacity	0.05	0.05	0.06	0.04
Queue Length 95th (m)	1.3	0.0	1.6	0.9
Control Delay (s)	7.3	0.0	10.6	8.5
Lane LOS	A		B	A
Approach Delay (s)	3.7		10.6	8.5
Approach LOS			B	A

Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	19.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	28	43	2014	112	44	1192
v/c Ratio	0.07	0.12	0.83	0.10	0.54	0.49
Control Delay	28.4	19.4	14.5	1.5	37.0	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.4	19.4	14.5	1.5	37.0	7.8
Queue Length 50th (m)	3.9	3.3	117.3	0.6	3.3	45.5
Queue Length 95th (m)	10.6	11.5	151.4	5.2	#22.0	58.2
Internal Link Dist (m)	11.5		66.0			56.6
Turn Bay Length (m)				50.0	70.0	
Base Capacity (vph)	395	368	2429	1119	82	2429
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.12	0.83	0.10	0.54	0.49

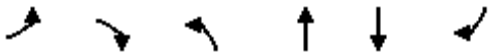
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	27	41	1913	106	42	1132
Future Volume (vph)	27	41	1913	106	42	1132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1789	1601	3579	1601	1789	3579
Flt Permitted	0.95	1.00	1.00	1.00	0.07	1.00
Satd. Flow (perm)	1789	1601	3579	1601	123	3579
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	28	43	2014	112	44	1192
RTOR Reduction (vph)	0	15	0	32	0	0
Lane Group Flow (vph)	28	28	2014	80	44	1192
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Actuated Green, G (s)	19.9	19.9	61.1	61.1	61.1	61.1
Effective Green, g (s)	19.9	19.9	61.1	61.1	61.1	61.1
Actuated g/C Ratio	0.22	0.22	0.68	0.68	0.68	0.68
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	395	353	2429	1086	83	2429
v/s Ratio Prot	0.02		c0.56			0.33
v/s Ratio Perm		c0.02		0.05	0.36	
v/c Ratio	0.07	0.08	0.83	0.07	0.53	0.49
Uniform Delay, d1	27.7	27.8	10.6	4.9	7.2	7.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.4	3.4	0.1	22.1	0.7
Delay (s)	28.1	28.2	14.1	5.0	29.4	7.7
Level of Service	C	C	B	A	C	A
Approach Delay (s)	28.2		13.6			8.4
Approach LOS	C		B			A

Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	73	74	36	1	1	32
Future Volume (Veh/h)	73	74	36	1	1	32
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	87	88	43	1	1	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (m)	79					
pX, platoon unblocked						
vC, conflicting volume	0		212	174	262	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		212	174	262	0
tC, single (s)	4.1		7.1	6.5	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.0	4.0	3.3
p0 queue free %	95		94	100	100	96
cM capacity (veh/h)	1623		688	681	608	1085

Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	87	88	44	39
Volume Left	87	0	43	0
Volume Right	0	88	0	38
cSH	1623	1700	688	1064
Volume to Capacity	0.05	0.05	0.06	0.04
Queue Length 95th (m)	1.3	0.0	1.6	0.9
Control Delay (s)	7.3	0.0	10.6	8.5
Lane LOS	A		B	A
Approach Delay (s)	3.7		10.6	8.5
Approach LOS			B	A

Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	19.4%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix **D**

Signal Warrant

Input Data Sheet

Project No. & Description	Chickadee Lane Residential Development		
Intersecting roadways:	Emil Kolb Parkway and De Rose Way Avenue	**Analysis Period:**	Future Total 2031
Date of Signal Warrant Analysis:	August 11, 2021	**Analyst:**	GHD
Direction of the Main Road / Street:	2 North-South	**Number of Hourly Volumes Avaliable:**	2 AM & PM Peak Hour Volumes

Justifications 7: Projected Volume Warrants

AM & PM Peak Hour Volumes Avaliable

Both Roads Exist, Development is Future

A	Number of lanes on the Main Road?	2 or more		
B	Number of lanes on the Minor Road?	2 or more		
C	How many approaches?	3 (T-Intersection)		
D	What is the operating environment?	2 Urban	**Population >= 10,000** **AND**	**Speed < 70 km/hr**
E	Is this an existing intersection?	1 Both Intersecting Roads Exist	**120% Warrant without Combination**	
F	What is the eight hour vehicle volume at the intersection? (Please fill in table below)			

Hour Ending	Minor Eastbound Approach			Main Northbound Approach			Minor Westbound Approach			Main Southbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
9:00					784	21	96		46	20	1,559		
5:15					1,913	106	27		41	42	1,132		
AHV*	0	0	0	0	674	32	31	0	22	16	673	0	0
Total 8 Hour Volumes**	**0**	**0**	**0**	**0**	**6,741**	**319**	**309**	**0**	**219**	**158**	**6,729**	**0**	**0**

For Justification 7: Average Hourly Volumes = AHV = (AM Peak + PM Peak)/4

****For Justification 7: Total 8 Hour Volumes = AM Peak + PM Peak + 6 (AHV)***

SIGNAL WARRANTS BASED ON MTO OTM BOOK 12 (2012) METHODOLOGIES

Analysis Sheet

Chickadee Lane Residential Development

Intersection: Emil Kolb Parkway and De Rose Way Avenue
Analysis Period: Future Total 2031
Signal Warrant Analysis Date: August 11, 2021
Analyst: GHD
Both Intersection Roads Exists

Justification 7-1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent
	1 Lanes		2 or More Lanes		Hour Ending									
Flow Condition	FREE FLOW ✗	RESTR. FLOW ✗	FREE FLOW ✗	RESTR. FLOW ✓	AM	PM	AHV	AHV	AHV	AHV	AHV	AHV		
1A	480	720	600	900	2,526	3,261	1,448	1,448	1,448	1,448	1,448	1,448		
	COMPLIANCE %				120.0%	120.0%	120.0%	120.0%	120.0%	120.0%	120.0%	120.0%	960.0%	120.0%
1B	120	170	120	170	142	68	53	53	53	53	53	53		
	COMPLIANCE %				83.5%	40.0%	31.2%	31.2%	31.2%	31.2%	31.2%	31.2%	310.6%	38.8%
Restricted Flow Signal Justification 1:					**Both 1A and 1B 120% Fullfilled each of 8 hours**					**Yes** ✗		**No** ✓		

Justification 7-2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent
	1 lanes		2 or More lanes		Hour Ending									
Flow Condition	FREE FLOW ✗	RESTR. FLOW ✗	FREE FLOW ✗	RESTR. FLOW ✓	AM	PM	AHV	AHV	AHV	AHV	AHV	AHV		
2A	480	720	600	900	2,384	3,193	1,395	1,395	1,395	1,395	1,395	1,395		
	COMPLIANCE %				120.0%	120.0%	120.0%	120.0%	120.0%	120.0%	120.0%	120.0%	960.0%	120.0%
2B	50	75	50	75	96	27	31	31	31	31	31	31		
	COMPLIANCE %				120.0%	36.0%	41.3%	41.3%	41.3%	41.3%	41.3%	41.3%	404.0%	50.5%
Restricted Flow Signal Justification 2:					**Both 2A and 2B 120% Fullfilled each of 8 hours**					**Yes** ✗		**No** ✓		

Results Sheet

Chickadee Lane Residential Development

Intersection: Emil Kolb Parkway and De Rose Way Avenue

Analysis Period: Future Total 2031

Signal Warrant Analysis Date: August 11, 2021

Analyst: GHD

Both Intersecting Roads Exists

Summary Results

Justification			Compliance	Signal Justified? YES	Signal Justified? NO
7-1. Minimum Vehicular Volume	A	Total Volume	120.0%	✗	✓
	B	Crossing Volume	38.8%		
7-2. Delay to Cross Traffic	A	Main Road	120.0%	✗	✓
	B	Crossing Road	50.5%		

SIGNAL WARRANTS BASED ON MTO OTM BOOK 12 (2012) METHODOLOGIES