Mayfield Developments Inc.

TRANSPORTATION IMPACT STUDY

DRAFT PLAN OF SUBDIVISION

12259 CHINGUACOUSY ROAD
TOWN OF CALEDON

December 2020
9794

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December 7, 2020

Reference Number: 9794/250

Mr. Greg Kruzel
Land Development Coordinator
Mayfield Developments Inc.
500-7800 Keele Street
Vaughan, ON
L4K 4G7

Dear Mr. Kruzel:

RE: Transportation Impact Study
Mayfield Developments Inc., Draft Plan of Subdivision
12259 Chinguacousy Road, Town of Caledon

LEA Consulting Ltd. (LEA) is pleased to present the findings of our Transportation Impact Study for the Draft Plan of Subdivision application for the property municipally known as 12259 Chinguacousy Road located in the Town of Caledon, owned by Mayfield Developments Inc. The property is within the Stage 2 of the Mayfield West Phase 2 (MW2) Secondary Plan Area.

This report concludes that the traffic associated with the planned development maintains acceptable conditions for the road network in the surrounding area, and minor intensification for the planned full build-out year of the subdivision does not change the recommendations from the 2018 Transportation Master Plan by Paradigm Consulting.

Should you have any questions regarding this Transportation Impact Study, please do not hesitate to contact the undersigned.

Yours truly,

LEA CONSULTING LTD.

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Manager, Transportation Engineering

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Transportation Analyst

Encl.

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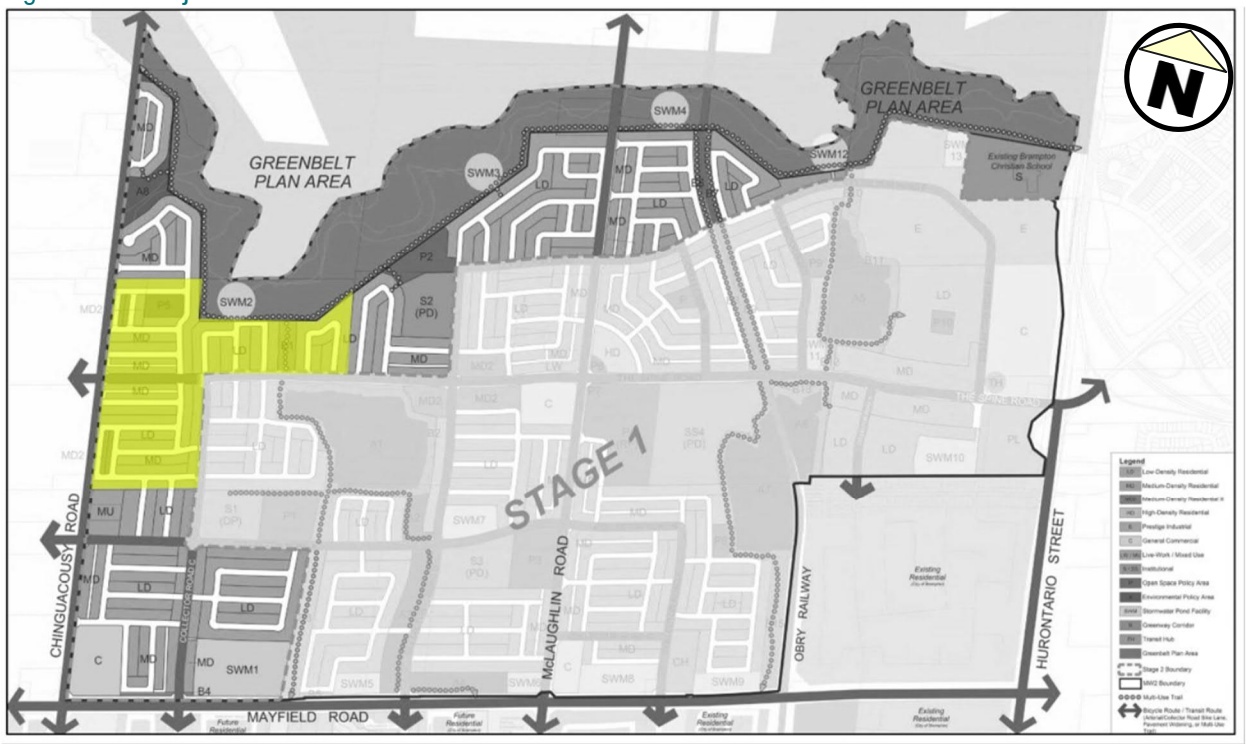
1 INTRODUCTION

1.1 BACKGROUND

LEA Consulting Ltd. (LEA) has been retained to undertake a Transportation Impact Study (TIS) in support of a Draft Plan of Subdivision application for a portion of the property municipally known as 12259 Chinguacousy Road located in the Town of Caledon, owned by Mayfield Developments Inc. (herein referred to as the "subject site"). The property is within the Stage 2 of the Mayfield West Phase 2 (MW2) Secondary Plan Area. Figure 1-1 illustrates the location of the subject site (highlighted in yellow) within the approved Stage 2 area of the MW2 Secondary Plan.

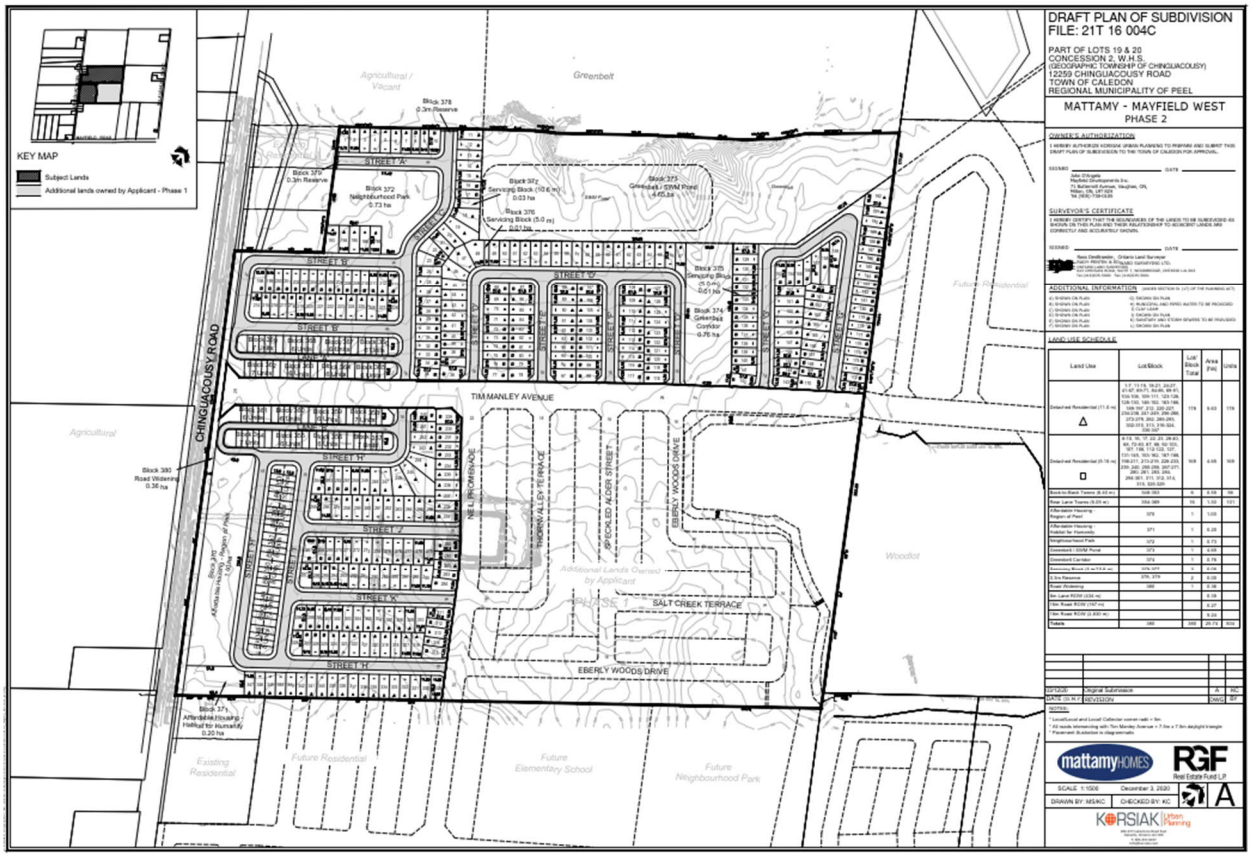
Figure 1-1: Subject Site



In November 2018, Paradigm Transportation Solutions Limited (Paradigm) completed the Mayfield West Phase 2 Stage 2 Transportation Assessment (herein referred to as "2018 TMP"). There has been some minor intensification to the subdivision lands. As such, this Transportation Impact Study aims to reassess the transportation demands on the network and confirm if the conclusions found in the 2018 TMP still hold true.

The proposed development, as illustrated in Figure 1-2 will include 347 single-detached houses and 157 townhouse units, 101 of which are rear-lane townhouse units. Within the site boundary, there is an affordable housing land (1.22 ha) allocated to the Region of Peel and Habitat for Humanity. Based on preliminary plans for the affordable housing lands, up to 228 units will be constructed on those lands. Table 1-1 summarizes the changes between the 2018 TMP and the current 2020 Updated Draft Plan.

Figure 1-2: Proposed Draft Plan



Source: Mayfield Developments Inc. (December 2020)

Table 1-1: Net Change in Subject Site Density

Plans	Number of Single-Family Detached Houses	Number of Townhouse Units	Affordable Housing Units	Total
2018 TMP	244 Units	467 Units	0 Units	711 Units
2020 Updated Draft Plan	347 Units	157 Units	228 Units	732 Units
Net Change	+103 Units	-310 Units	+228 Units	+21 Units

Overall, the Updated Draft Plan would result in 21 more units than what was originally proposed in the 2018 TMP. However, the overall net trip generation is expected to be less than the trip generation used in the 2018 TMP, thus the trip generation for the 2018 TMP will be maintained for analysis in this TIS to be conservative. Please see Section 4 for details.

2 EXISTING CONDITIONS

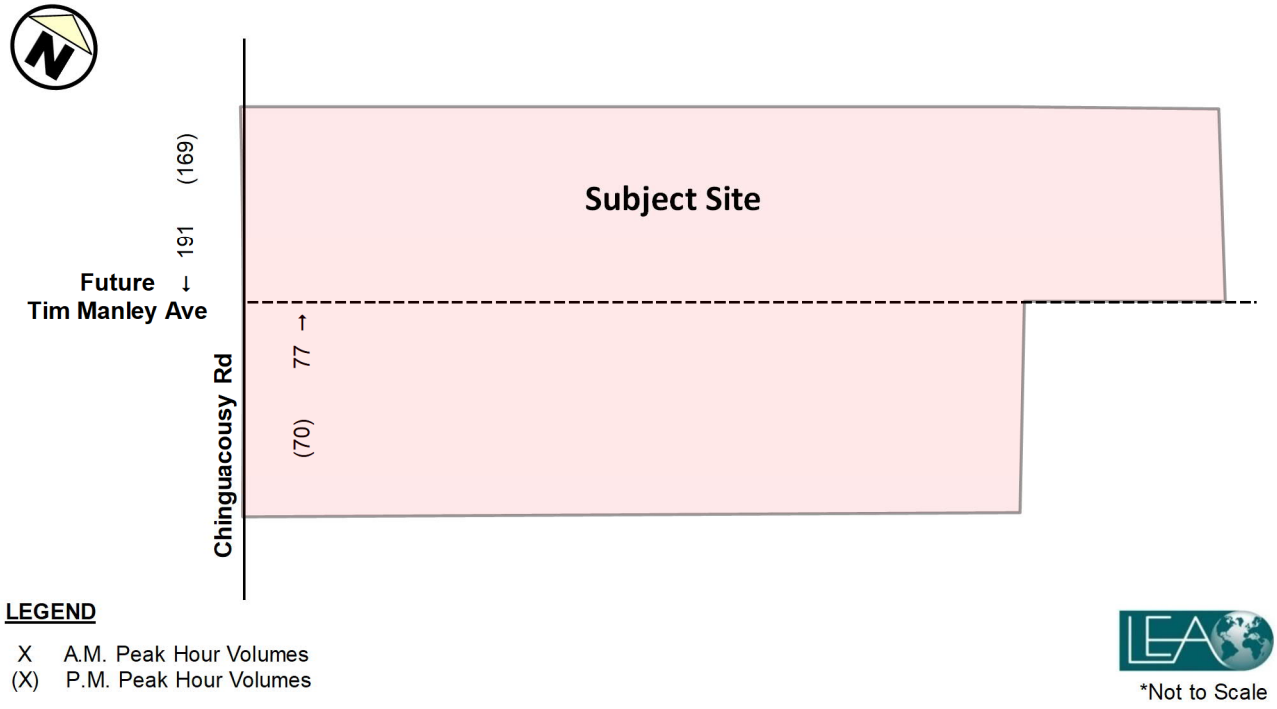
2.1 EXISTING ROAD NETWORK

The study area, west of Chinguacousy Road, is currently comprised of undeveloped lands/farmlands. On the east side of Chinguacousy Road, where the subject site is located, construction is commencing in Stage 1 of the Mayfield West Phase 2 community; however, the adjacent properties along Chinguacousy Road remain undeveloped, as they are part of Stage 2. Chinguacousy Road is currently a two-lane road (one lane per direction) with a rural cross-section but will be urbanized by the Town in the future.

2.2 EXISTING TRAFFIC CONDITIONS

Turning movement counts (TMCs) for the intersections within the study area were obtained from the 2018 Transportation Master Plan by Paradigm. Existing traffic volumes are illustrated in Figure 2-1. The obtained traffic data are enclosed in Appendix A.

Figure 2-1: Existing Traffic Volumes



3 FUTURE BACKGROUND CONDITIONS

3.1 FUTURE BACKGROUND TRAFFIC CONDITIONS

The future background traffic conditions analyze the traffic conditions for three horizon years:

- 2026 – Planned full build-out of the subdivision;
- 2031 – Planned build-out + 5 years, consistent with the 2018 TMP; and
- 2041 – Consistent with the TMP.

A 2% growth rate per year was used, consistent with the 2018 TMP.

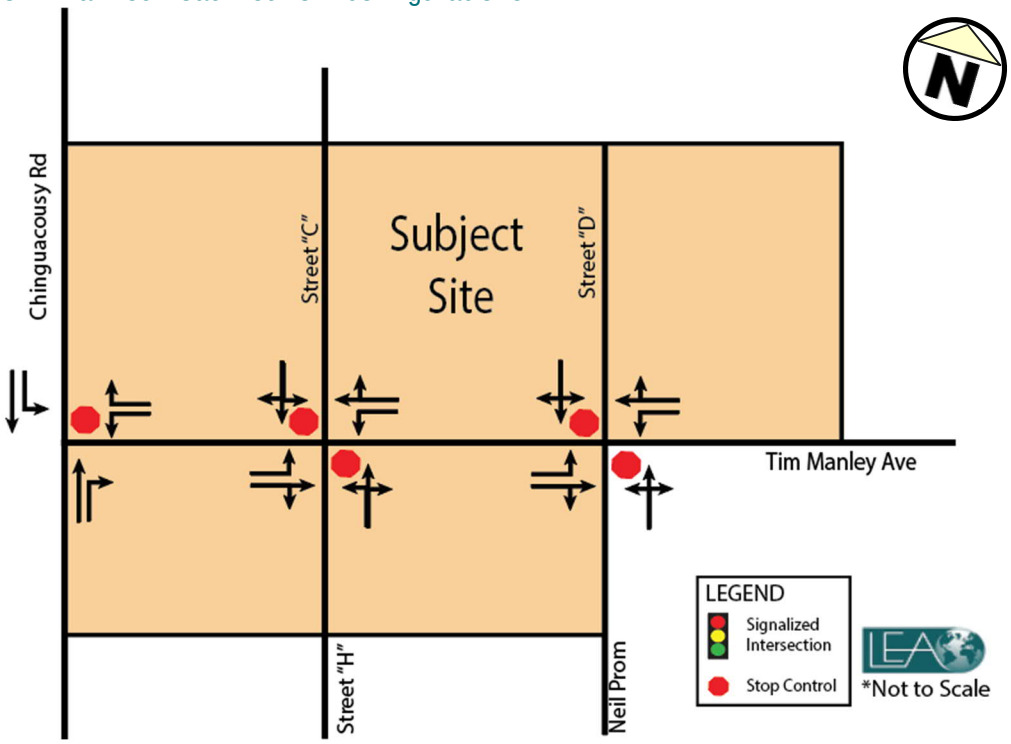
The intersections that will be analyzed as part of this TIS were confirmed with the Town of Caledon in a Terms of Reference, and are:

- Chinguacousy Road at Tim Manley Avenue (Spine Road);
- Tim Manley Avenue (Spine Road) at Street "C"/Street "H"; and
- Tim Manley Avenue (Spine Road) at Neil Promenade (Street "D").

3.1.1 Planned Road Network Improvements

Several improvements are planned within the study area to better accommodate the planned subdivision. The planned road network and lane configurations are illustrated in Figure 3-1.

Figure 3-1: Planned Road Network Configurations



4 SITE-GENERATED TRAFFIC VOLUMES

Trip generation for the development was based on the ITE Trip Generation Manual 10th Edition. Given the proposed use, LUC 210 – Single Family Detached (Low Density Residential), LUC 220 – Multifamily Housing (Low-Rise), and LUC 221 – Multifamily Housing (Mid-Rise) was used for the development. Table 4-1 summarizes the trip generation of the subject site. A 5% modal split reduction was applied to the trip generation. This is consistent with the 2018 TMP.

Table 4-1: Trip Generation

Land Use	Size	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Single Family Housing (Low Density Residential)	347 Units	0.20	0.56	0.76	0.64	0.36	1.00
Distribution		26%	74%	100%	64%	36%	100%
Primary Trips		69	195	264	222	125	347
Modal Split Reduction		5%					
Trips Generated		66	185	251	211	119	329
Multifamily Housing (Low-Rise)	157 Units	0.16	0.40	0.56	0.39	0.27	0.67
Distribution		28%	72%	100%	59%	41%	100%
Primary Trips		25	63	88	62	43	105
Modal Split Reduction		5%					
Trips Generated		24	60	84	59	41	100
Multifamily Housing (Mid-Rise)	228 Units	0.09	0.23	0.32	0.24	0.16	0.41
Distribution		27%	73%	100%	60%	40%	100%
Primary Trips		20	53	73	56	37	93
Modal Split Reduction		5%					
Trips Generated		19	50	69	53	35	88
Total Trips		109	298	407	323	195	518

The proposed development is expected to generate a maximum of 518 two-way trips during the studied peak hours. Compared to the 2018 TMP, where a maximum of 530 two-way trips were expected during the studied peak hours, this is a reduction of 12 trips. Thus, the previous assumption that the trip generation in the Updated Draft Plan will be less than that of the 2018 TMP holds true, and the analysis is indeed conservative.

Directional trip distribution of the site traffic from the 2018 TMP was derived using Transportation Tomorrow Survey (TTS) 2011 data. The site traffic was assigned to the road network based on trip patterns in the study area, location and configuration of the site access, and the route providing the shortest travel time. These values were extracted from the 2018 TMP, and are outlined in Table 4-2.

Table 4-2: 2011 Trip Distribution

Origin/Destination	AM		PM	
	In	Out	In	Out
York & Toronto	11%	23%	27%	6%
Simcoe & Barrie	4%	1%	3%	0%
Dufferin & Orangeville	7%	3%	4%	2%
Waterloo, Wellington & Guelph	1%	0%	0%	0%
Brantford, Hamilton, Halton & Niagara	2%	3%	3%	1%
Caledon	54%	43%	36%	83%
Brampton	18%	15%	16%	6%
Mississauga	3%	11%	11%	2%
TOTAL	100%		100%	

Table 4-3 summarizes the trip distribution based on 2016 TTS data. The detailed TTS data results are found in Appendix B.

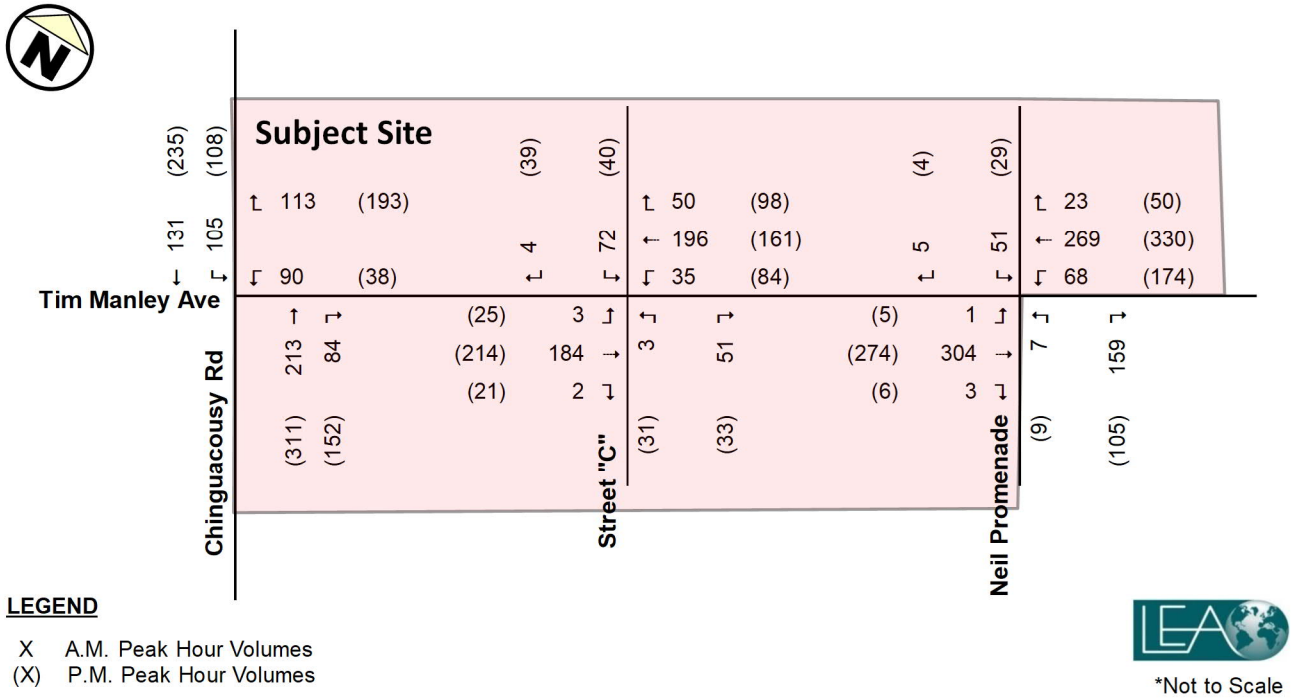
Table 4-3: 2016 Trip Distribution

Origin/Destination	AM		PM	
	In	Out	In	Out
York & Toronto	10%	25%	33%	6%
Simcoe & Barrie	4%	2%	3%	1%
Dufferin & Orangeville	4%	2%	3%	3%
Waterloo, Wellington & Guelph	1%	1%	2%	0%
Brantford, Hamilton, Halton & Niagara	4%	2%	4%	1%
Caledon	51%	41%	26%	81%
Brampton	24%	18%	19%	6%
Mississauga	2%	9%	10%	1%
TOTAL	100%		100%	

When comparing the 2016 TTS Trip Distribution to the 2011 TTS Trip Distribution, the trip distributions are similar. Thus, the trip distribution and assignment from the 2018 TMP is still applicable.

The site traffic volumes were extracted from the 2018 TMP and include site traffic generated from all units in the Mayfield West Plan during the weekday AM and PM peak hours. These volumes are illustrated in Figure 4-1.

Figure 4-1: Site-Generated Traffic Volumes



LEGEND

X A.M. Peak Hour Volumes
(X) P.M. Peak Hour Volumes

*Not to Scale

5 FUTURE TOTAL TRAFFIC CONDITIONS

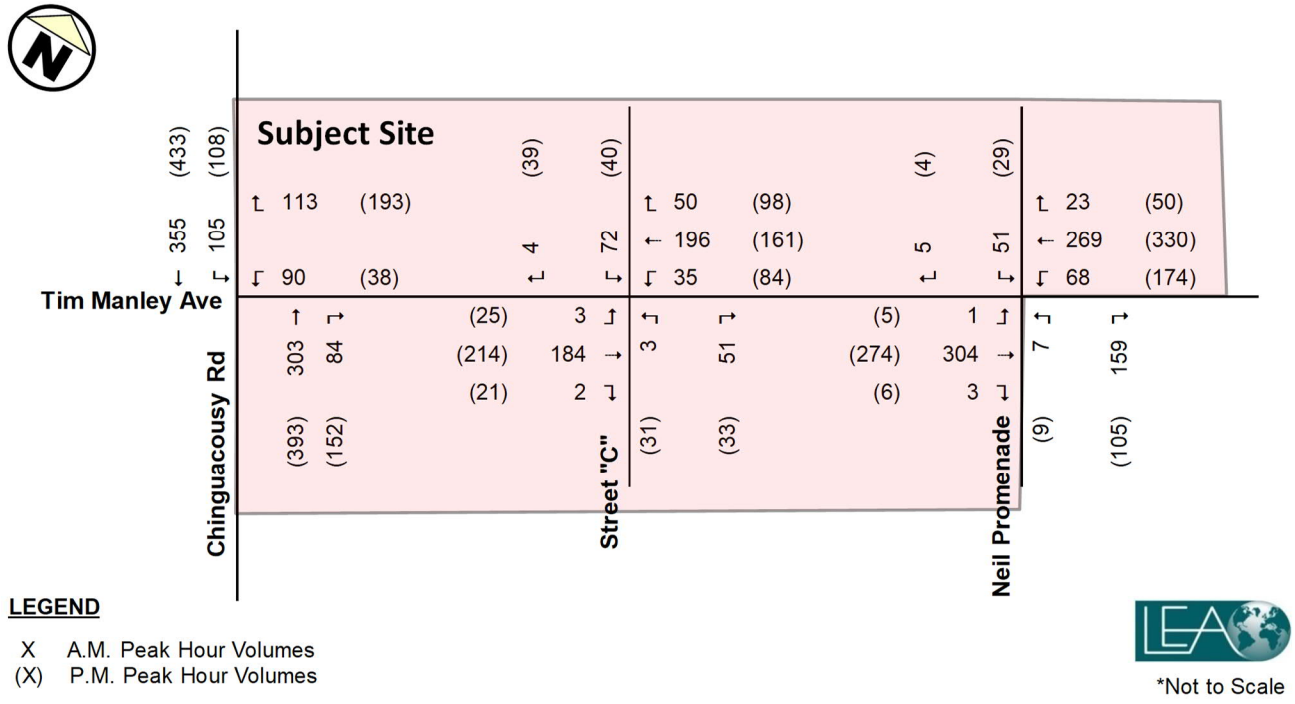
Future total traffic is the summation of the future background traffic and the trips generated by the proposed development. As mentioned previously, three horizon years were analyzed for the future total traffic conditions:

- 2026 – Planned full build-out of the subdivision
- 2031 – Planned build-out + 5 years, consistent with the 2018 TMP
- 2041 – Consistent with the 2018 TMP

5.1 2026 HORIZON

The 2026 future total volumes are illustrated in Figure 5-1.

Figure 5-1: 2026 Future Total Traffic Volumes



The intersection capacity analysis was conducted in Synchro 9.0 for the existing traffic conditions. Movements of interest for signalized intersections are defined as movements with either a volume-to-capacity (V/C) ratio greater than 0.85 or level of service (LOS) "D" or worse.

Table 5-1 summarizes the movements of interest for the analysis results. Detailed capacity analysis can be found in Appendix C. It is important to note that the intersection of Tim Manley Avenue at Street C was not analyzed in the TMP, however it has been included in our analysis due to its proximity to our study area.

Table 5-1: 2026 Future Total Intersection Capacity Analysis

Intersection	Movement of Interest	Flow Rate (vph)	Capacity (vph)	Control Delay (s)	95th Queue (m)	V/C	LOS
AM Peak Hour							
Chinguacousy Rd & Tim Manley Ave	WBL	98	262	27	13	0.37	D
Tim Manely Ave & Street C/Street H	-	-	-	-	-	-	-
Tim Manely Ave & Neil Prom/Local Rd C	SBLTR	60	183	34	10	0.33	D
PM Peak Hour							
Chinguacousy Rd & Tim Manley Ave	WBL	41	198	28	6	0.21	D
Tim Manely Ave & Street C/Street H	-	-	-	-	-	-	-
Tim Manely Ave & Neil Prom/Local Rd C	SBLTR	36	136	41	8	0.27	E

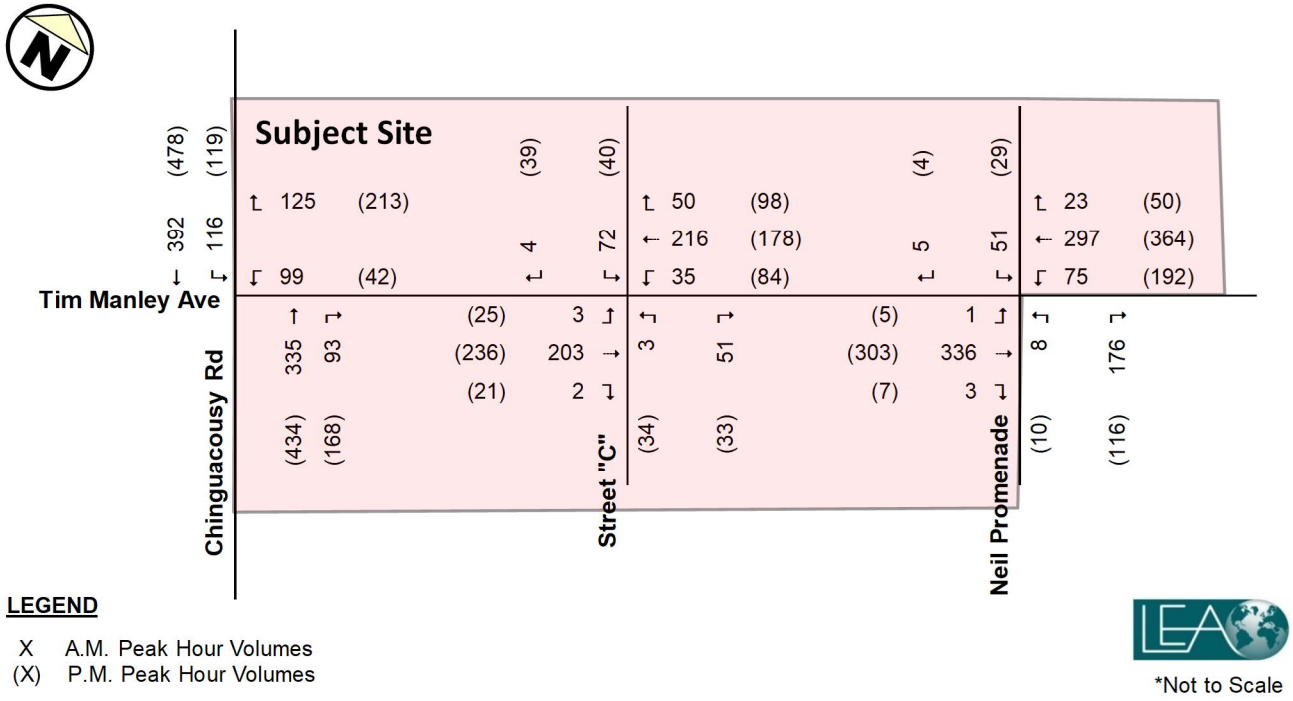
While the movements summarized above are all expected to operate at a LOS of "D" or worse, they are expected to operate under acceptable conditions. The delays are considered reasonable, and the projected 95th percentile queues are not expected to exceed the storage lengths for the turning movements.

When reviewing the ICU LOS and the intersection capacity utilizations for the peak hours, findings are consistent with the TMP; the intersections operate at a LOS of "A".

5.2 2031 HORIZON

The 2031 future total volumes are illustrated in Figure 5-2.

Figure 5-2: 2031 Future Total Traffic Volumes



The intersection capacity analysis was conducted in Synchro 9.0 for the existing traffic conditions. Movements of interest for signalized intersections are defined as movements with either a volume-to-capacity (V/C) ratio greater than 0.85 or level of service (LOS) "D" or worse. Table 5-2 summarizes the movements of interest for the analysis results. Detailed capacity analysis can be found in Appendix D.

Table 5-2: 2031 Future Total Intersection Capacity Analysis

Intersection	Movement of Interest	Flow Rate (vph)	Capacity (vph)	Control Delay (s)	95th Queue (m)	V/C	LOS
AM Peak Hour							
Chinguacousy Rd & Tim Manley Ave	WBL	108	225	35	18	0.48	D
Tim Manely Ave & Street C/Street H	-	-	-	-	-	-	-
Tim Manely Ave & Neil Prom/Local Rd C	SBLTR	60	148	45	13	0.41	E
PM Peak Hour							
Chinguacousy Rd & Tim Manley Ave	WBL	46	164	35	8	0.28	E
Tim Manely Ave & Street C/Street H	-	-	-	-	-	-	-
Tim Manely Ave & Neil Prom/Local Rd C	SBLTR	36	108	55	10	0.33	F

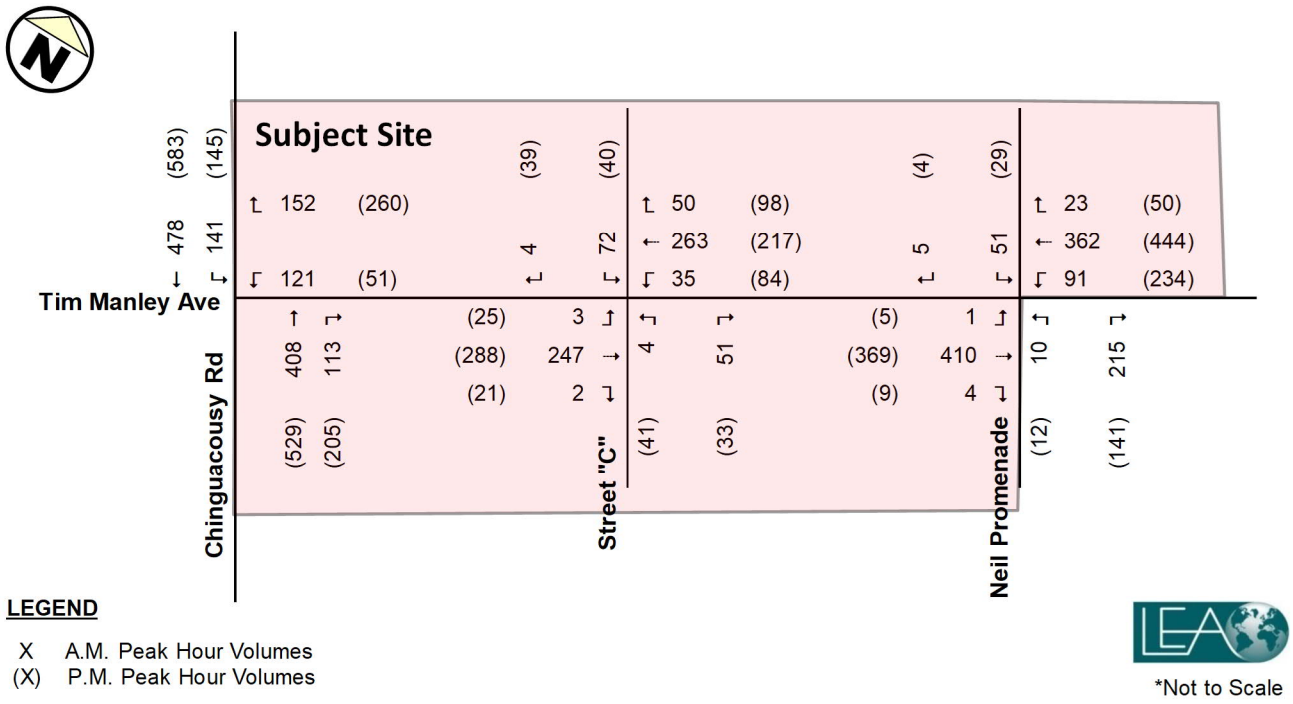
The traffic conditions in the 2031 horizon are expected to operate slightly worse when compared to the 2026 horizon. Overall, all movements are expected to operate with a very good V/C ratio, with the highest ratio at 0.48. The 95th percentile queue lengths also operate under acceptable conditions. The LOS for the southbound lane at the intersection of Tim Manley Avenue at Neil Promenade/Local Road C operates at a "F" during the PM peak hour. However, this is considered acceptable due to the low volume of vehicles.

The ICU LOS and intersection capacity utilizations for the studied peak hours are consistent with the TMP findings; the intersections operate with a LOS of "A".

5.3 2041 HORIZON

The 2041 future total volumes are illustrated in Figure 5-3.

Figure 5-3: 2041 Future Total Traffic Volumes



The intersection capacity analysis was conducted in Synchro 9.0 for the existing traffic conditions. Movements of interest for signalized intersections are defined as movements with either a volume-to-capacity (V/C) ratio greater than 0.85 or level of service (LOS) "D" or worse Table 5-3 summarizes the movements of interest for the analysis results. Detailed capacity analysis can be found in Appendix E.

Table 5-3: 2041 Future Total Intersection Capacity Analysis

Intersection	Movement of Interest	Flow Rate (vph)	Capacity (vph)	Control Delay (s)	95th Queue (m)	V/C	LOS
AM Peak Hour							
Chinguacousy Rd & Tim Manley Ave	WBL	132	158	43	43	0.84	F
Tim Manely Ave & Street C/Street H	-	-	-	-	-	-	-
Tim Manely Ave & Neil Prom/Local Rd C	SBLTR	60	88	108	25	0.68	F
PM Peak Hour							
Chinguacousy Rd & Tim Manley Ave	WBL	55	105	72	18	0.52	F
Tim Manely Ave & Street C/Street H	-	-	-	-	-	-	-
Tim Manely Ave & Neil Prom/Local Rd C	SBLTR	36	62	125	18	0.58	F

Compared to the 2031 horizon, the traffic conditions are expected to worsen in 2041. The southbound lane at Tim Manley Avenue at Neil Promenade/Local Road C and the westbound left-turn at Chinguacousy Road at Tim Manley Avenue are both expected to operate at a LOS of "F" during the studied peak hours. When reviewing the 95th percentile queue lengths and the V/C ratios, all movements are expected to operate at acceptable conditions.

Again, when assessing the ICU LOS and the intersection capacity utilizations, the intersections operate at acceptable conditions during the studied peak hours, with a LOS of “A” or “B”. This is, again, consistent with the TMP.

6 SIGNAL WARRANT ANALYSIS

Traffic signal warrant analyses were conducted based on the methodologies outlined in Ontario Traffic Manual (OTM) Book 12: Traffic Signals for all three horizon years. Appendix F contains the detailed warrant calculation sheets. Table 6-1 summarizes the results of the signal warrants. Traffic signals are not warranted for any of the intersections within the study area under all three horizon years. This is consistent with the findings from the TMP.

Table 6-1: Signal Warrant Analyses

Intersection	Horizon Year	Traffic Signals
Chinguacousy Road at Tim Manley Avenue	2026	Not Warranted
	2031	Not Warranted
	2041	Not Warranted
Tim Manley Avenue at Street "B"	2026	Not Warranted
	2031	Not Warranted
	2041	Not Warranted
Tim Manley Avenue at Neil Promenade	2026	Not Warranted
	2031	Not Warranted
	2041	Not Warranted

7 PARKING REVIEW

Parking ratios for both on-site (off-street) parking and on-street parking were recommended in the 2018 TMP. These parking requirements are summarized in Table 7-1 below. The total parking required is 1,434 spaces. It is noted that parking for the affordable housing blocks within the subdivision is to be assessed through the site plan application process. As such, it is not included in the required parking ratio calculations below.

Table 7-1: Required Parking Ratios

Land Use/Units	Parking Rate		Total Minimum Requirements	
	On-Site	On-Street	On-Site	On-Street
Detached (347 Units)	2 spaces per unit	1 space per unit	694	347
Townhouse (157 Units)	2 spaces per unit	0.5 spaces per unit	314	79
		Total	1,008	426

Table 7-2 summarizes the parking spaces proposed for the subdivision. In total, 1,667 parking spaces are proposed (1,442 on-site spaces and 225 on-street spaces); this exceeds the parking requirement of 1,434 spaces.

Table 7-2: Proposed Parking Ratios

Unit Type/Units	Parking Rate		Spaces Provided	
	On-Site	On-Street	On-Site	On-Street
30' Interior Singles (130 Units)	2 spaces per unit	-	260	225
30' Corner Singles (39 Units)	4 spaces per unit		156	
36' Interior Singles (178 Units)	4 spaces per unit		712	
Rear Lane Townhouses (101 Units)	2 spaces per unit		202	
Back-to-Back Townhouses (56 Units)	2 spaces per unit		112	
		Total	1,442	225

It is noted that while the total number of parking spaces proposed exceeds the requirements specified in the 2018 TMP; however, the on-street parking supply is deficient by 201 spaces. As such, vehicle ownership trends were analyzed from 2016 Transportation Tomorrow Survey (TTS) data in the existing neighbourhoods surrounding the subject site to understand how the on-site parking supply can satisfy the visitor demand. These results are summarized in Table 7-3 below.

Table 7-3: Vehicle Ownership (2016 TTS)

Number of Vehicles	Percentage of Households
1	28%
2	50%
3+	21%

The 2016 TTS data shows that the majority of households own two or less vehicles. Given the information, households with more than 2 parking spaces (including garage space) would have surplus to serve some of the visitor parking requirements. Based on this assumption, the latest parking plans (attached in Appendix G) indicate that 217 units will have two surplus spaces, located on-site (off-street). This would result in 434 surplus off-street parking spaces. These surplus spaces would be considered sufficient in meeting the on-street visitors parking requirement.

8 CONCLUSIONS AND RECOMMENDATIONS

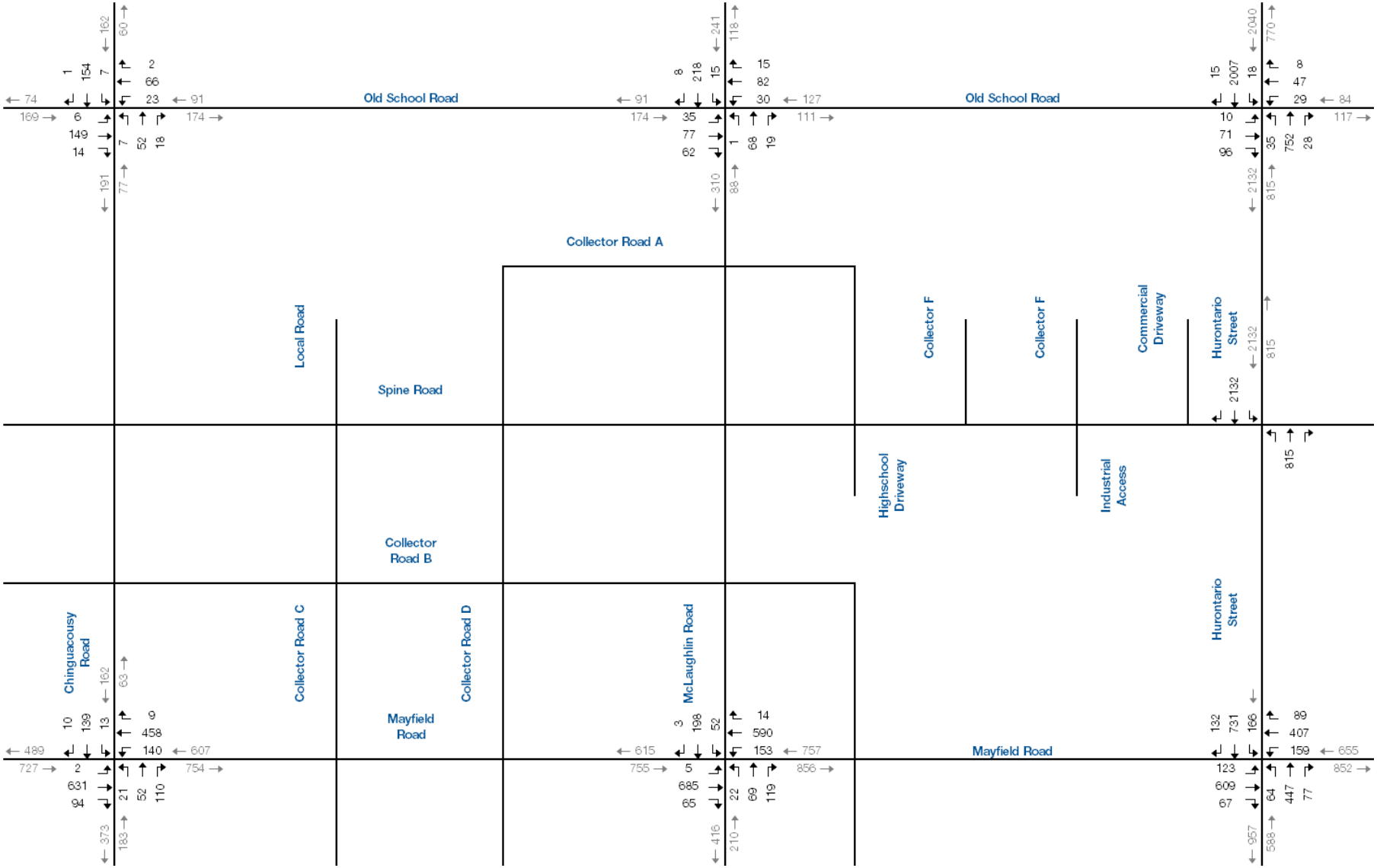
The updated Draft Plan submitted by Mayfield Developments Inc. for the Town of Caledon (part of the Mayfield West Phase 2 area) has a mix of low-density and medium-density housing, providing a total of 732 residential units. Compared to the 2018 TMP, this is a net increase of 21 units. However, the overall net trip generation is expected to be less than expected when compared to the 2018 TMP. This means that the overall traffic analysis is more conservative.

The 2018 TMP recommended that the intersections of Chinguacousy Road at Tim Manley Avenue and Tim Manley Avenue at Neil Promenade operate under stop control. The findings in this TIS are consistent with the findings from the TMP. For the intersection of Tim Manley Avenue at Street "C"/Street "H", stop control is also recommended for the minor street.

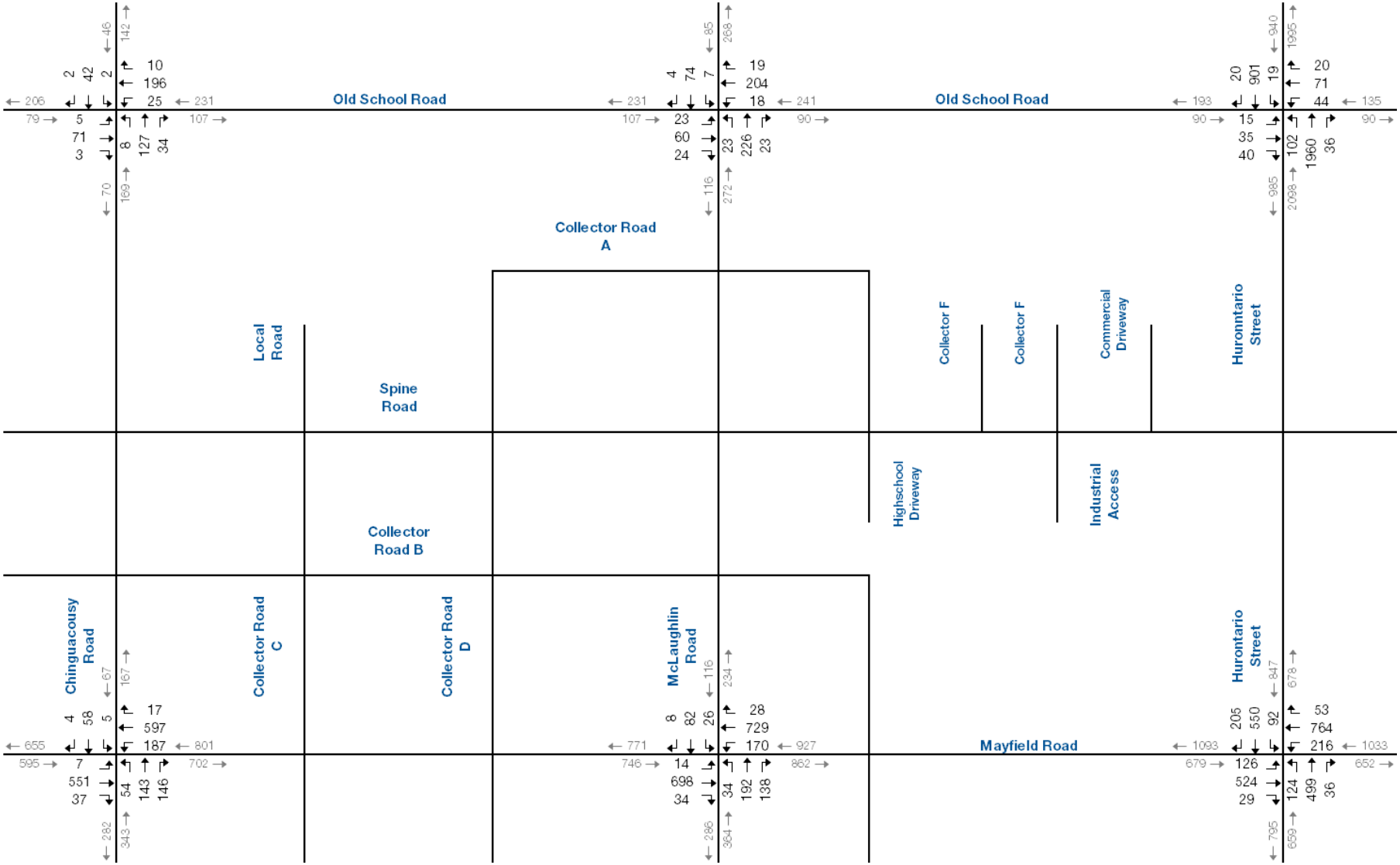
A total of 1,667 parking spaces are proposed for the subject site. This exceeds the required number of parking spaces by 233 spaces. While there is a deficiency of 201 on-street parking spaces proposed, vehicle ownership trends in the surrounding areas indicate that there will be parking spaces available to serve visitor parking in the subdivision.

APPENDIX A

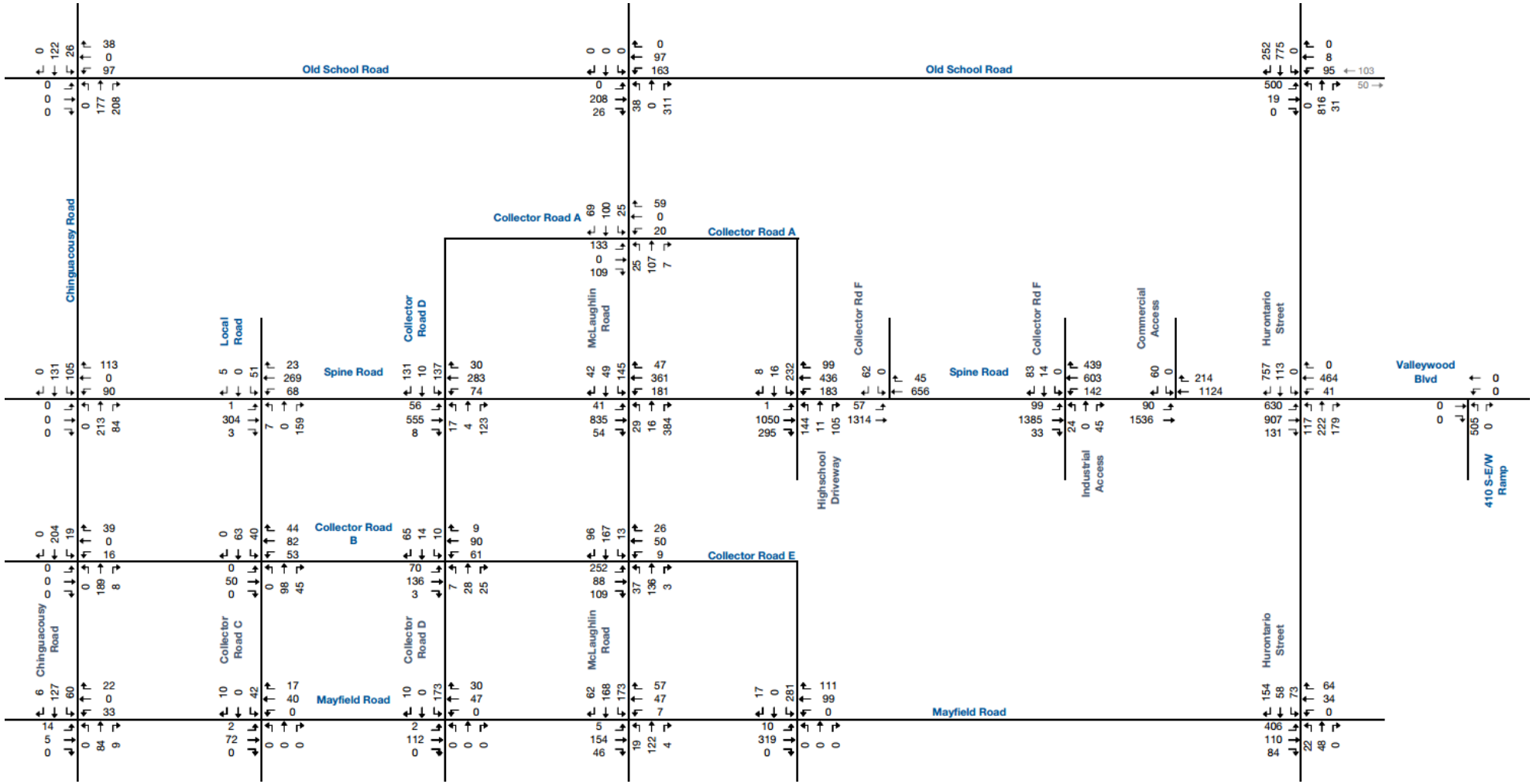
2018 Transportation Master Plan Traffic Data



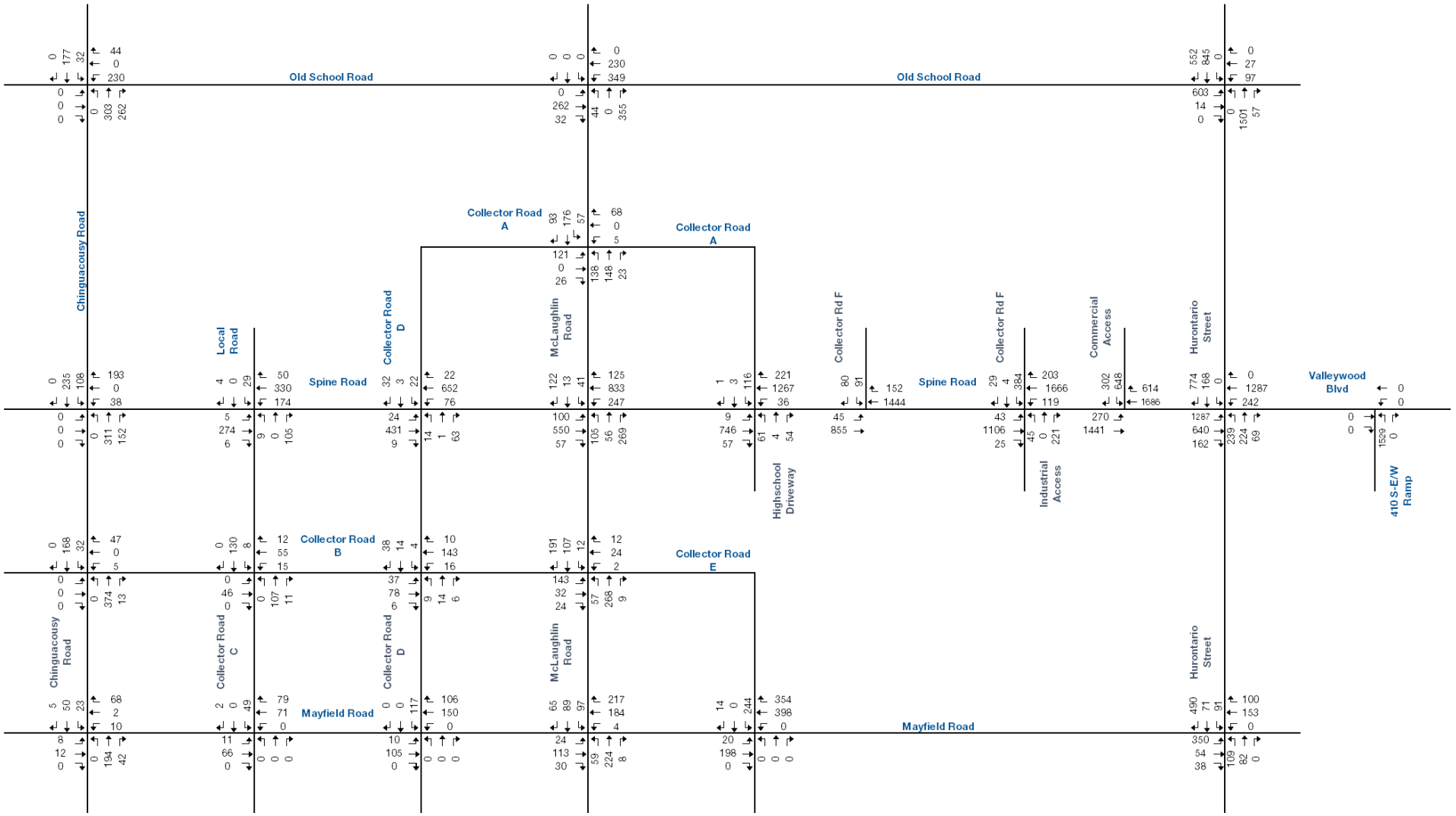
Existing Traffic – AM Peak Hour



Existing Traffic – PM Peak Hour



Site Trip Assignment – AM Peak Hour



Site Trip Assignment – PM Peak Hour

APPENDIX B

2016 Transportation Tomorrow Survey Data Results

Inbound AM - Caledon, Brampton, Mississauga

Thu Sep 10 2020 10:10:12 GMT-0400 (Eastern Daylight Time) - Run Time: 2118ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of origin - pd_orig
Column: Planning district of destination - pd_dest

Filters:
Planning district of destination - pd_dest In 34
and
Planning district of origin - pd_orig In 34 35 36
and
Start time of trip - start_time In 0700-0859

Trip 2016
Table:

	Caledon
Caledon	10737
Brampton	5063
Mississauga	426

Inbound AM - Regional

Thu Sep 10 2020 10:08:54 GMT-0400 (Eastern Daylight Time) - Run Time: 2668ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Regional municipality of origin - region_orig
Column: Planning district of destination - pd_dest

Filters:
Planning district of destination - pd_dest In 34
and
Start time of trip - start_time In 0700-0859

Trip 2016
Table:

	Caledon
Toronto	780
Durham	21
York	1270
Peel	16227
Halton	781
Hamilton	11
Niagara	9
Guelph	86
Wellington	178
Orangeville	530
Barrie	45
Simcoe	707
Orillia	28
Dufferin	304

Inbound PM - Caledon, Brampton, Mississauga

Thu Sep 10 2020 10:10:40 GMT-0400 (Eastern Daylight Time) - Run Time: 2137ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of origin - pd_orig
Column: Planning district of destination - pd_dest

Filters:
Planning district of destination - pd_dest In 34
and
Planning district of origin - pd_orig In 34 35 36
and
Start time of trip - start_time In 1600-1759

Trip 2016
Table:

	Caledon
Caledon	5343
Brampton	3901
Mississauga	2024

Inbound PM - Regional

Thu Sep 10 2020 10:09:27 GMT-0400 (Eastern Daylight Time) - Run Time: 2089ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Regional municipality of origin - region_orig
Column: Planning district of destination - pd_dest

Filters:
Planning district of destination - pd_dest In 34
and
Start time of trip - start_time In 1600-1759

Trip 2016
Table:

	Caledon
Toronto	3833
Durham	64
York	2959
Peel	11268
Halton	722
Hamilton	37
Niagara	21
Waterloo	101
Guelph	103
Wellington	179
Orangeville	383
Barrie	29
Simcoe	598
Dufferin	208

Outbound AM - Caledon, Brampton, Mississauga

Thu Sep 10 2020 10:07:15 GMT-0400 (Eastern Daylight Time) - Run Time: 2178ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of household - pd_hhld
Column: Planning district of destination - pd_dest

Filters:
Planning district of household - pd_hhld In 34
and
Planning district of destination - pd_dest In 34 35 36
and
Start time of trip - start_time In 0700-0859

Trip 2016
Table:

	Caledon	Brampton	Mississauga
Caledon	11026	4871	2346

Outbound AM - Regional

Thu Sep 10 2020 10:04:43 GMT-0400 (Eastern Daylight Time) - Run Time: 2293ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of household - pd_hhld
Column: Regional municipality of destination - region_dest

Filters:
Planning district of household - pd_hhld In 34
and
Start time of trip - start_time In 0700-0859

Trip 2016
Table:

	Toronto	Durham	York	Peel	Halton	Hamilton	Waterloo	Guelph	Wellingtor	Orangeville	Barrie	Simcoe	Dufferin	External
Caledon	3331	34	3294	18243	479	95	30	56	195	462	120	372	77	29

Outbound PM - Caledon, Brampton, Mississauga

Thu Sep 10 2020 10:07:52 GMT-0400 (Eastern Daylight Time) - Run Time: 2403ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of household - pd_hhld
Column: Planning district of destination - pd_dest

Filters:
Planning district of household - pd_hhld In 34
and
Planning d 35 36
and
Start time of trip - start_time In 1600-1759

Trip 2016
Table:

	Caledon	Brampton	Mississauga
Caledon	18995	1314	325

Outbound PM - Regional

Thu Sep 10 2020 10:06:01 GMT-0400 (Eastern Daylight Time) - Run Time: 2116ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of household - pd_hhld
Column: Regional municipality of destination - region_dest

Filters:
Planning district of household - pd_hhld In 34
and
Start time of trip - start_time In 1600-1759

Trip 2016
Table:

	Toronto	Durham	York	Peel	Halton	Waterloo	Wellingtor	Orangevill	Simcoe	Dufferin	External
Caledon	693	10	733	20634	177	21	88	536	269	146	73

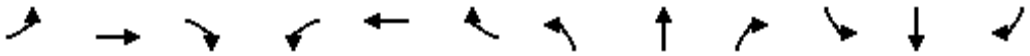
APPENDIX C

Intersection Capacity Analysis – Future Total Conditions (2026)

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	90	113	303	84	105	355
Future Volume (Veh/h)	90	113	303	84	105	355
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	98	123	329	91	114	386
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	943	329			420	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	943	329			420	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	63	83			90	
cM capacity (veh/h)	262	712			1139	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	98	123	329	91	114	386
Volume Left	98	0	0	0	114	0
Volume Right	0	123	0	91	0	0
cSH	262	712	1700	1700	1139	1700
Volume to Capacity	0.37	0.17	0.19	0.05	0.10	0.23
Queue Length 95th (m)	12.6	4.7	0.0	0.0	2.5	0.0
Control Delay (s)	26.7	11.1	0.0	0.0	8.5	0.0
Lane LOS	D	B			A	
Approach Delay (s)	18.0		0.0		1.9	
Approach LOS	C					

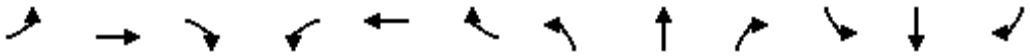
Intersection Summary			
Average Delay	4.3		
Intersection Capacity Utilization	36.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	184	2	35	196	50	3	0	51	72	0	4
Future Volume (Veh/h)	3	184	2	35	196	50	3	0	51	72	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	200	2	38	213	54	3	0	55	78	0	4
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	267			202			500	550	201	577	524	240
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	267			202			500	550	201	577	524	240
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			99	100	93	80	100	99
cM capacity (veh/h)	1297			1370			468	430	840	391	444	799

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	3	202	38	267	58	82
Volume Left	3	0	38	0	3	78
Volume Right	0	2	0	54	55	4
cSH	1297	1700	1370	1700	807	400
Volume to Capacity	0.00	0.12	0.03	0.16	0.07	0.20
Queue Length 95th (m)	0.1	0.0	0.7	0.0	1.8	5.8
Control Delay (s)	7.8	0.0	7.7	0.0	9.8	16.3
Lane LOS	A		A		A	C
Approach Delay (s)	0.1		1.0		9.8	16.3
Approach LOS					A	C

Intersection Summary				
Average Delay	3.4			
Intersection Capacity Utilization	37.6%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	304	3	68	269	23	7	0	159	51	0	5
Future Volume (Veh/h)	1	304	3	68	269	23	7	0	159	51	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	330	3	74	292	25	8	0	173	55	0	5
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	317			333			778	798	332	958	788	304
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	317			333			778	798	332	958	788	304
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			94			97	100	76	68	100	99
cM capacity (veh/h)	1243			1226			297	299	710	171	304	735

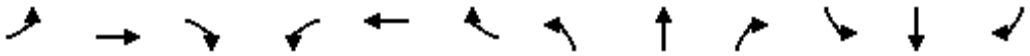
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	1	333	74	317	181	60
Volume Left	1	0	74	0	8	55
Volume Right	0	3	0	25	173	5
cSH	1243	1700	1226	1700	669	183
Volume to Capacity	0.00	0.20	0.06	0.19	0.27	0.33
Queue Length 95th (m)	0.0	0.0	1.5	0.0	8.3	10.2
Control Delay (s)	7.9	0.0	8.1	0.0	12.4	34.1
Lane LOS	A		A		B	D
Approach Delay (s)	0.0		1.5		12.4	34.1
Approach LOS					B	D

Intersection Summary				
Average Delay	5.1			
Intersection Capacity Utilization	46.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	38	193	393	152	108	433
Future Volume (Veh/h)	38	193	393	152	108	433
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	41	210	427	165	117	471
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	1132	427			592	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1132	427			592	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	79	67			88	
cM capacity (veh/h)	198	628			984	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	41	210	427	165	117	471
Volume Left	41	0	0	0	117	0
Volume Right	0	210	0	165	0	0
cSH	198	628	1700	1700	984	1700
Volume to Capacity	0.21	0.33	0.25	0.10	0.12	0.28
Queue Length 95th (m)	5.7	11.2	0.0	0.0	3.1	0.0
Control Delay (s)	27.9	13.6	0.0	0.0	9.2	0.0
Lane LOS	D	B			A	
Approach Delay (s)	15.9		0.0		1.8	
Approach LOS	C					

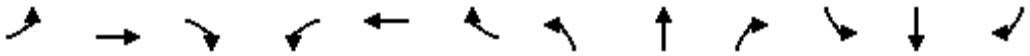
Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	40.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	214	21	84	161	98	31	0	33	40	0	39
Future Volume (Veh/h)	25	214	21	84	161	98	31	0	33	40	0	39
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	233	23	91	175	107	34	0	36	43	0	42
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	282			256			698	762	244	734	720	228
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	282			256			698	762	244	734	720	228
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			93			89	100	95	86	100	95
cM capacity (veh/h)	1280			1309			314	305	794	299	322	811

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	27	256	91	282	70	85
Volume Left	27	0	91	0	34	43
Volume Right	0	23	0	107	36	42
cSH	1280	1700	1309	1700	456	434
Volume to Capacity	0.02	0.15	0.07	0.17	0.15	0.20
Queue Length 95th (m)	0.5	0.0	1.7	0.0	4.1	5.5
Control Delay (s)	7.9	0.0	8.0	0.0	14.3	15.3
Lane LOS	A		A		B	C
Approach Delay (s)	0.8		1.9		14.3	15.3
Approach LOS					B	C

Intersection Summary				
Average Delay	4.0			
Intersection Capacity Utilization	33.7%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	274	6	174	330	50	9	0	105	29	0	4
Future Volume (Veh/h)	5	274	6	174	330	50	9	0	105	29	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	298	7	189	359	54	10	0	114	32	0	4
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	413			305			1052	1102	302	1186	1079	386
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	413			305			1052	1102	302	1186	1079	386
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			85			94	100	85	74	100	99
cM capacity (veh/h)	1146			1256			179	179	738	123	185	662

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	5	305	189	413	124	36
Volume Left	5	0	189	0	10	32
Volume Right	0	7	0	54	114	4
cSH	1146	1700	1256	1700	590	136
Volume to Capacity	0.00	0.18	0.15	0.24	0.21	0.27
Queue Length 95th (m)	0.1	0.0	4.0	0.0	6.0	7.6
Control Delay (s)	8.2	0.0	8.4	0.0	12.7	40.9
Lane LOS	A		A		B	E
Approach Delay (s)	0.1		2.6		12.7	40.9
Approach LOS					B	E

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	42.9%	ICU Level of Service	A
Analysis Period (min)	15		

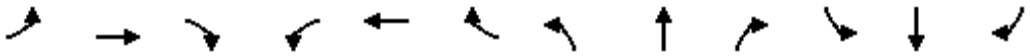
APPENDIX D

Intersection Capacity Analysis – Future Total Conditions (2031)

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	99	125	335	93	116	392
Future Volume (Veh/h)	99	125	335	93	116	392
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	108	136	364	101	126	426
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	1042	364			465	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1042	364			465	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	52	80			89	
cM capacity (veh/h)	225	681			1096	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	108	136	364	101	126	426
Volume Left	108	0	0	0	126	0
Volume Right	0	136	0	101	0	0
cSH	225	681	1700	1700	1096	1700
Volume to Capacity	0.48	0.20	0.21	0.06	0.11	0.25
Queue Length 95th (m)	18.1	5.6	0.0	0.0	3.0	0.0
Control Delay (s)	34.9	11.6	0.0	0.0	8.7	0.0
Lane LOS	D	B			A	
Approach Delay (s)	21.9		0.0		2.0	
Approach LOS	C					

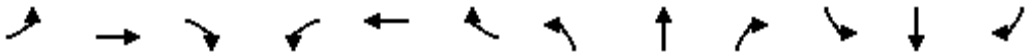
Intersection Summary			
Average Delay	5.1		
Intersection Capacity Utilization	39.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	203	2	35	216	50	3	0	51	72	0	4
Future Volume (Veh/h)	3	203	2	35	216	50	3	0	51	72	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	221	2	38	235	54	3	0	55	78	0	4
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	289			223			543	593	222	620	567	262
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	289			223			543	593	222	620	567	262
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			99	100	93	79	100	99
cM capacity (veh/h)	1273			1346			438	406	818	365	420	777

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	3	223	38	289	58	82
Volume Left	3	0	38	0	3	78
Volume Right	0	2	0	54	55	4
cSH	1273	1700	1346	1700	782	374
Volume to Capacity	0.00	0.13	0.03	0.17	0.07	0.22
Queue Length 95th (m)	0.1	0.0	0.7	0.0	1.8	6.3
Control Delay (s)	7.8	0.0	7.8	0.0	10.0	17.3
Lane LOS	A		A		A	C
Approach Delay (s)	0.1		0.9		10.0	17.3
Approach LOS					A	C

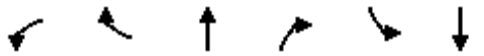
Intersection Summary				
Average Delay	3.3			
Intersection Capacity Utilization	38.6%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	336	3	75	297	23	8	0	176	51	0	5
Future Volume (Veh/h)	1	336	3	75	297	23	8	0	176	51	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	365	3	82	323	25	9	0	191	55	0	5
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	348			368			860	880	366	1058	870	336
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	348			368			860	880	366	1058	870	336
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			93			97	100	72	60	100	99
cM capacity (veh/h)	1211			1191			259	266	679	138	270	706

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	1	368	82	348	200	60
Volume Left	1	0	82	0	9	55
Volume Right	0	3	0	25	191	5
cSH	1211	1700	1191	1700	633	148
Volume to Capacity	0.00	0.22	0.07	0.20	0.32	0.41
Queue Length 95th (m)	0.0	0.0	1.7	0.0	10.3	13.4
Control Delay (s)	8.0	0.0	8.2	0.0	13.3	45.1
Lane LOS	A		A		B	E
Approach Delay (s)	0.0		1.6		13.3	45.1
Approach LOS					B	E

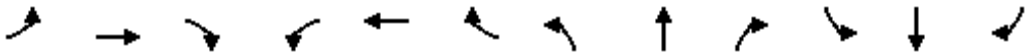
Intersection Summary				
Average Delay	5.7			
Intersection Capacity Utilization	50.0%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	42	213	434	168	119	478
Future Volume (Veh/h)	42	213	434	168	119	478
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	46	232	472	183	129	520
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	1250	472			655	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1250	472			655	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	72	61			86	
cM capacity (veh/h)	164	592			932	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	46	232	472	183	129	520
Volume Left	46	0	0	0	129	0
Volume Right	0	232	0	183	0	0
cSH	164	592	1700	1700	932	1700
Volume to Capacity	0.28	0.39	0.28	0.11	0.14	0.31
Queue Length 95th (m)	8.3	14.1	0.0	0.0	3.6	0.0
Control Delay (s)	35.2	14.9	0.0	0.0	9.5	0.0
Lane LOS	E	B			A	
Approach Delay (s)	18.3		0.0		1.9	
Approach LOS	C					

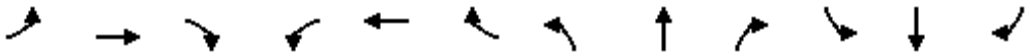
Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	42.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	236	21	84	178	98	34	0	33	40	0	39
Future Volume (Veh/h)	25	236	21	84	178	98	34	0	33	40	0	39
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	257	23	91	193	107	37	0	36	43	0	42
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	300			280			740	804	268	776	762	246
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	300			280			740	804	268	776	762	246
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			93			87	100	95	85	100	95
cM capacity (veh/h)	1261			1283			293	287	770	279	304	792

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	27	280	91	300	73	85
Volume Left	27	0	91	0	37	43
Volume Right	0	23	0	107	36	42
cSH	1261	1700	1283	1700	422	411
Volume to Capacity	0.02	0.16	0.07	0.18	0.17	0.21
Queue Length 95th (m)	0.5	0.0	1.7	0.0	4.7	5.8
Control Delay (s)	7.9	0.0	8.0	0.0	15.3	16.0
Lane LOS	A		A		C	C
Approach Delay (s)	0.7		1.9		15.3	16.0
Approach LOS					C	C

Intersection Summary				
Average Delay	4.0			
Intersection Capacity Utilization	34.4%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	303	7	192	364	50	10	0	116	29	0	4
Future Volume (Veh/h)	5	303	7	192	364	50	10	0	116	29	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	329	8	209	396	54	11	0	126	32	0	4
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	450			337			1161	1211	333	1306	1188	423
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	450			337			1161	1211	333	1306	1188	423
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			83			93	100	82	67	100	99
cM capacity (veh/h)	1110			1222			148	150	709	97	155	631

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	5	337	209	450	137	36
Volume Left	5	0	209	0	11	32
Volume Right	0	8	0	54	126	4
cSH	1110	1700	1222	1700	544	108
Volume to Capacity	0.00	0.20	0.17	0.26	0.25	0.33
Queue Length 95th (m)	0.1	0.0	4.7	0.0	7.5	10.0
Control Delay (s)	8.3	0.0	8.6	0.0	13.8	54.5
Lane LOS	A		A		B	F
Approach Delay (s)	0.1		2.7		13.8	54.5
Approach LOS					B	F

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	45.5%	ICU Level of Service	A
Analysis Period (min)	15		

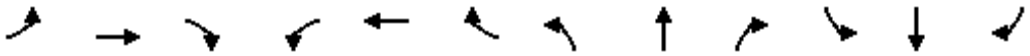
APPENDIX E

Intersection Capacity Analysis – Future Total Conditions (2041)

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	121	152	408	113	141	478
Future Volume (Veh/h)	121	152	408	113	141	478
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	132	165	443	123	153	520
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	1269	443			566	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1269	443			566	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	16	73			85	
cM capacity (veh/h)	158	615			1006	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	132	165	443	123	153	520
Volume Left	132	0	0	0	153	0
Volume Right	0	165	0	123	0	0
cSH	158	615	1700	1700	1006	1700
Volume to Capacity	0.84	0.27	0.26	0.07	0.15	0.31
Queue Length 95th (m)	42.7	8.2	0.0	0.0	4.1	0.0
Control Delay (s)	91.1	13.0	0.0	0.0	9.2	0.0
Lane LOS	F	B			A	
Approach Delay (s)	47.7		0.0		2.1	
Approach LOS	E					

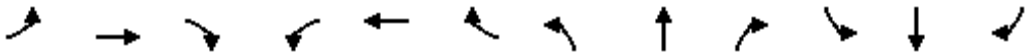
Intersection Summary			
Average Delay	10.1		
Intersection Capacity Utilization	46.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	247	2	35	263	50	4	0	51	72	0	4
Future Volume (Veh/h)	3	247	2	35	263	50	4	0	51	72	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	268	2	38	286	54	4	0	55	78	0	4
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	340			270			641	691	269	718	665	313
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	340			270			641	691	269	718	665	313
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			99	100	93	75	100	99
cM capacity (veh/h)	1219			1293			376	356	770	312	369	727

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	3	270	38	340	59	82
Volume Left	3	0	38	0	4	78
Volume Right	0	2	0	54	55	4
cSH	1219	1700	1293	1700	719	321
Volume to Capacity	0.00	0.16	0.03	0.20	0.08	0.26
Queue Length 95th (m)	0.1	0.0	0.7	0.0	2.0	7.6
Control Delay (s)	8.0	0.0	7.9	0.0	10.5	20.0
Lane LOS	A		A		B	C
Approach Delay (s)	0.1		0.8		10.5	20.0
Approach LOS					B	C

Intersection Summary				
Average Delay	3.3			
Intersection Capacity Utilization	41.1%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	410	4	91	362	23	10	0	215	51	0	5
Future Volume (Veh/h)	1	410	4	91	362	23	10	0	215	51	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	446	4	99	393	25	11	0	234	55	0	5
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	418			450			1046	1066	448	1286	1056	406
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	418			450			1046	1066	448	1286	1056	406
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			91			94	100	62	32	100	99
cM capacity (veh/h)	1141			1110			191	202	611	81	205	645

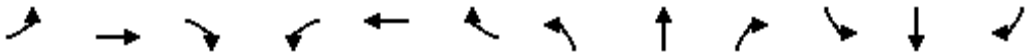
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	1	450	99	418	245	60
Volume Left	1	0	99	0	11	55
Volume Right	0	4	0	25	234	5
cSH	1141	1700	1110	1700	556	88
Volume to Capacity	0.00	0.26	0.09	0.25	0.44	0.68
Queue Length 95th (m)	0.0	0.0	2.2	0.0	17.0	25.3
Control Delay (s)	8.2	0.0	8.6	0.0	16.5	108.2
Lane LOS	A		A		C	F
Approach Delay (s)	0.0		1.6		16.5	108.2
Approach LOS					C	F

Intersection Summary				
Average Delay	8.9			
Intersection Capacity Utilization	57.4%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	51	260	529	205	145	583
Future Volume (Veh/h)	51	260	529	205	145	583
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	55	283	575	223	158	634
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	1525	575			798	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1525	575			798	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	48	45			81	
cM capacity (veh/h)	105	518			824	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	55	283	575	223	158	634
Volume Left	55	0	0	0	158	0
Volume Right	0	283	0	223	0	0
cSH	105	518	1700	1700	824	1700
Volume to Capacity	0.52	0.55	0.34	0.13	0.19	0.37
Queue Length 95th (m)	18.2	24.8	0.0	0.0	5.4	0.0
Control Delay (s)	72.2	20.0	0.0	0.0	10.4	0.0
Lane LOS	F	C			B	
Approach Delay (s)	28.5		0.0		2.1	
Approach LOS	D					

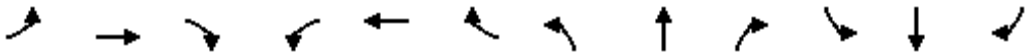
Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	50.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	288	21	84	217	98	41	0	33	40	0	39
Future Volume (Veh/h)	25	288	21	84	217	98	41	0	33	40	0	39
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	313	23	91	236	107	45	0	36	43	0	42
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	343			336			838	904	324	874	862	290
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	343			336			838	904	324	874	862	290
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			93			82	100	95	82	100	94
cM capacity (veh/h)	1216			1223			250	251	717	238	265	750

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	27	336	91	343	81	85
Volume Left	27	0	91	0	45	43
Volume Right	0	23	0	107	36	42
cSH	1216	1700	1223	1700	352	359
Volume to Capacity	0.02	0.20	0.07	0.20	0.23	0.24
Queue Length 95th (m)	0.5	0.0	1.8	0.0	6.6	6.9
Control Delay (s)	8.0	0.0	8.2	0.0	18.3	18.1
Lane LOS	A		A		C	C
Approach Delay (s)	0.6		1.7		18.3	18.1
Approach LOS					C	C

Intersection Summary				
Average Delay	4.1			
Intersection Capacity Utilization	36.6%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	369	9	234	444	50	12	0	141	29	0	4
Future Volume (Veh/h)	5	369	9	234	444	50	12	0	141	29	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	401	10	254	483	54	13	0	153	32	0	4
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	537			411			1411	1461	406	1582	1439	510
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	537			411			1411	1461	406	1582	1439	510
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			78			86	100	76	42	100	99
cM capacity (veh/h)	1031			1148			95	100	645	55	103	563

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	5	411	254	537	166	36
Volume Left	5	0	254	0	13	32
Volume Right	0	10	0	54	153	4
cSH	1031	1700	1148	1700	444	62
Volume to Capacity	0.00	0.24	0.22	0.32	0.37	0.58
Queue Length 95th (m)	0.1	0.0	6.4	0.0	13.0	18.3
Control Delay (s)	8.5	0.0	9.0	0.0	17.9	125.0
Lane LOS	A		A		C	F
Approach Delay (s)	0.1		2.9		17.9	125.0
Approach LOS					C	F

Intersection Summary				
Average Delay	7.0			
Intersection Capacity Utilization	54.4%	ICU Level of Service	A	
Analysis Period (min)	15			

APPENDIX F

Signal Warrant Sheets

M.T.O. MINIMUM REQUIREMENTS FOR INSTALLATION OF TRAFFIC SIGNAL FOR NEW INTERSECTION WITH PROPOSED DEVELOPMENT

PROJECT: **9794.000**
LOCATION: **Chinguacousy Road/Tim Manley Avenue**
MUNICIPALITY: **Town of Caledon**
TIME OF ANALYSIS: **Weekday**

AT: **Chinguacousy Road/Tim Manley Avenue**
COMMENT: **Future Total Traffic - 2026**
ANALYSIS PREPARED BY: **JL** on **November 27, 2020**
AREA TYPE: (RURAL or URBAN) **Rural** **2:16 PM**

Warrant 1- Minimum Vehicular Volume	Minimum Requirement	Volume Expansion			
A. Requirement =	900	150%	=	1350	
AM+PM PK HR/4 =				592	
Compliance				44%	
B. Requirement =	225	225%	=	506	
AM+PM PK HR/4 =				109	
Compliance				21%	
Conclusion Warrant 1:				100% Satisfied-->	**NO**
				80% Satisfied-->	**NO**
Warrant 2- Delay to Cross Traffic					
A. Requirement =	900	150%	=	1350	
AM+PM PK HR/4 =				483	
Compliance				36%	
B. Requirement =	170	150%	=	255	
AM+PM PK HR/4 =				32	
Compliance				13%	
Conclusion Warrant 2:				100% Satisfied-->	**NO**
				80% Satisfied-->	**NO**
				WARRANT MET-->	**NO**

	MINOR APPROACH (EB)			MAJOR APPROACH (NB)			MINOR APPROACH (WB)			MAJOR APPROACH (SB)			Ped. cross-
TIME	**Tim Manley Ave**			**Chinguacousy Road**			**Tim Manley Ave**			**Chinguacousy Road**			ing major
	LEFT	**THRO'**	**RIGHT**	**LEFT**	**THRO'**	**RIGHT**	**LEFT**	**THRO'**	**RIGHT**	**LEFT**	**THRO'**	**RIGHT**	approach
AM	0	0	0	0	303	84	90	0	113	105	355	0	
PM	0	0	0	0	393	152	38	0	193	108	433	0	
AM&PM	0	0	0	0	696	236	128	0	306	213	788	0	
Average Hourly Volume	0	0	0	0	174	59	32	0	77	53	197	0	0

M.T.O. MINIMUM REQUIREMENTS FOR INSTALLATION OF TRAFFIC SIGNAL FOR NEW INTERSECTION WITH PROPOSED DEVELOPMENT

PROJECT: **9794.000**
LOCATION: **Chinguacousy Road/Tim Manley Avenue**
MUNICIPALITY: **Town of Caledon**
TIME OF ANALYSIS: **Weekday**

AT: **Chinguacousy Road/Tim Manley Avenue**
COMMENT: **Future Total Traffic - 2031**
ANALYSIS PREPARED BY: **JL** on **November 27, 2020**
AREA TYPE: (RURAL or URBAN) **Rural** **2:16 PM**

	Minimum Requirement	Volume Expansion		
Warrant 1- Minimum Vehicular Volume				
A. Requirement =	900	150%	=	1350
AM+PM PK HR/4 =				654
Compliance				48%
B. Requirement =	225	225%	=	506
AM+PM PK HR/4 =				120
Compliance				24%
Conclusion Warrant 1:				
			100% Satisfied-->	**NO**
			80% Satisfied-->	**NO**
Warrant 2- Delay to Cross Traffic				
A. Requirement =	900	150%	=	1350
AM+PM PK HR/4 =				534
Compliance				40%
B. Requirement =	170	150%	=	255
AM+PM PK HR/4 =				35
Compliance				14%
Conclusion Warrant 2:				
			100% Satisfied-->	**NO**
			80% Satisfied-->	**NO**
			WARRANT MET-->	**NO**

	MINOR APPROACH (EB)			MAJOR APPROACH (NB)			MINOR APPROACH (WB)			MAJOR APPROACH (SB)			Ped. cross-
TIME	**Tim Manley Ave**			**Chinguacousy Road**			**Tim Manley Ave**			**Chinguacousy Road**			ing major
	LEFT	**THRO'**	**RIGHT**	**LEFT**	**THRO'**	**RIGHT**	**LEFT**	**THRO'**	**RIGHT**	**LEFT**	**THRO'**	**RIGHT**	approach
AM	0	0	0	0	335	93	99	0	125	116	392	0	
PM	0	0	0	0	434	168	42	0	213	119	478	0	
AM&PM	0	0	0	0	769	261	141	0	338	235	870	0	
Average Hourly	0	0	0	0	192	65	35	0	85	59	218	0	0

M.T.O. MINIMUM REQUIREMENTS FOR INSTALLATION OF TRAFFIC SIGNAL FOR NEW INTERSECTION WITH PROPOSED DEVELOPMENT

PROJECT: **9794.000**
LOCATION: **Chinguacousy Road/Tim Manley Avenue**
MUNICIPALITY: **Town of Caledon**
TIME OF ANALYSIS: **Weekday**

AT: **Chinguacousy Road/Tim Manley Avenue**
COMMENT: **Future Total Traffic - 2041**
ANALYSIS PREPARED BY: **JL** on **November 27, 2020**
AREA TYPE: (RURAL or URBAN) **Rural** **2:16 PM**

	Minimum Requirement	Volume Expansion			
Warrant 1- Minimum Vehicular Volume					
A. Requirement =	900	150%	=	1350	
AM+PM PK HR/4 =				797	
Compliance				59%	
B. Requirement =	225	225%	=	506	
AM+PM PK HR/4 =				146	
Compliance				29%	
Conclusion Warrant 1:					
				100% Satisfied-->	**NO**
				80% Satisfied-->	**NO**
Warrant 2- Delay to Cross Traffic					
A. Requirement =	900	150%	=	1350	
AM+PM PK HR/4 =				651	
Compliance				48%	
B. Requirement =	170	150%	=	255	
AM+PM PK HR/4 =				43	
Compliance				17%	
Conclusion Warrant 2:					
				100% Satisfied-->	**NO**
				80% Satisfied-->	**NO**
				WARRANT MET-->	**NO**

	MINOR APPROACH (EB)			MAJOR APPROACH (NB)			MINOR APPROACH (WB)			MAJOR APPROACH (SB)			Ped. cross-
TIME	**Tim Manley Ave**			**Chinguacousy Road**			**Tim Manley Ave**			**Chinguacousy Road**			ing major
	LEFT	**THRO'**	**RIGHT**	**LEFT**	**THRO'**	**RIGHT**	**LEFT**	**THRO'**	**RIGHT**	**LEFT**	**THRO'**	**RIGHT**	approach
AM	0	0	0	0	408	113	121	0	152	141	478	0	
PM	0	0	0	0	529	205	51	0	260	145	583	0	
AM&PM	0	0	0	0	937	318	172	0	412	286	1061	0	
Average Hourly	0	0	0	0	234	80	43	0	103	72	265	0	0

M.T.O. MINIMUM REQUIREMENTS FOR INSTALLATION OF TRAFFIC SIGNAL FOR NEW INTERSECTION WITH PROPOSED DEVELOPMENT

PROJECT: **9794.000**
LOCATION: **Tim Manley Avenue/Street "B"**
MUNICIPALITY: **Town of Caledon**
TIME OF ANALYSIS: **Weekday**

AT: **Tim Manley Avenue/Street "B"**
COMMENT: **Future Total Traffic - 2026**
ANALYSIS PREPARED BY: **JL** on **November 27, 2020**
AREA TYPE: (RURAL or URBAN) **Rural** **2:16 PM**

Warrant 1- Minimum Vehicular Volume	Minimum Requirement	Volume Expansion			
A. Requirement =	720	150%	=	1080	
AM+PM PK HR/4 =				337	
Compliance				31%	
B. Requirement =	170	150%	=	255	
AM+PM PK HR/4 =				68	
Compliance				27%	
Conclusion Warrant 1:				100% Satisfied-->	**NO**
				80% Satisfied-->	**NO**
Warrant 2- Delay to Cross Traffic					
A. Requirement =	720	150%	=	1080	
AM+PM PK HR/4 =				268	
Compliance				25%	
B. Requirement =	75	150%	=	113	
AM+PM PK HR/4 =				37	
Compliance				33%	
Conclusion Warrant 2:				100% Satisfied-->	**NO**
				80% Satisfied-->	**NO**
				WARRANT MET-->	**NO**

	MINOR APPROACH (NB)			MAJOR APPROACH (EB)			MINOR APPROACH (SB)			MAJOR APPROACH (WB)			Ped. cross-
TIME	**Street "B"**			**Tim Manley Ave**			**Street "B"**			**Tim Manley Ave**			ing major
	LEFT	**THRO'**	**RIGHT**	**LEFT**	**THRO'**	**RIGHT**	**LEFT**	**THRO'**	**RIGHT**	**LEFT**	**THRO'**	**RIGHT**	approach
AM	3	0	51	3	184	2	72	0	4	35	196	50	
PM	31	0	33	25	214	21	40	0	39	84	161	98	
AM&PM	34	0	84	28	398	23	112	0	43	119	357	148	
Average Hourly	9	0	21	7	100	6	28	0	11	30	89	37	0

M.T.O. MINIMUM REQUIREMENTS FOR INSTALLATION OF TRAFFIC SIGNAL FOR NEW INTERSECTION WITH PROPOSED DEVELOPMENT

PROJECT: **9794.000**
LOCATION: **Tim Manley Avenue/Street "B"**
MUNICIPALITY: **Town of Caledon**
TIME OF ANALYSIS: **Weekday**

AT: **Tim Manley Avenue/Street "B"**
COMMENT: **Future Total Traffic - 2031**
ANALYSIS PREPARED BY: **JL** on **November 27, 2020**
AREA TYPE: (RURAL or URBAN) **Rural** **2:16 PM**

Warrant 1- Minimum Vehicular Volume	Minimum Requirement	Volume Expansion			
A. Requirement =	720	150%	=	1080	
AM+PM PK HR/4 =				357	
Compliance				33%	
B. Requirement =	170	150%	=	255	
AM+PM PK HR/4 =				69	
Compliance				27%	
Conclusion Warrant 1:					
				100% Satisfied-->	**NO**
				80% Satisfied-->	**NO**

Warrant 2- Delay to Cross Traffic					
A. Requirement =	720	150%	=	1080	
AM+PM PK HR/4 =				288	
Compliance				27%	
B. Requirement =	75	150%	=	113	
AM+PM PK HR/4 =				28	
Compliance				25%	
Conclusion Warrant 2:					
				100% Satisfied-->	**NO**
				80% Satisfied-->	**NO**
				WARRANT MET-->	**NO**

	MINOR APPROACH (NB)			MAJOR APPROACH (EB)			MINOR APPROACH (SB)			MAJOR APPROACH (WB)			Ped. cross-
TIME	**Street "B"**			**Tim Manley Ave**			**Street "B"**			**Tim Manley Ave**			ing major
	LEFT	**THRO'**	**RIGHT**	**LEFT**	**THRO'**	**RIGHT**	**LEFT**	**THRO'**	**RIGHT**	**LEFT**	**THRO'**	**RIGHT**	approach
AM	3	0	51	3	203	2	72	0	40	35	216	50	
PM	34	0	33	25	236	21	4	0	39	84	178	98	
AM&PM	37	0	84	28	439	23	76	0	79	119	394	148	
Average Hourly	9	0	21	7	110	6	19	0	20	30	99	37	0

M.T.O. MINIMUM REQUIREMENTS FOR INSTALLATION OF TRAFFIC SIGNAL FOR NEW INTERSECTION WITH PROPOSED DEVELOPMENT

PROJECT: **9794.000**
LOCATION: **Tim Manley Avenue/Street "B"**
MUNICIPALITY: **Town of Caledon**
TIME OF ANALYSIS: **Weekday**

AT: **Tim Manley Avenue/Street "B"**
COMMENT: **Future Total Traffic - 2041**
ANALYSIS PREPARED BY: **JL** on **November 27, 2020**
AREA TYPE: (RURAL or URBAN) **Rural** **2:16 PM**

Warrant 1- Minimum Vehicular Volume	Minimum Requirement	Volume Expansion			
A. Requirement =	720	150%	=	1080	
AM+PM PK HR/4 =				404	
Compliance				37%	
B. Requirement =	170	150%	=	255	
AM+PM PK HR/4 =				71	
Compliance				28%	
Conclusion Warrant 1:					
				100% Satisfied-->	**NO**
				80% Satisfied-->	**NO**

Warrant 2- Delay to Cross Traffic					
A. Requirement =	720	150%	=	1080	
AM+PM PK HR/4 =				333	
Compliance				31%	
B. Requirement =	75	150%	=	113	
AM+PM PK HR/4 =				39	
Compliance				35%	
Conclusion Warrant 2:					
				100% Satisfied-->	**NO**
				80% Satisfied-->	**NO**
				WARRANT MET-->	**NO**

	MINOR APPROACH (NB)			MAJOR APPROACH (EB)			MINOR APPROACH (SB)			MAJOR APPROACH (WB)			Ped. cross-
TIME	**Street "B"**			**Tim Manley Ave**			**Street "B"**			**Tim Manley Ave**			ing major
	LEFT	**THRO'**	**RIGHT**	**LEFT**	**THRO'**	**RIGHT**	**LEFT**	**THRO'**	**RIGHT**	**LEFT**	**THRO'**	**RIGHT**	approach
AM	4	0	51	3	247	2	72	0	4	35	263	50	
PM	41	0	33	25	288	21	40	0	39	84	217	98	
AM&PM	45	0	84	28	535	23	112	0	43	119	480	148	
Average Hourly	11	0	21	7	134	6	28	0	11	30	120	37	0

M.T.O. MINIMUM REQUIREMENTS FOR INSTALLATION OF TRAFFIC SIGNAL FOR NEW INTERSECTION WITH PROPOSED DEVELOPMENT

PROJECT: **9794.000**
LOCATION: **Tim Manley Avenue/Neil Promenade**
MUNICIPALITY: **Town of Caledon**
TIME OF ANALYSIS: **Weekday**

AT: **Tim Manley Avenue/Neil Promenade**
COMMENT: **Future Total Traffic - 2026**
ANALYSIS PREPARED BY: **JL** on **November 27, 2020**
AREA TYPE: (RURAL or URBAN) **Rural** **2:16 PM**

		Minimum Requirement	Volume Expansion			
Warrant 1- Minimum Vehicular Volume						
A.	Requirement =	720	150%	=	1080	
	AM+PM PK HR/4 =				469	
	Compliance				43%	
B.	Requirement =	170	150%	=	255	
	AM+PM PK HR/4 =				92	
	Compliance				36%	
	Conclusion Warrant 1:					
					100% Satisfied-->	**NO**
					80% Satisfied-->	**NO**
Warrant 2- Delay to Cross Traffic						
A.	Requirement =	720	150%	=	1080	
	AM+PM PK HR/4 =				377	
	Compliance				35%	
B.	Requirement =	75	150%	=	113	
	AM+PM PK HR/4 =				24	
	Compliance				21%	
	Conclusion Warrant 2:					
					100% Satisfied-->	**NO**
					80% Satisfied-->	**NO**
					WARRANT MET-->	**NO**

	MINOR APPROACH (NB)			MAJOR APPROACH (EB)			MINOR APPROACH (SB)			MAJOR APPROACH (WB)			Ped. cross-
TIME	**Neil Prom**			**Tim Manley Ave**			**Neil Prom**			**Tim Manley Ave**			ing major
	LEFT	**THRO'**	**RIGHT**	**LEFT**	**THRO'**	**RIGHT**	**LEFT**	**THRO'**	**RIGHT**	**LEFT**	**THRO'**	**RIGHT**	approach
AM	7	0	159	1	304	3	51	0	5	68	269	23	
PM	9	0	105	5	274	6	29	0	4	174	330	50	
AM&PM	16	0	264	6	578	9	80	0	9	242	599	73	
Average Hourly	4	0	66	2	145	2	20	0	2	61	150	18	0

M.T.O. MINIMUM REQUIREMENTS FOR INSTALLATION OF TRAFFIC SIGNAL FOR NEW INTERSECTION WITH PROPOSED DEVELOPMENT

PROJECT: **9794.000**
LOCATION: **Tim Manley Avenue/Neil Promenade**
MUNICIPALITY: **Town of Caledon**
TIME OF ANALYSIS: **Weekday**

AT: **Tim Manley Avenue/Neil Promenade**
COMMENT: **Future Total Traffic - 2031**
ANALYSIS PREPARED BY: **JL** on **November 27, 2020**
AREA TYPE: (RURAL or URBAN) **Rural** **2:16 PM**

Warrant 1- Minimum Vehicular Volume	Minimum Requirement	Volume Expansion			
A. Requirement =	720	150%	=	1080	
AM+PM PK HR/4 =				514	
Compliance				48%	
B. Requirement =	170	150%	=	255	
AM+PM PK HR/4 =				100	
Compliance				39%	
Conclusion Warrant 1:					
				100% Satisfied-->	**NO**
				80% Satisfied-->	**NO**

Warrant 2- Delay to Cross Traffic					
A. Requirement =	720	150%	=	1080	
AM+PM PK HR/4 =				414	
Compliance				38%	
B. Requirement =	75	150%	=	113	
AM+PM PK HR/4 =				25	
Compliance				22%	
Conclusion Warrant 2:					
				100% Satisfied-->	**NO**
				80% Satisfied-->	**NO**
				WARRANT MET-->	**NO**

	MINOR APPROACH (NB)			MAJOR APPROACH (EB)			MINOR APPROACH (SB)			MAJOR APPROACH (WB)			Ped. cross-
TIME	**Neil Prom**			**Tim Manley Ave**			**Neil Prom**			**Tim Manley Ave**			ing major
	LEFT	**THRO'**	**RIGHT**	**LEFT**	**THRO'**	**RIGHT**	**LEFT**	**THRO'**	**RIGHT**	**LEFT**	**THRO'**	**RIGHT**	approach
AM	8	0	176	1	336	3	51		5	75	297	23	
PM	10	0	116	5	303	7	29	0	4	192	364	50	
AM&PM	18	0	292	6	639	10	80	0	9	267	661	73	
Average Hourly	5	0	73	2	160	3	20	0	2	67	165	18	0

M.T.O. MINIMUM REQUIREMENTS FOR INSTALLATION OF TRAFFIC SIGNAL FOR NEW INTERSECTION WITH PROPOSED DEVELOPMENT

PROJECT: **9794.000**
LOCATION: **Tim Manley Avenue/Neil Promenade**
MUNICIPALITY: **Town of Caledon**
TIME OF ANALYSIS: **Weekday**

AT: **Tim Manley Avenue/Neil Promenade**
COMMENT: **Future Total Traffic - 2041**
ANALYSIS PREPARED BY: **JL** on **November 27, 2020**
AREA TYPE: (RURAL or URBAN) **Rural** **2:16 PM**

Warrant 1- Minimum Vehicular Volume	Minimum Requirement	Volume Expansion			
A. Requirement =	720	150%	=	1080	
AM+PM PK HR/4 =				617	
Compliance				57%	
B. Requirement =	170	150%	=	255	
AM+PM PK HR/4 =				117	
Compliance				46%	
Conclusion Warrant 1:				100% Satisfied-->	**NO**
				80% Satisfied-->	**NO**
Warrant 2- Delay to Cross Traffic					
A. Requirement =	720	150%	=	1080	
AM+PM PK HR/4 =				500	
Compliance				46%	
B. Requirement =	75	150%	=	113	
AM+PM PK HR/4 =				26	
Compliance				23%	
Conclusion Warrant 2:				100% Satisfied-->	**NO**
				80% Satisfied-->	**NO**
				WARRANT MET-->	**NO**

	MINOR APPROACH (NB)			MAJOR APPROACH (EB)			MINOR APPROACH (SB)			MAJOR APPROACH (WB)			Ped. cross-
TIME	**Neil Prom**			**Tim Manley Ave**			**Neil Prom**			**Tim Manley Ave**			ing major
	LEFT	**THRO'**	**RIGHT**	**LEFT**	**THRO'**	**RIGHT**	**LEFT**	**THRO'**	**RIGHT**	**LEFT**	**THRO'**	**RIGHT**	approach
AM	10	0	215	1	410	4	51	0	5	91	362	23	
PM	12	0	141	4	369	9	29	0	4	234	444	50	
AM&PM	22	0	356	5	779	13	80	0	9	325	806	73	
Average Hourly	6	0	89	1	195	3	20	0	2	81	202	18	0

APPENDIX G

Parking Plan

PARKING ANALYSIS

Mattamy - Mayfield West Phase 2, Stage 2

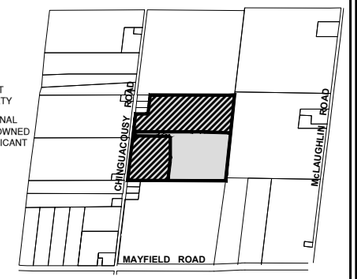
PART OF LOT 19 & 20
CONCESSION 2, W.H.S.
GEORGRAPHIC TOWNSHIP OF CHINGUACOUSY

12259 CHINGUACOUSY ROAD
TOWN OF CALEDON
REGIONAL MUNICIPALITY OF PEEL

KEY MAP
N.T.S.

SUBJECT PROPERTY

ADDITIONAL LANDS OWNED BY APPLICANT



Parking Type	# of Spaces Provided
Single Car Garage (30')	260
Double Car Garage (30')	156
Double Car Garage (36')	712
Double Car Garage (RLT)	202
Single Car Garage (B2B)	112
On-Street	225
Total	1667

Unit Type	# of Units
30' Interior Singles	130
30' Corner Singles	39
36' Interior Singles	178
Rear Lane Townhouses	101
Back-to-Back Townhouses	56
Total	504

NOTE: 16m LOCAL ROADS HAVE A PAVEMENT WIDTH OF 7.0m,
18m LOCAL ROADS HAVE A PAVEMENT WIDTH OF 9.0m

mattamyHOMES

SCALE 1:2500

December 4, 2020

KORSIAK Urban Planning
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