TRAFFIC IMPACT STUDY

12476 HIGHWAY 50 COMMERCIAL DEVELOMENT
BOLTON, TOWN OF CALEDON
REGION OF PEEL

PREPARED FOR:

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1.0 EXECUTIVE SUMMARY

C.F. Crozier & Associates Inc. (Crozier) was retained by BVD Petroleum Inc. to undertake a Traffic Impact Study in support of a Site Plan Application (SPA) for the proposed development addition to the site located at 12476 Highway 50, Bolton, in the Town of Caledon. The study was completed in accordance with the procedures set out in the Region of Peel Traffic Impact (TIS) Study guideline.

The site plan proposes an addition of a five-storey hotel with 111 rooms on the site, with the existing 8-pump gasoline fuel station and convenience store located on the southeast corner to remain. A combined total of 124 parking spaces are proposed at grade, 119 spaces for the hotel and five existing spaces for the gasoline fuel station. The existing full moves access and right-in only access will remain to serve the entire site, no additional accesses are proposed.

The proposed hotel is projected to add a total of 52 and 67 two-way trips to the boundary road network during the weekday a.m. and p.m. peak hours, respectively.

Under 2020 existing traffic conditions, the signalized intersection of Highway 50 at George Bolton Parkway and the stop-controlled minor connections of the site access and the George Bolton Centre access to George Bolton Parkway operate at a LOS "B" or better during the weekday a.m. and p.m. peak hours.

Under the 2023, 2028 and 2033 total traffic conditions the signalized intersection of Highway 50 and George Bolton Parkway is projected to operate at a Level of Service "B" or better during the weekday a.m. and p.m. peak hours, similar to their respective future background operations.

The stop-controlled minor connections of the site access and the George Bolton Centre access to George Bolton Parkway are forecast to operate at a LOS "B" or better during the weekday a.m. and p.m. peak hours under the 2023, 2028 and 2033 total traffic conditions, similar to their respective future background operations. No significant capacity or queuing issues are forecast for any traffic turning movement at the study intersections under the 2023, 2028 and 2033 study horizons.

The existing full moves access at George Bolton Parkway and the right-in only access at Highway 50 are expected to continue to serve the site effectively without safety issues related to sightlines, corner clearances, access conflicts, access blocking or transit operational conflicts.

It is our professional conclusion that the traffic generated from the proposed hotel at 12476 Highway 50, Bolton, in the Town of Caledon will not materially impact the operations of the boundary road network. The Site Plan Application can be supported from a traffic operations perspective as the boundary road system can accommodate the increase in traffic volumes attributable to the proposed development.

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2.0 INTRODUCTION

C.F. Crozier & Associates Inc. (Crozier) was retained by BVD Petroleum Inc. to undertake a Traffic Impact Study in support of a Site Plan Application (SPA) for the proposed development addition to the site located at 12476 Highway 50, Bolton, in the Town of Caledon. The purpose of the study is to assess the impacts of the proposed development on the boundary road network and to recommend required mitigation measures, if warranted.

The study was completed in accordance with the procedures set out in the Region of Peel Traffic Impact (TIS) Study guideline. Excerpts of the Region's TIS guideline are provided in **Appendix A**.

3.0 DEVELOPMENT PROPOSAL

The proposed development consists of an addition of a five-storey hotel with 111 rooms on the site. The site will maintain the existing 8-pump gasoline fuel station and convenience store located on the southeast corner of the site plan. A combined total of 124 parking spaces are proposed at grade, consisting of 119 new spaces for the hotel and five existing spaces for the gasoline fuel station to remain.

The existing right-in only access at Highway 50 and the full moves access at George Bolton Parkway will remain to serve the entire site. The right-in only access will also serve as a fire and truck route to the hotel. Refer to **Figure 2** for the Site Plan prepared by Antrixs Architect Inc., dated June 17th, 2020.

The site is currently zoned as a Bolton Highway Commercial (CHB), and the zone permits the proposed hotel as well as the existing gasoline station.

4.0 EXISTING CONDITIONS

4.1 Study Area

The subject lands cover an area of approximately 1.26 ha and currently consists of an existing 8-pump gasoline station at the northwest corner of the intersection of Highway 50 and George Bolton Parkway (ascribing a north-south alignment to Highway 50). The remaining site lands are currently vegetated and undeveloped.

The property is bounded by George Bolton Parkway to the south, an industrial property to the west, Highway 50 to the east and a car dealership as well as vacant lands to the north. Refer to **Figure 1** for the site location.

Given the site location and scale of the proposed development, the following existing boundary intersections were considered for the study.

- Highway 50 and George Bolton Parkway
- George Bolton Parkway and the Site Access

Detailed description of the boundary study road network is presented in the succeeding section. The existing right-in only site access at Highway 50 is expected to be free flowing without any traffic movement conflicts. Therefore, the right-in only access will not be analyzed.

4.2 Boundary Road Network

Highway 50 is a north-south roadway with varying cross-sections along the corridor. The segment of Highway 50 fronting the site consists of two lanes per travel direction and a two way left turn centre median lane. The road is under the jurisdiction of the Region of Peel and is defined as an industrial connector roadway per the Region of Peel Road Characterization Study (May 2013) with a posted speed limit of 60 km/h. Highway 50 has a small segment of concrete sidewalk on the west of the roadway stretching from the frontage of the site gas station to a point approximately 150 metres south. Elsewhere, there are no pedestrian facilities, however, the paved one metre splash pad behind the curb can be used by pedestrians.

George Bolton Parkway is an east-west roadway with a three-lane cross-section, one lane in each direction and a two way left turn median lane. George Bolton Parkway is a local roadway under the jurisdiction of the Town of Caledon per Schedule C of the Town's Official Plan. The roadway has an assumed speed limit of 50 km/h per municipal regulation and sidewalks are present on both sides of the roadway in the vicinity of the site.

The four-legged intersection of Highway 50 and George Bolton Pkwy is signalized. The southbound approach (Highway 50) consist of an exclusive left-turn lane, an exclusive right turn lane and two through lanes. The northbound approach (Highway 50) consist of an exclusive left turn lane, one through lane and a shared through/ right turn lane. The eastbound approach (George Bolton Parkway) consists of two lanes, an exclusive left-turn and right turn lane. The westbound approach is an access to a private commercial property and has a single shared lane for all movements. The alignment of the private access is such that a crossing movement from George Bolton Parkway must be done from the eastbound left turn lane.

The existing site access to George Bolton Parkway consists of a single outbound lane. Opposite the site access is the entrance to the George Bolton Centre, a commercial plaza that consists primarily of automobile focussed businesses. That entrance likewise consists of a single outbound lane. On George Bolton Parkway, the eastbound left turn lane to Highway 50 extends past the site entrance, providing a left turn lane into the site. Refer to **Figure 3** of the Appendices for the study intersection configuration.

4.3 Cycling Facilities

No bicycle facilities exist on Highway 50, George Bolton Parkway or other roads near to the site. Per Appendix B of the Peel Region Long Range Transportation Plan (2019), Highway 50 is expected to have cycling facilities in the future. Per the Town of Caledon Transportation Master Plan (2017), no future cycling facilities are proposed on George Bolton Parkway. Relevant map excerpts are included in **Appendix B**.

4.4 Public Transit

There is currently a single transit route providing services in Bolton, GO transit bus route 38 (Bolton/ Malton). GO transit route 38 provides two morning southbound trips and two evening northbound trips from Monday to Friday. The route connects between Union station (Toronto) and the intersection of Highway 50 at Columbia Way (Caledon There are bus stops for both travel directions located at the intersection of Highway 50 and George Bolton Parkway. Details of the GO transit route 38 is included in **Appendix B**.

4.5 Traffic Data

At the time of this study, there is an ongoing global COVID-19 crisis. Consequently, traffic counts were not undertaken as travel patterns on the boundary road network would not be reflective of typical commuter travel patterns. Alternatively, traffic turning movement counts previously undertaken in August 2017 at the study intersection of Highway 50 and George Bolton Parkway were used.

The traffic turning movement counts at the intersection of Highway 50 and George Bolton Parkway were undertaken on Tuesday, August 22, 2017 by Spectrum Traffic Data Inc. The counts were undertaken during the morning peak hours from 6:00 a.m. to 10:00 a.m. and evening peak hours from 3:00 pm to 7:00 pm. The peak hours of the turning movement counts occurred between 7: 00 a.m. and 8:00 a.m. for the morning peak period and between 4:15 p.m. and 5:15 p.m. for the evening peak period. Summary of the turning movement counts are provided in **Appendix C**.

To establish turning movement counts for the intersection of George Bolton Parkway and the existing site access /George Bolton Centre access the following procedure was used:

- Generate trips for the existing gasoline station using the Institute of Transportation Engineers Trip Generation Manual, 10th Edition. Trip details are presented under section 6 of this study.
- Distribute the gasoline station generated trips through the intersection based on the existing travel pattern.
- Extrapolate the eastbound and westbound trips on George Bolton Parkway based on the volumes at the intersection of Highway 50 and George Bolton Parkway.
- Remove the fuel station trips from the extrapolated trips and assign 20% of resulting trips to the George Bolton Centre access and 80% as through trips on George Bolton Parkway (from/to further west).

Refer to **Appendix C** for details of the procedure described above and the resulting extrapolated intersection volumes.

Traffic volumes were grown from 2017 to 2020 using the methodology described in Section 5.2, Future Traffic Forecasting. The 2020 existing traffic volumes are illustrated in **Figure 4**.

4.6 Traffic Modeling

The assessment of intersections is based on the method outlined in the "Highway Capacity Manual, 2000" using Synchro 9 modeling software as required by the Region of Peel TIS Guideline. Intersections are assessed using a Level of Service metric, with ranges of delay assigned a letter from "A" to "F". For stop-controlled intersections, a Level of Service "A" or "B" would typically be measured during off-peak hours when lesser traffic volumes are on the roadways. Levels of Service "C" through "F" would typically be measured in the commuter peak hours when greater vehicle volumes cause longer travel times. The Level of Service (LOS) definitions for signalized and stop-controlled intersections are included in **Appendix D**.

4.7 Intersection Operations

The traffic operations at the study intersections were analyzed on the basis of the 2020 existing traffic volumes illustrated in **Figure 4**. **Table 1** outlines the operational measures of effectiveness at the study

intersections under the 2020 existing traffic conditions. Detailed capacity analyses are included in **Appendix E**.

Table 1: 2020 Existing Traffic Operations Summary

Intersection	Control	Peak Hour	Level of Service	Average Delay per Vehicle(s)	V/C Ratio[1]	95th %ile Queues > Storage Length
Highway 50 and George Bolton Pkwy/ Private Access	Signal	A.M.	A	8.1 s	0.57 (SBT)	None
		P.M.	B	12.7 s	0.57 (EBL)	None
George Bolton Pkwy and Site Access/ Private Access	Stop (Minor)	A.M.	A	9.6 s	0.06 (SB)	None
		P.M.	B	10.5 s	0.08 (SB)	None

Note: V/C Ratio – illustrates the maximum volume to capacity ratio and other volume to capacity ratios greater than 0.90. The Level of Service (LOS) of a signalized intersection is based on the average control delay per vehicle. The existing signal timing plans obtained from the Region of Peel were used. The LOS of a stop-controlled intersection is based on the delay associated with the critical minor road approach. HCM 2000 was used per Region's requirements. The 95th percentile queue lengths were derived from Sim-Traffic reports using 10-minute seeding, 60-minute simulation and an average of three runs.

As presented in **Table 1**, the signalized intersection of Highway 50 and George Bolton Parkway operates below capacity at a Level of Service "B" or better during the weekday a.m. and p.m. peak hours. All turning movement traffic queues are accommodated by the existing storage lengths available at the intersection.

The stop-controlled minor connections of the site access and George Bolton Centre access to George Bolton Parkway operate at a LOS "B" or better during the weekday a.m. and p.m. peak hours. Traffic on George Bolton Parkway is free flowing, and the intersection is operating below capacity for all turning movements.

5.0 FUTURE BACKGROUND CONDITIONS

5.1 Study Horizons

Per the Region of Peel TIS guideline, analysis of the full buildout year, as well as five and ten years from the full buildout year is acceptable for the scale of development proposed herein. Therefore, the 2023 assumed full buildout year, 2028 and 2033 horizon years were assessed.

5.2 Future Traffic Forecasting

Per the Bolton Transportation Master Plan Study prepared by MMM Group Limited in August 2015, the population is expected to increase from 34,791 people (2011) to 45,283 people (2031). This equates to a growth rate of approximately 1.32% compounded annually. Employment is expected to increase from 21,257 jobs (2011) to 32,713 jobs (2031). This equates to a growth rate of approximately 2.17% compounded annually,

Based on the analysis above, a growth rate of 2% compounded annually was applied to all turning movements on the boundary road network under 2017 traffic volumes to forecast 2020 existing traffic volumes and future background traffic volumes for the study horizons.

The Town of Caledon development applications and notices website was checked to identify nearby developments that may impact the study intersections herein. No recently approved background developments considered relevant for inclusion in this study were found.

An application to rezone the lands at 12544 Highway 50 (north of the site herein) from Bolton Highway Commercial (CHB) to Bolton Highway Commercial Exception (CHB-X) to permit development of a convenience/retail store, offices, motor vehicle washing establishment and motor vehicle body shop was noted. Given the relatively small size of this development, it is expected to be captured in the growth rate applied to the boundary roads. Therefore, no background developments have been included in the analysis within this study.

5.3 Future Roadway Improvements

Per the Town of Caledon Transportation Master Plan (2017), an extension of George Bolton Parkway from Highway 50 to Albion Vaughan Road via a connection to Industrial Road is proposed for implementation by 2031. No future roadway improvements to Highway 50 are identified by the Region of Peel Long Term Transportation Plan (2019).

A review of the Town of Caledon 2020 Annual Budget did not reveal funds allocated to design or implement this project. Therefore, no modifications to the traffic analysis herein were made to account for future road improvements.

5.4 Intersection Operations

Traffic volumes for the future background study horizons were based on applying a 2% compounded annually growth rate to all turning movements on the boundary road network. The rationale and details are discussed under section 4.6.

Traffic operations at the study intersections were analyzed on the basis of the 2023, 2028 and 2033 forecasted future background traffic volumes illustrated in **Figures 5, 6 and 7**. **Tables 2, 3 and 4** outlines the 2023, 2028 and 2033 operational measures of effectiveness. Detailed capacity analysis worksheets are included in **Appendix E.**

Table 2: 2023 Future Background Traffic Operations Summary

Intersection	Control	Peak Hour	Level of Service	Average Delay per Vehicle(s)	V/C Ratio[1]	95th %ile Queues > Storage Length
Highway 50 and George Bolton Pkwy/ Private Access	Signal	A.M.	A	8.3 s	0.61 (SBT)	None
		P.M.	B	13.2 s	0.59 (EBL)	None
George Bolton Pkwy and Site Access/ Private Access	Stop (Minor)	A.M.	A	9.7 s	0.07 (SB)	None
		P.M.	B	10.6 s	0.09 (SB)	None

Note: V/C Ratio – illustrates the maximum volume to capacity ratio and other volume to capacity ratios greater than 0.90. The Level of Service (LOS) of a signalized intersection is based on the average control delay per vehicle. The existing signal timing plans obtained from the Region of Peel were used. The LOS of a stop-controlled intersection is based on the delay associated with the critical minor road approach. HCM 2000 was used per Region's requirements. The 95th percentile queue lengths were derived from Sim-Traffic reports using 10-minute seeding, 60-minute simulation and an average of three runs.

Table 3: 2028 Future Background Traffic Operations Summary

Intersection	Control	Peak Hour	Level of Service	Average Delay per Vehicle(s)	V/C Ratio[1]	95th %ile Queues > Storage Length
Highway 50 and George Bolton Pkwy/ Private Access	Signal	A.M.	A	9.7 s	0.68 (SBT)	None
		P.M.	B	14.5 s	0.61 (EBL)	41.5 m (NBL)
George Bolton Pkwy and Site Access/ Private Access	Stop (Minor)	A.M.	A	9.9 s	0.08 (SB)	None
		P.M.	B	11.0 s	0.10 (SB)	None

Note: V/C Ratio – illustrates the maximum volume to capacity ratio and other volume to capacity ratios greater than 0.90. The Level of Service (LOS) of a signalized intersection is based on the average control delay per vehicle. The existing signal timing plans obtained from the Region of Peel were used. The LOS of a stop-controlled intersection is based on the delay associated with the critical minor road approach. HCM 2000 was used per Region's requirements. The 95th percentile queue lengths were derived from Sim-Traffic reports using 10-minute seeding, 60-minute simulation and an average of three runs.

Table 4: 2033 Future Background Traffic Operations Summary

Intersection	Control	Peak Hour	Level of Service	Average Delay per Vehicle(s)	V/C Ratio[1]	95th %ile Queues > Storage Length
Highway 50 and George Bolton Pkwy/ Private Access	Signal	A.M.	B	12.3 s	0.78 (SBT)	39.8 m (NBL)
		P.M.	B	16.2 s	0.71 (NBT)	44.2 m (NBL)
George Bolton Pkwy and Site Access/ Private Access	Stop (Minor)	A.M.	B	10.1 s	0.09 (SB)	None
		P.M.	B	11.3 s	0.12 (SB)	None

Note: V/C Ratio – illustrates the maximum volume to capacity ratio and other volume to capacity ratios greater than 0.90. The Level of Service (LOS) of a signalized intersection is based on the average control delay per vehicle. The existing signal timing plans obtained from the Region of Peel were used. The LOS of a stop-controlled intersection is based on the delay associated with the critical minor road approach. HCM 2000 was used per Region's requirements. The 95th percentile queue lengths were derived from Sim-Traffic reports using 10-minute seeding, 60-minute simulation and an average of three runs.

As illustrated in **Tables 2, 3 and 4**, the signalized intersection of Highway 50 and George Bolton Pkwy/ Private Access is projected to operate at a Level of Service "B" or better during the weekday a.m. and p.m. peak hours under the 2023, 2028 and 2033 future background study horizons. No capacity issues are forecast for any traffic turning movement. Per the 95th percentile queues, it is expected that during the peak hours of 2028 and 2033 horizons, the 35 m northbound left turn storage will be occasionally exceeded. However, there is hatched centre median that can be utilized by queued vehicles without impeding traffic flow. All other turning movement traffic queues can be accommodated by the existing storage lengths available at the intersection.

Under the 2023, 2028 and 2033 future background study horizons, the stop-controlled minor connections of the site access and the George Bolton Centre access to George Bolton Parkway are forecast to operate at a LOS "B" or better during the weekday a.m. and p.m. peak hours. Traffic on George Bolton Parkway is free flowing, and the intersection is projected to operate below capacity for all turning movements.

6.0 SITE GENERATED TRAFFIC

The proposed hotel addition to the site will result in new trips on the boundary road network that would otherwise not exist. The trip generation and distribution of the trips are discussed in this section.

6.1 ITE Trip Generation

As noted under section 4.5, due to inability to undertake counts at the existing site access intersection with George Bolton Parkway, trips for the gasoline fuel station were forecast and distributed through the existing accesses to represent existing conditions. **Table 5** illustrates the existing trips attributable to the existing gasoline station.

To forecast the trips generated by the proposed hotel and the existing gasoline station, the ITE Trip Generation Manual, 10th Edition was used. Land Use Category (LUC) 310 "Hotel" and LUC 945 "Gasoline Service Station with convenience store" were used. The greater of the fitted curve equation or average rate methodology were used to generate the trips as required by the Peel Region TIS guideline. The existing gasoline station trips and the trips generated by the proposed hotel are presented in **Tables 5** and **6**, respectively.

Table 5: Existing Site Generated Trips

Land Use	Number of VFP[1]	Peak Hour	Trip Generation Criteria	Number of Trips		
				Inbound	Outbound	Total
Gasoline Service Station with convenience store (LUC: 945)	8 VFP	A.M.	12.47 trips per VFP	51 (51%)	49 (49%)	100
		P.M.	13.99 trips per VFP	57 (51%)	55 (49%)	112

Note: 1. VFP is an abbreviation for "vehicle fueling position".

Table 6: New Site Generated Trips

Land Use	Number of Rooms	Peak Hour	Trip Generation Criteria	Number of Trips		
				Inbound	Outbound	Total
Hotel (LUC: 310)	111 rooms	A.M.	0.47 trips per room	31 (59%)	21 (41%)	52
		P.M.	0.60 trips per room	34 (51%)	33 (49%)	67

6.2 Trip Distribution and Assignment

The existing trips at the gasoline station are expected to arrive via the existing two site accesses and depart through the full moves access onto the George Bolton Parkway. Accordingly, the existing gasoline station trips were assigned to the study intersections based on the existing travel patterns calculated from the volumes at the intersection of Highway 50 and George Bolton Parkway. Refer to **Appendix C** for details of the existing gasoline station's trip distribution and trip assignment through the existing site accesses.

It has been assumed that the trips generated by the proposed hotel will all arrive and depart via the full moves access (at George Bolton Parkway) and no trips will cut through the right-in only access. The trip distribution for the proposed hotel was estimated based on existing travel patterns calculated from the volumes at the intersection of Highway 50 and George Bolton Parkway. The hotel site trip distribution is illustrated in **Figure 8** and the resulting trip assignment to the boundary road network is presented in **Figure 9.**

7.0 TOTAL TRAFFIC CONDITIONS

This section discusses the traffic operations of the study intersections with the addition of the new site generated trips.

7.1 Intersection Operations

Traffic operations at the study intersections were assessed with the addition of the proposed hotel generated trips to the future background traffic volumes. The 2023, 2028 and 2033 total traffic volumes are illustrated in **Figures 10, 11 and 12**, respectively. **Tables 7, 8 and 9** outlines the 2023, 2028 and 2033 total traffic operational measures of effectiveness. Detailed capacity analysis worksheets are included in **Appendix E.**

Table 7: 2023 Total Traffic Operations Summary

Intersection	Control	Peak Hour	Level of Service	Average Delay per Vehicle(s)	V/C Ratio[1]	95th %ile Queues > Storage Length
Highway 50 and George Bolton Pkwy/ Private Access	Signal	A.M.	A	9.2 s	0.62 (SBT)	None
		P.M.	B	14.0 s	0.60 (EBL)	39.4 m (NBL)
George Bolton Pkwy and Site Access/ Private Access	Stop (Minor)	A.M.	A	10.0 s	0.10 (SB)	None
		P.M.	B	11.1 s	0.14 (SB)	None

Table 8: 2028 Total Traffic Operations Summary

Intersection	Control	Peak Hour	Level of Service	Average Delay per Vehicle(s)	V/C Ratio[1]	95th %ile Queues > Storage Length
Highway 50 and George Bolton Pkwy/ Private Access	Signal	A.M.	B	11.5 s	0.71 (SBT)	None
		P.M.	B	15.8 s	0.64 (NBT)	42.7 m (NBL)
George Bolton Pkwy and Site Access/ Private Access	Stop (Minor)	A.M.	B	10.2 s	0.11 (SB)	None
		P.M.	B	11.5 s	0.15 (SB)	None

Table 9: 2033 Total Traffic Operations Summary

Intersection	Control	Peak Hour	Level of Service	Average Delay per Vehicle(s)	V/C Ratio[1]	95th %ile Queues > Storage Length
Highway 50 and George Bolton Pkwy/ Private Access	Signal	A.M.	B	14.9 s	0.81 (SBT)	44.8 m (NBL)
		P.M.	B	17.9 s	0.71 (NBT)	47.2 m (NBL)
George Bolton Pkwy and Site Access/ Private Access	Stop (Minor)	A.M.	B	10.4 s	0.12 (SB)	None
		P.M.	B	12.0 s	0.17 (SB)	None

Note: V/C Ratio – illustrates the maximum volume to capacity ratio and other volume to capacity ratios greater than 0.90. The Level of Service (LOS) of a signalized intersection is based on the average control delay per vehicle. The existing signal timing plans obtained from the Region of Peel were used. The LOS of a stop-controlled intersection is based on the delay associated with the critical minor road approach. HCM 2000 was used per Region's requirements. The 95th percentile queue lengths were derived from Sim-Traffic reports using 10-minute seeding, 60-minute simulation and an average of three runs.

Under the 2023, 2028 and 2033 total traffic conditions, the signalized intersection of Highway 50 and George Bolton Pkwy/ Private Access is projected to operate at a Level of Service "B" or better during the weekday a.m. and p.m. peak hours. No capacity issues are forecast for any traffic turning movement. The traffic operations are virtually unchanged from future background traffic operations, with a maximum increase in delay of 2.6 seconds in the a.m. peak hour of the 2033 horizon year. Similar to the future background, the 95th percentile queues indicate that the 35 m northbound left turn storage will be occasionally exceeded during the peak hours. However, the hatched centre median can be used by queued vehicles without impeding traffic flow. All other turning movement traffic queues can be accommodated by the existing storage lengths available at the intersection.

The stop-controlled minor connections of the site access and private access to George Bolton Parkway are forecast to operate at a LOS "B" or better during the weekday a.m. and p.m. peak hours under the 2023, 2028 and 2033 total traffic conditions. These metrics are virtually unchanged from future background traffic operations and are a result of relatively low volumes on George Bolton Parkway.

7.2 Site Access Safety Review

The standards set out in the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR) was used to assess the existing full moves site access (to remain) with regards to the adequacy of available sightlines.

Given that George Bolton Parkway has a speed limit of 50 km/h per municipal regulation, a design speed of 60 km/h was assumed to assess the available site distance. Assuming a right turn time gap of 6.5 seconds and a left-turn gap of 7.5 seconds for passenger vehicles per Table 9.9.3, and adopting equation 9.9.1 of the TAC-GDGCR, the minimum sight distance required for a right turn and a left-turn at the proposed site accesses is 110 m and 125 m, respectively. George Bolton Parkway is fairly flat and horizontally straight with available sightlines beyond 125 m (looking west) and beyond the Highway 50 intersection (looking east). Therefore, no safety concerns related to sightlines are anticipated at the site access. Additionally, no issues such as corner clearances, access conflicts and transit operational conflicts are forecast. The existing full moves access is expected to continue serving the site safely.

Per the synchro and sim-traffic analysis, the 95th percentile queues indicate that under peak traffic operations, occasional eastbound left queuing of up to 59.1 m are expected at the intersection of George Bolton Parkway with Highway 50 in the 2033 horizon. Given that the existing full moves site access is located at approximately 75 m from the eastbound approach stop line, no blocking of the access is projected and the left turn egress trips from the site are expected to easily find gaps in the George Bolton Parkway traffic flow under the future operations.

7.3 Transportation Demand Management Review

As the site proposes a hotel along with an existing gasoline station, opportunity to promote Transportation Demand Management (TDM) measures in support of a reduced automobile use is limited. However, the provision of up-to-date transit schedules and maps within the hotel will educate longer staying lodgers and employees about opportunities to use alternative modes of transportation aside single occupancy vehicle trips.

Per Peel Region's Long Range Transportation Plan (2019), the Region has a target of 50.3% trips being made via sustainable modes such as walking, cycling, public transit, carpooling, and alternatives to travel (*i.e.* telework) by 2041. Similarly, the goal for the Town of Caledon is to increase its sustainable modal split from 29.0% in 2011 to 31.9% by 2041. Refer to **Appendix B** for excerpts of

the Peel Region Long Range Transportation Plan (2019). Though developments such as the hotel proposed herein has limited opportunity, provision of the recommended educational resources within such developments is expected to support the Region's sustainable transportation goals.

8.0 CONCLUSIONS AND RECOMMENDATIONS

This study has analyzed the operations of boundary road network to determine the impact of the proposed addition of a hotel (111 rooms) at 12476 Highway 50, Bolton, in the Town of Caledon. The detailed analyses contained within this report has resulted in the following key findings:

- Under 2020 existing traffic conditions, the signalized intersection of Highway 50 at George Bolton Pkwy/ Private Access and the stop-controlled minor connections of the site access and George Bolton Centre access to George Bolton Parkway operate at a LOS "B" or better during the weekday a.m. and p.m. peak hours.

- The proposed hotel is projected to generate a total of 52 and 67 two-way trips during the weekday a.m. and p.m. peak hours, respectively.

- Under the 2023, 2028 and 2033 total traffic conditions the signalized intersection of Highway 50 and George Bolton Parkway is projected to operate at a Level of Service "B" or better during the weekday a.m. and p.m. peak hours, similar to their respective future background operations (excludes proposed hotel's trips).

- The stop-controlled minor connections of the site access and the George Bolton Centre access to George Bolton Parkway are forecast to operate at a LOS "B" or better during the weekday a.m. and p.m. peak hours under the 2023, 2028 and 2033 total traffic conditions, similar to their respective future background operations.

- No significant capacity or queuing issues are forecast for any traffic turning movement at the study intersections under the 2023, 2028 and 2033 study horizons.

- The existing full moves access at George Bolton Parkway and the right-in only access at Highway 50 are expected to continue to serve the site effectively without safety issues related to sightlines, corner clearances, access conflicts, access blocking or transit operational conflicts.

It is our professional conclusion that the traffic generated from the proposed hotel at 12476 Highway 50, Bolton, in the Town of Caledon will not materially impact the operations of the boundary road network. The Application can be supported from a traffic operations perspective as the boundary road system can accommodate the increase in traffic volumes attributable to the proposed development.

Sincerely,

C.F. CROZIER & ASSOCIATES INC.

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APPENDIX A

Peel Region TIS Guideline

Region of Peel
working with you

COVID-19 in Peel
With community spread, treat every interaction like you could be exposed. Learn how to protect yourself and others, and stay up-to-date on COVID-19 in Peel. Some Regional services and facilities are affected or closed until further notice. Check full listing.

Traffic impact study

A traffic impact study may be required to review a proposed access to a Regional road or anticipated traffic impact on the Regional road network. The traffic impact study shall be completed in accordance with the Region's Traffic Impact Study Guidelines (available for distribution upon request).

The following is a general terms of reference for all traffic impact studies. Not all elements listed below are required, and will be evaluated on a case-by-case basis. Formal terms of reference must be submitted to the Traffic Development Group prior to submitting a report.

Full description

The study must provide a full description of the proposed development. This includes, but is not limited to:

- Municipal address.
- Existing land uses that are permitted and use provisions in an Official Plan Amendment, Zoning By-law, etc.
- Proposed land uses.
- Floor space, including a summary of each type of use and/or number of residential units (where applicable).
- Anticipated date of occupancy.
- Approximate hour of operation.
- Planned phasing of the development.
- Nearby Regional intersections and access to adjacent developments, including type of control (signalized or unsignalized).
- Number of lanes, width and configuration:
    - The requirements for auxiliary turn lanes shall be reviewed. Adequate spacing must be provided between access points in accordance with the Region of Peel's current Controlled Access By-law, as amended. All design standards must be in accordance with those outlined in the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads and the Ministry of Transportation, Ontario (MTO) Geometric Design Standards for Ontario Highways.
- Proposed access points and type of access:
  -When determining the location of an access, consideration should be given to how the access will affect the surrounding road network, area residents and area businesses. All proposed site access points on Regional roads should be evaluated for capacity, safety and adequacy of queue storage capacity. Approval of the proposed access will be evaluated using the Region of Peel's current Controlled Access By-law, as amended and sound engineering judgement.
- Nearby transit facilities/stops.
- Bike paths.
- A combination of maps and other documentation, which will identify all relevant information.

Traffic volume analysis

A traffic volume analysis must include:

- Horizon years of 5 and 10 and 20 depending on full build-out, or as advised by Regional staff.
- AM and PM peak periods at a minimum. Commercial development requires Saturday analysis – note that the analysis of turning movement counts (TMCs) for a Saturday of a holiday weekend will not be accepted except when directed by Regional staff.
- Background, site-generated and total traffic volumes.
- "Worst case" combination of site-related and background traffic.
    - Please contact Transportation to confirm growth rates along the subject Regional road(s).
    - Please contact Traffic Operations staff to obtain the most recent TMCs and/or average annual daily traffic (AADT).
    - Please contact Traffic Signals and Systems staff to obtain traffic signal timing parameters and ensure that the information includes the appropriate walk/don't walk splits, recall modes and offsets.
    - Please contact Development Services Planning staff to obtain details on surrounding developments in the area that would affect traffic capacity in the planning horizon year(s).

Trip generation and distribution

A trip distribution and trip generation analysis must include:

- Trip generation surveys from similar developments in the Region which have similar operating characteristics as the proposed development.
- Latest edition of the Institute of Transportation Engineers (ITE) trip generation rates are acceptable (use the greater of the average rate method or the fitted line equation).
- A table summarizing your findings.
- Trip distribution assumptions must be supported by one or more of the following:
    - Transportation Tomorrow Survey
    - Origin-destination surveys
    - Comprehensive travel surveys
    - Existing/anticipated travel patterns
    - Output from the Region of Peel Travel Demand Forecasting Model
    - Market studies

Capacity analysis

The report must include capacity analysis completed in Synchro (version 7.0 preferred, but version 8.0 will be accepted as per the Highway Capacity Manual (HCM) 2000 standards and not the new HCM 2010 module). Unsignalized analysis can be completed in either Synchro or CCG Intercalc (2008 version at a minimum).
The following parameters must be used in either software:

- Saturation flow rate of 1,900 vehicles per hour
- 7 metre lane width on Regional roads; and
- 5 metre lane width on the intersecting street(s) and/or access(es)

For Synchro analysis, see Regional Guidelines for Using Synchro 7.0 (PDF) for other individual parameters. For CCG Intercalc analysis, saturation adjustments should include a complete breakdown of vehicle types by percentage (based on available data) and is to be documented in a table in the report.
The analysis must also include the identification of signalized intersections, unsignalized intersections and unsignalized accesses where:

- Volume/capacity (V/C) ratios for overall intersection operations, through movements or shared through/turning movements increased to 0.90 or above.
- V/C ratios for exclusive movements that will exceed 1.00.
- 95th percentile queue lengths for individual movements and do they exceed available lane storage.

All intersections that are modelled as signalized intersections (other than existing signalized intersections) must be supported by an Ontario Traffic Manual (OTM) Book 12 traffic control signals warrant, each one required to be included in the appendix of the TIS.

If traffic control signals are found to be warranted at a particular intersection in an earlier horizon year (e.g. 5 year horizon), a warrant is not required for the subsequent horizon year (e.g. 10 year horizon). The horizon year in which a particular intersection is warranted for traffic control signals must be documented in the text of the TIS. A roundabout feasibility analysis may also be required at the direction of Regional staff.

In Synchro unsignalized intersection analysis, if an unacceptable LOS ("E" or higher) and v/c ratio results on the minor approach in existing conditions analysis, the consultant shall conduct a gap study to establish an average value for gaps accepted (in seconds) and override the resultant value for the HCM-calculated critical gap in the Signing window.

For horizon year analysis with an existing two- lane road, if the road is forecasted to be widened to four lanes by the respective horizon year, the consultant shall override the resultant value for the HCM-calculated critical gap in the Signing window by inputting recommended values for critical gap of left-turning and right-turning movements onto a four-lane road as identified in the Ministry of Transportation, Ontario (MTO) Geometric Design Standards for Ontario Highways.

Sight Distance Evaluation

A review and analysis of the sight distance availability for all proposed accesses or roads is required. The sight distance requirements must be determined based on the most current standards and guidelines used by the Region of Peel. Available sight distance should be taken from actual field measurements to ensure accurate conditions.

Assess the sightlines based on the Region of Peel's standard practice, eye height and object height of 1.05 metres and 0.38 metres above road surface, respectively. The Region requires the access to meet the following sightline requirements:

- Stopping sight distance; and
- Turning sight distance.

Sight distances must be in accordance with the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads methodology. Folded full size and to scale drawings of the sightline analysis are required for our review and comment.

Safety

Identification of potential safety or operational issues must be reviewed that are associated with:

- weaving
- merging
- corner clearances
- sight distances
- vehicle/pedestrian conflicts
- traffic infiltration
- access conflicts
- cyclist movements
- heavy truck movement conflicts

In addition, should the development be determined by Regional staff to be adjacent to a Regional intersection or road segment with significant collision history, most recent five-year collision data for the intersection(s) and/or road segment (s) must be reviewed and an assessment of the impact of the proposed development provided. Such information may be helpful to minimize any additional problems through the design or location of access points along the subject Regional road(s).

Please contactTraffic Safety staff for collision information.

Functional Design

A functional design detailing a recommended access configuration and/or propose[illegible]y be required at the discretion of Regional staff.

Final Report

The following study structure is suggested:

- Site/development description
- Study area, including map
- Existing conditions – exhibit required
- Analysis periods
- Background, existing, future background and future total traffic demand – exhibit required
- Site generated traffic – exhibit required
- Improvement alternatives
- Traffic impacts for future background and total traffic with and without mitigation (tabular summaries)
- Access considerations
- Recommendations

The TIS should consist of a main document, supplemented by technical appendices containing detailed analyses as required.

The Region of Peel will require 1 copy to be in electronic format and 1 hard copy complete with the appropriate supporting documentation. This shall be submitted to the Traffic Engineering section of Public Works for our review, comment and approval.

All information submitted to Regional staff in connection with any Traffic Impact Study will be considered to be in the public domain.

Appendix

The appendix must include:

- Turning movement counts (include date counted) with breakdown of heavy vehicle counts;
- Signal timing plan(s) for signalized intersections; and
- For submissions using Synchro, generated Synchro reports showing HCM 2000 results and queuing, as well as electronic Synchro files (CD copy or sent concurrently with the TIS via email); or
- For submissions using CCG Intercalc, a CCG Intercalc summary report.

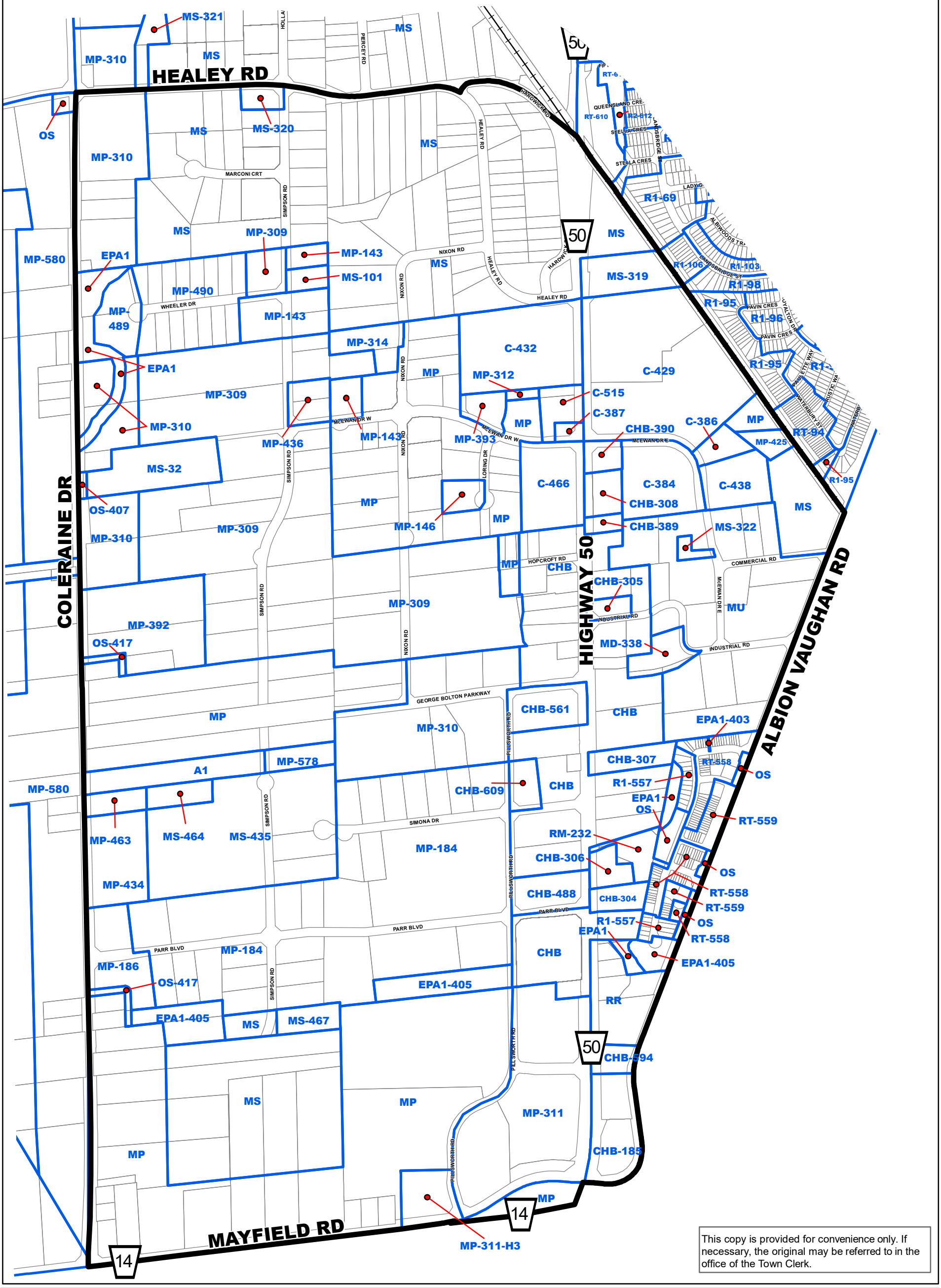
Study Updates

From the date of submission, the Traffic Impact Study will have a "shelf life" of 5 years.

Where timing of subsequent development approvals exceeds 5 years, a new study will be required at the discretion of the Region of Peel.

APPENDIX B

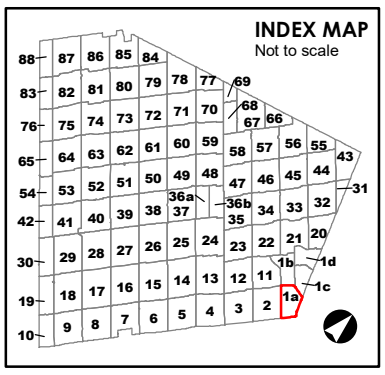
Municipal Planning and Zoning Map Excerpts



This copy is provided for convenience only. If necessary, the original may be referred to in the office of the Town Clerk.

INDEX MAP

Not to scale



A2 ZONE SYMBOL

A2-### ZONE SYMBOL
Note: Number of suffixes represent Exceptions which can be looked up in the Exceptions section of the By-law.

ZONE BOUNDARY

STRUCTURAL ENVELOPE MAP

NIAGARA ESCARPMENT DEVELOPMENT CONTROL AREA
Lands lying within the Development Control area pursuant to the Niagara Planning and Development Act are subject to permit requirements under Ontario Regulations 685/50, as amended.

OAK RIDGES MORAINE CONSERVATION PLAN AREA BOUNDARY

WELLHEAD PROTECTION AREA BOUNDARY
WP-2 WP-5 WP-10 WP-25
Zone Maps amended to indicate the 2, 5, 10, and 25 year Wellhead Protection Areas.

BY-LAW 2006-50

ZONE MAP 1a

SCHEDULE "A"

0 110 220 440 m

TOWN OF CALEDON

Date: 3 April 2006

Revised: September 26, 2018

File: S:\POLICY SECTION\GIS\zoning_bylaw\2015_mxd

1a

SECTION 7
COMMERCIAL ZONES

7.1 GENERAL PROHIBITION

No *person* shall, within any **Commercial *Zone***, use any land, or erect, *alter*, enlarge, use or maintain any *building* or *structure* for any *use* other than as permitted in **Table 7.1** of Subsection 7.2 and in accordance with the standards contained in **Table 7.2** of Subsection 7.3, the General Provisions contained in Section 4 and the Parking, Loading & Delivery Standards contained in Section 5.

7.2 PERMITTED USES

Uses permitted in a **Commercial *Zone*** are noted by the symbol '✓' in the column applicable to that *Zone* and corresponding with the row for a specific permitted *use* in **Table 7.1**. A number(s) following the symbol '✓' , *zone* heading or identified permitted *use*, indicates that one or more conditions apply to the *use* noted or, in some cases, to the entire *Zone*. Conditions are listed below the Permitted Use Table, **Table 7.1**.

The **Commercial *Zones*** established by this By-law are as follows:

CC **Core Commercial**
CCV **Village Core Commercial**
C **General Commercial**
CN **Neighbourhood Commercial**
CV **Village Commercial**
CH **Highway Commercial**
CHB **Bolton Highway Commercial**
CHV **Village Highway Commercial**
CT **Tourist Camp Commercial**

TABLE 7.1

	ZONE								
USE	**CC**	**CCV (12)**	**C**	**CN**	**CV**	**CH**	**CHV**	**CHB**	**CT**
Animal Hospital					✓	✓	✓	✓	
Art Gallery		✓							
Artist Studio & Gallery		✓							
Bakery		✓							
Boarding House	✓								
Building, Apartment		✓							
Business Office	✓	✓	✓	✓	✓			✓	
Clinic	✓	✓	✓	✓	✓	✓	✓		
Convenience Store	✓**(4)**			✓**(4)**					
Drive-Through Service			✓**(13)**			✓**(13)**	✓**(13)**	✓**(13)**	

USE	ZONE								
	CC	CCV (12)	C	CN	CV	CH	CHV	CHB	CT
Facility									
Dry Cleaning or Laundry Outlet	✓	✓	✓	✓	✓				
Dwelling, Accessory					✓ (9)(11)	✓ (10)(11)	✓ (10)(11)		✓
Dwelling, Common Element Townhouse		✓							
Dwelling, Freehold Townhouse		✓							
Dwelling, Townhouse		✓							
Dwelling Unit		✓							
Dwelling Unit, Accessory	✓ (7)(8)				✓ (7)(9)	✓ (7)(10)	✓(7)		✓(7)
Factory Outlet								✓	
Farmers' Market		✓			✓	✓	✓	✓	
Financial Institution	✓	✓	✓	✓	✓				
Fitness Centre	✓	✓	✓	✓	✓	✓	✓	✓	
Funeral Home	✓		✓		✓				
Grocery Store		✓	✓(5)						
Hotel	✓	✓				✓	✓	✓	
Industrial Use								✓	
Laundromat	✓		✓	✓					
Merchandise Service Shop	✓	✓	✓		✓			✓	
Motel						✓	✓	✓	
Motor Vehicle Gas Bar					✓	✓	✓	✓	
Motor Vehicle Rental Establishment					✓	✓	✓	✓	
Motor Vehicle Repair Facility					✓	✓	✓	✓	
Motor Vehicle Sales Establishment					✓	✓	✓	✓	
Motor Vehicle Service Centre					✓	✓	✓	✓	
Motor Vehicle Used Sales Establishment					✓	✓	✓	✓	
Open Storage Area, Accessory						✓	✓	✓	
Outside Display or Sales Area, Accessory								✓	
Parking Lot, Commercial	✓	✓	✓	✓	✓	✓	✓	✓	
Parking Lot, Municipal	✓	✓							
Personal Service Shop	✓	✓	✓	✓	✓				
Place of Assembly	✓	✓	✓		✓	✓	✓	✓	

38 BOLTON / MALTON

Caledon - Bolton - Brampton - Mississauga

Train Trips - Horaire des trains

Bus Trips - Horaire des autobus

Monday to Friday (except holidays)
Du lundi au vendredi (sauf les jours fériés)

SOUTHBOUND / EN DIRECTION SUD

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone →	Caledon 58 Dp **Queen St. N. @ Columbia Way**	Caledon 58 **Queen St. S. @ Wilton Dr.**	Brampton 56 **Mayfield Rd. @ Hwy. 50**	Brampton 56 **Hwy. 50 @ Queen St. E.**	Mississauga 31 Ar **Malton GO**	Transfer - Correspondances / Trip Number - Numéro du parcours	Mississauga 31 Dp **Malton GO**	Toronto 2 Ar **Union Station**
38	38170		05 11	05 16	05 23	05 34	05 51	3900	06 00	06 32
38	38220		06 11	06 16	06 23	06 34	06 56	3902	07 11	07 43

Monday to Friday (except holidays)
Du lundi au vendredi (sauf les jours fériés)

NORTHBOUND / EN DIRECTION NORD

Route Number / Numéro du trajet	Trip Number / Numéro du parcours	Zone →	Toronto 2 Dp **Union Station**	Mississauga 31 Ar **Malton GO**	Transfer - Correspondances / Trip Number - Numéro du parcours	Mississauga 31 Dp **Malton GO**	Woodbridge 56 **Hwy. 50 @ Hwy. 7**	Brampton 56 **Mayfield Rd. @ Hwy 50**	Caledon 58 **Queen St. S. @ Allan Dr.**	Caledon 58 Ar **Hwy. 50 @ Columbia Way**
38	3923		15 53	16 20	38631	16 28**h**	16 46	17 01	17 08	17 18
38	3827		17 35	18 06	38801	18 10**h**	18 28	18 43	18 50	19 00

FIGURE 6-12
Existing Number of Lanes, Region of Peel 2019

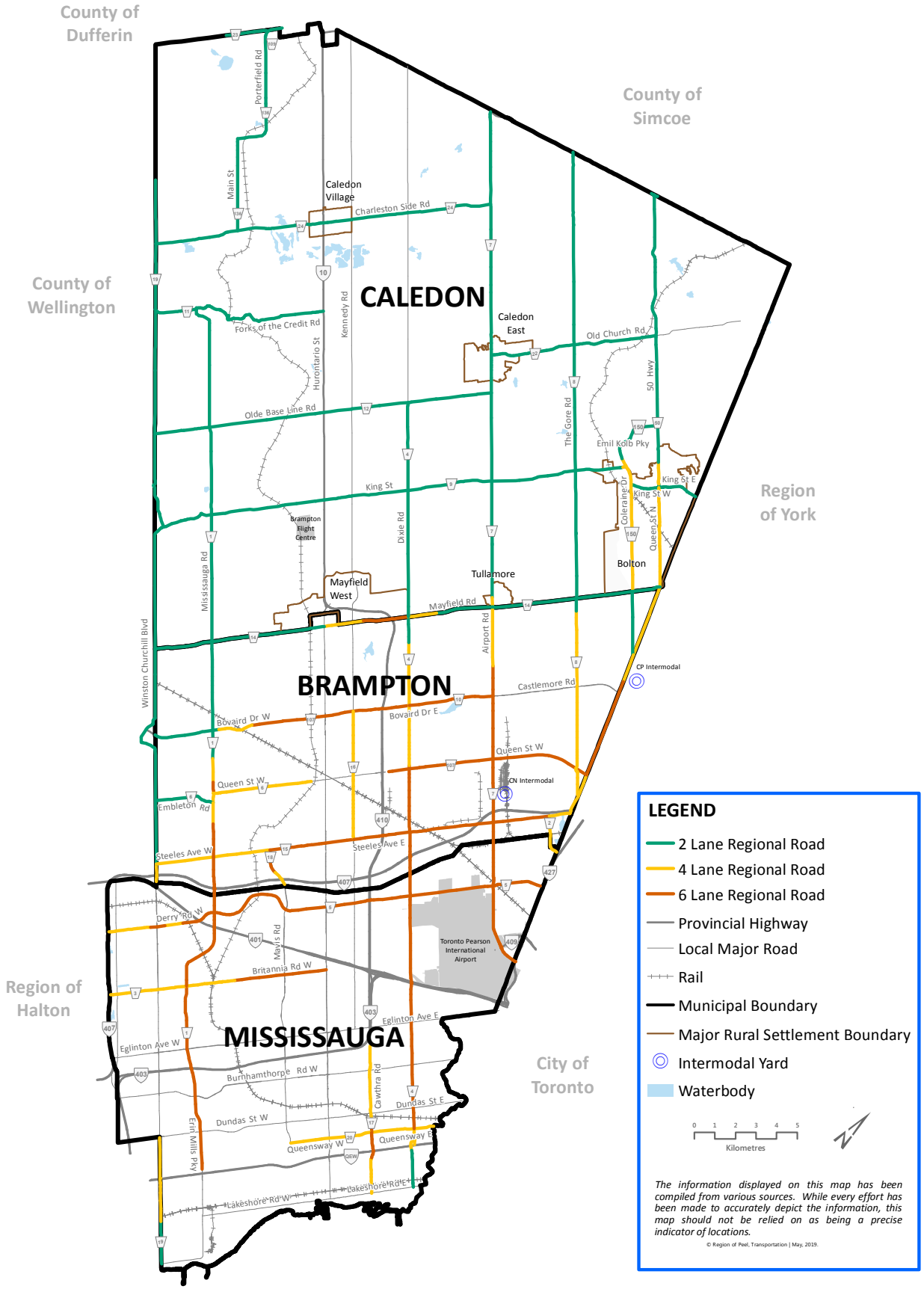


FIGURE 6-13
Road Widenings, Region of Peel 2031 Horizon Year

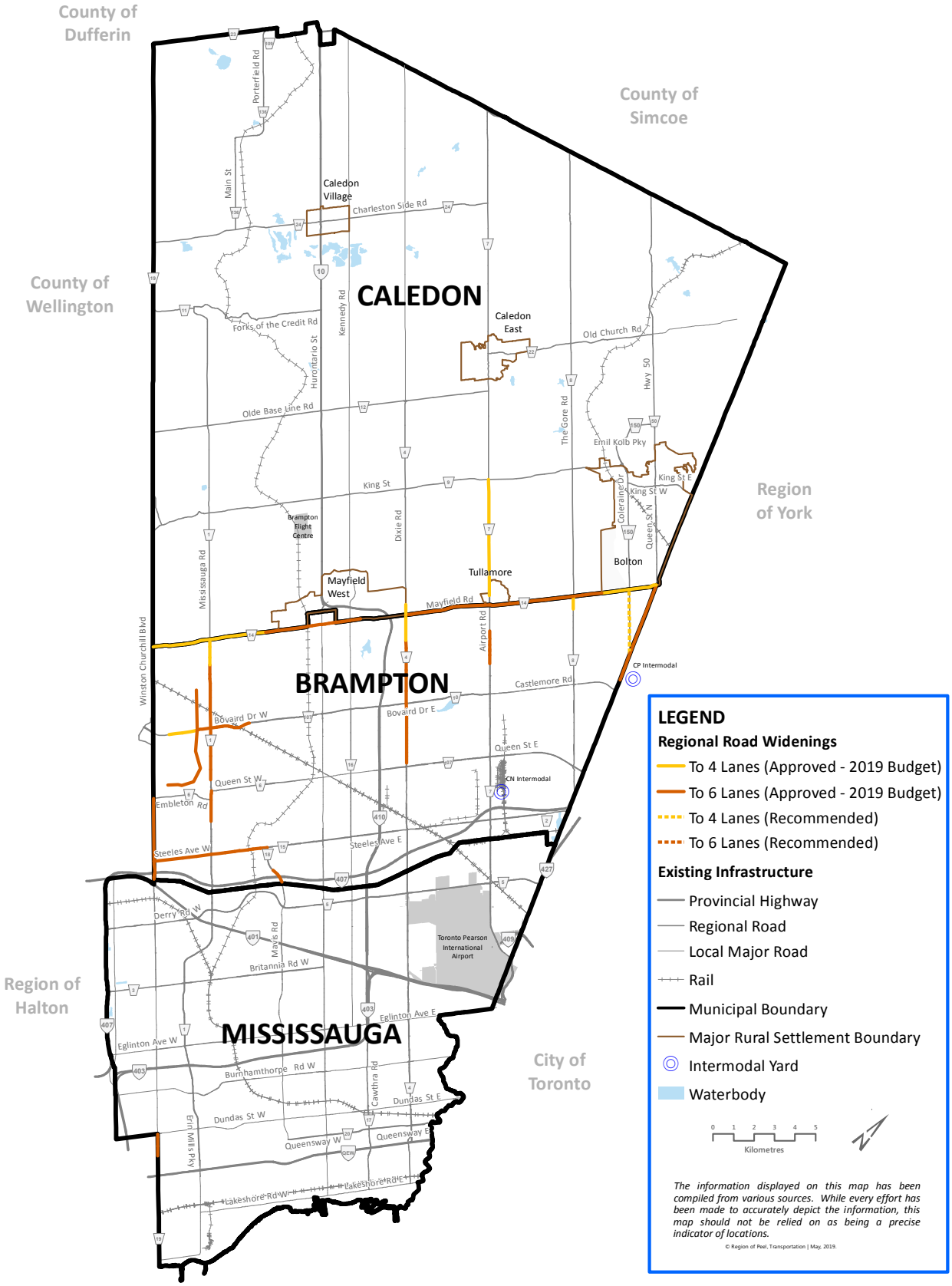


FIGURE 6-14
Number of Lanes, Region of Peel 2031 Horizon Year

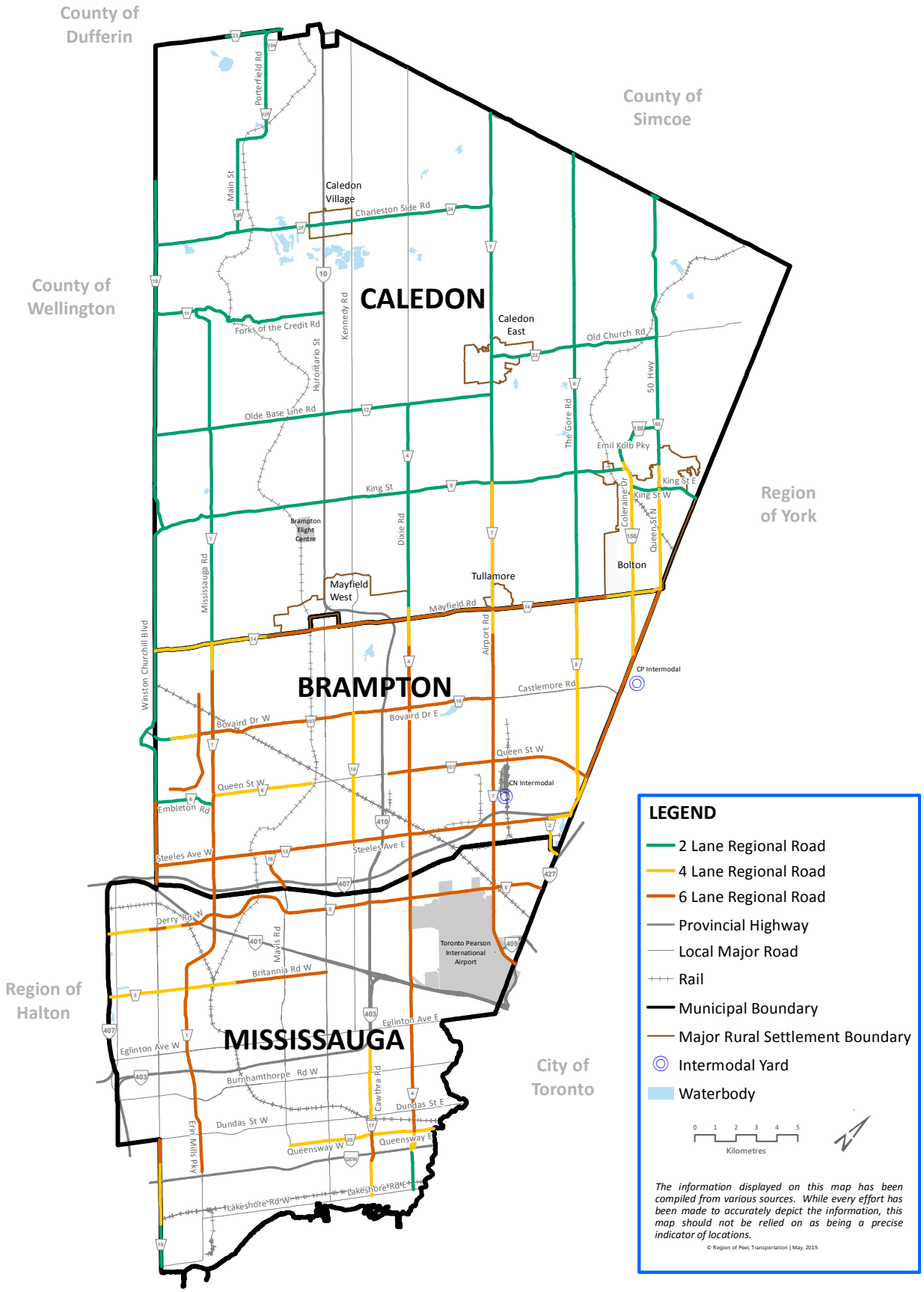


FIGURE 6-15
Road Widenings, Region of Peel 2032-2041 Horizon Years

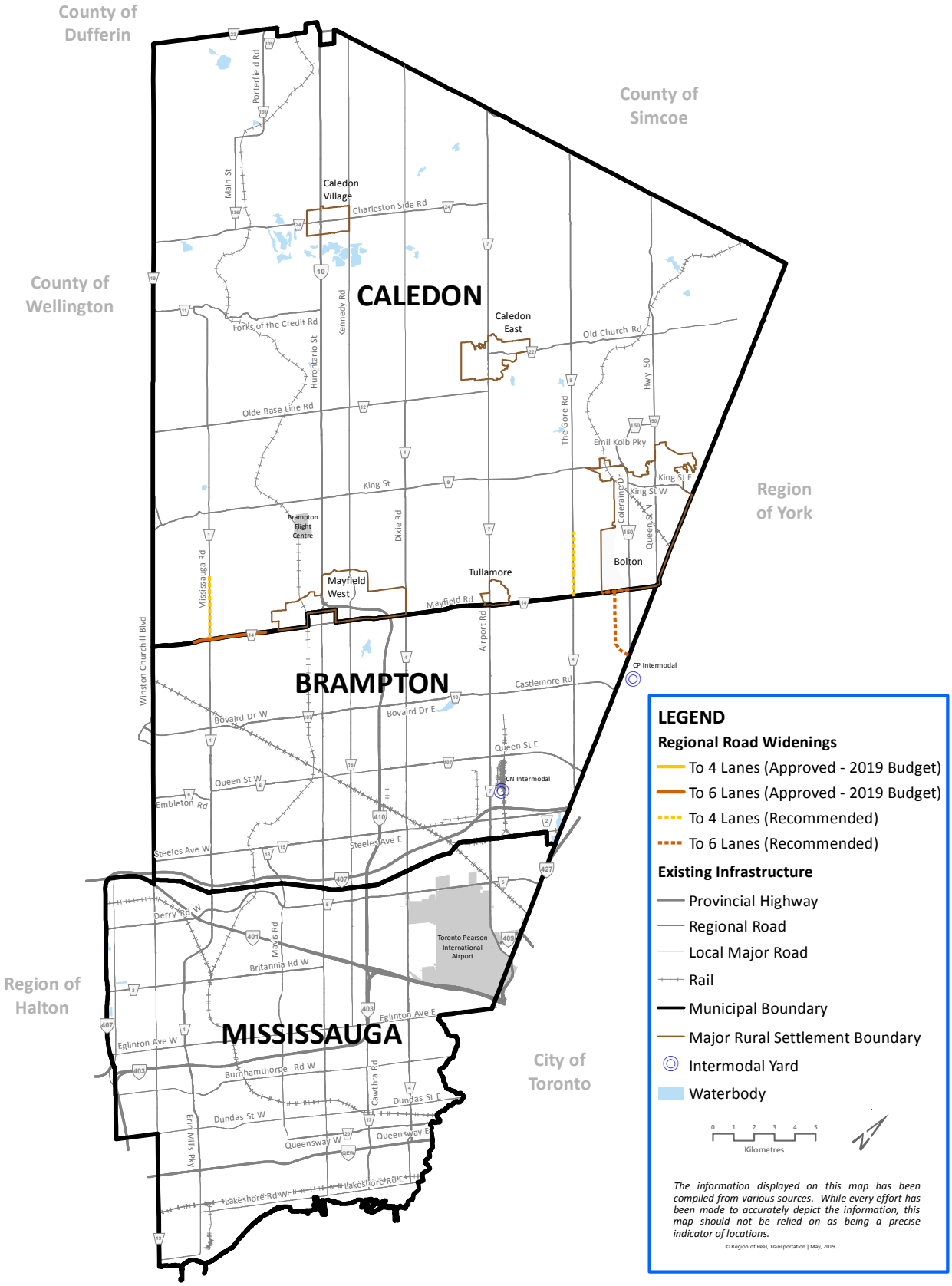


FIGURE 6-16
Number of Lanes, Region of Peel 2041 Horizon Year

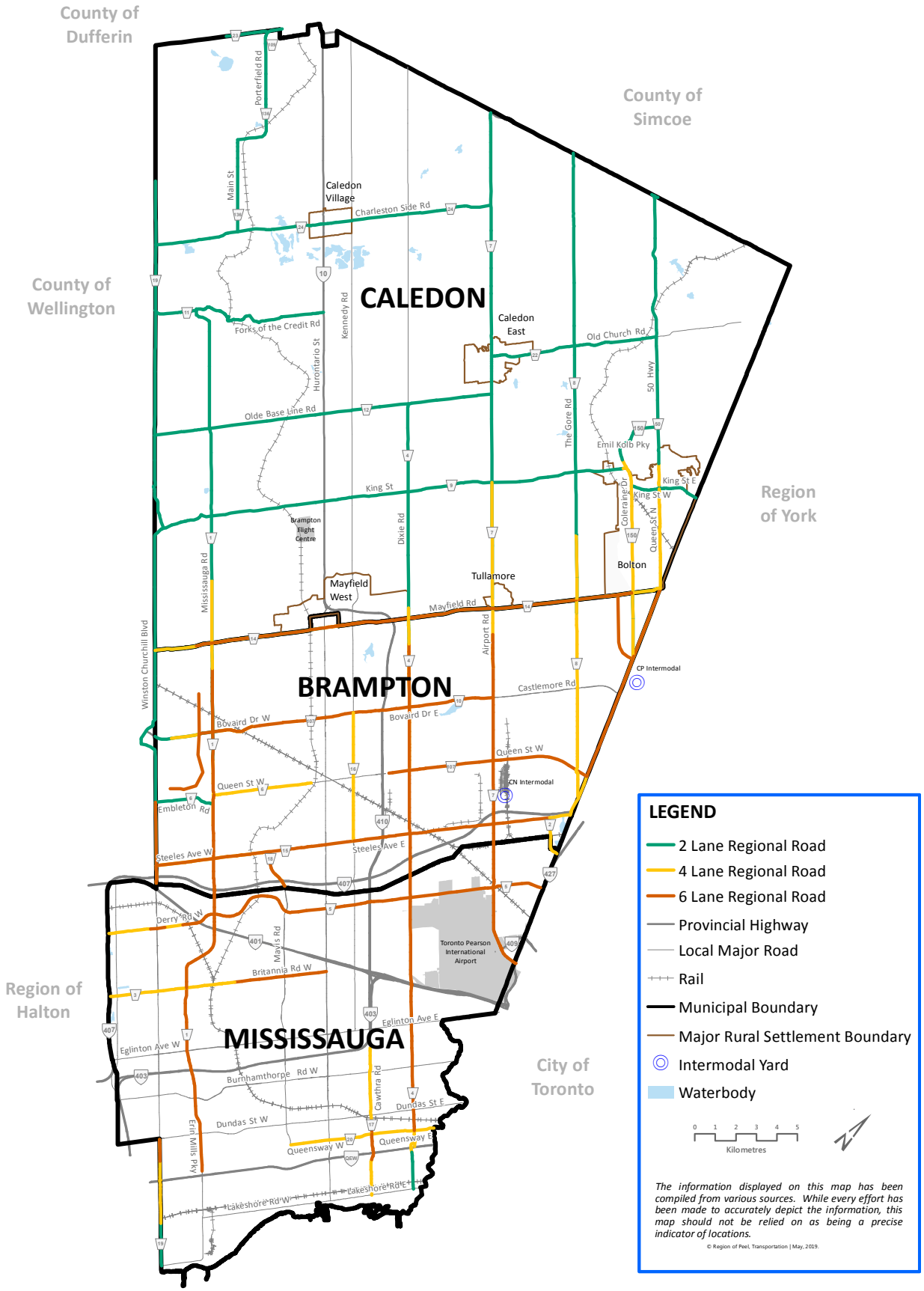


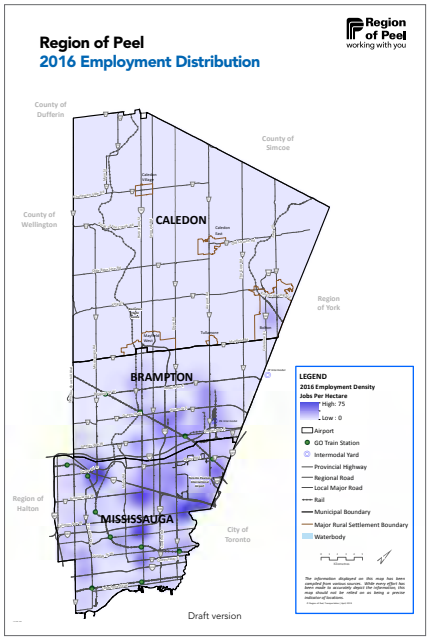
TABLE 12: Final Targets: Peel Region Mode Share Targets by Municipality 2041
(Source: IBI Group/Region of Peel)

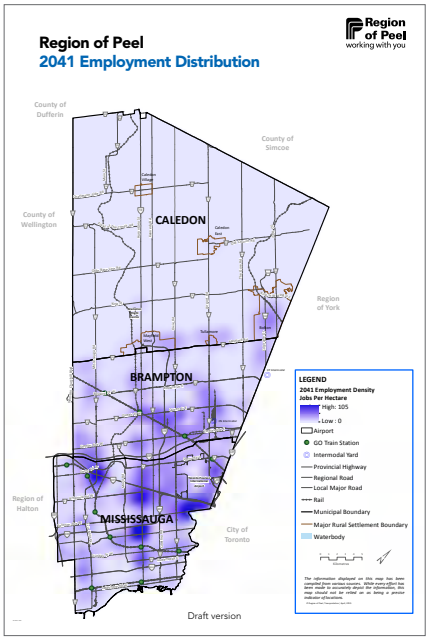
Peel Region	2011	2041 Vision
Driving	62.5%	49.8%
Walking	6.8%	9.1%
Cycling	0.3%	2.0%
Transit	10.8%	17.0%
Carpool	15.2%	17.9%
Other	4.3%	4.3%
Sustainable Transportation	37.5%	50.3%

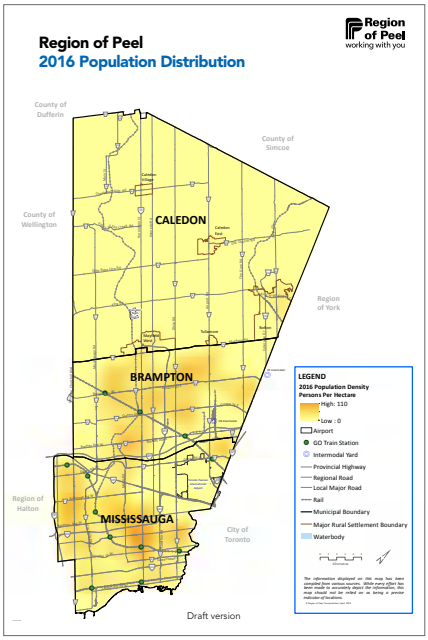
Caledon	2011	2041 Vision
Driving	71.0%	68.1%
Walking	3.5%	3.6%
Cycling	0.0%	0.8%
Transit	2.0%	2.5%
Carpool	8.2%	9.9%
Other	15.3%	15.1%
Sustainable Transportation	29.0%	31.9%

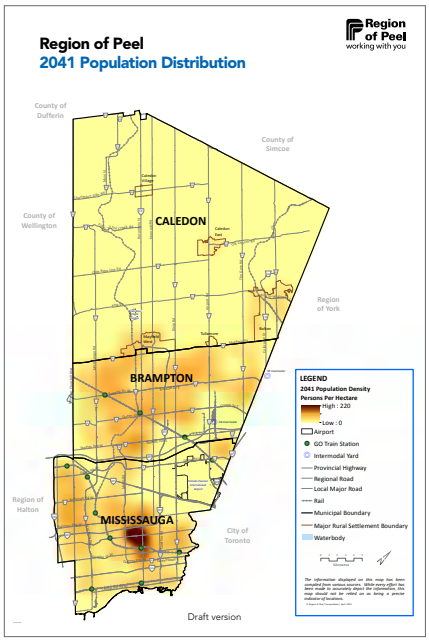
Brampton	2011	2041 Vision
Driving	62.7%	51.8%
Walking	7.4%	9.1%
Cycling	0.2%	1.8%
Transit	8.8%	14.6%
Carpool	16.5%	18.6%
Other	4.4%	4.0%
Sustainable Transportation	37.3%	48.1%

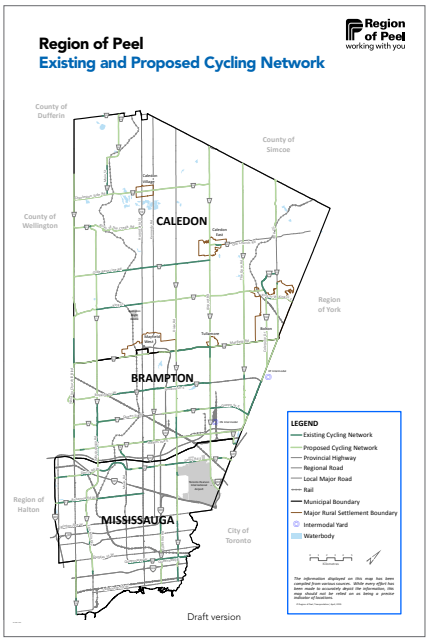
Mississauga	2011	2041 Vision
Driving	61.8%	45.4%
Walking	6.6%	9.8%
Cycling	0.4%	2.3%
Transit	12.9%	21.1%
Carpool	14.8%	18.3%
Other	3.4%	3.1%
Sustainable Transportation	38.2%	54.6%

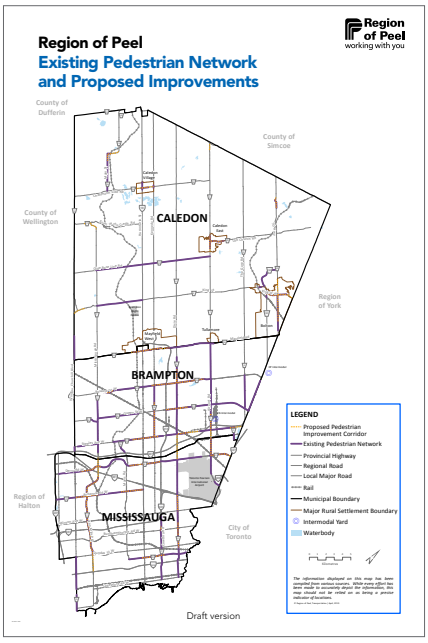

Region of Peel
2016 Employment Distribution
Region of Peel working with you
CALEDON
BRAMPTON
MISSISSAUGA
LEGEND
2016 Employment Density
Jobs Per Hectare
High: 75
Low : 0
Airport
GO Train Station
Intermodal Yard
Provincial Highway
Regional Road
Local Major Road
Rail
Municipal Boundary
Major Rural Settlement Boundary
Waterbody
Draft version


Region of Peel
2041 Employment Distribution
Region of Peel working with you
CALEDON
BRAMPTON
MISSISSAUGA
LEGEND
2041 Employment Density
Jobs Per Hectare
High: 105
Low : 0
Airport
GO Train Station
Intermodal Yard
Provincial Highway
Regional Road
Local Major Road
Rail
Municipal Boundary
Major Rural Settlement Boundary
Waterbody
Draft version


Region of Peel
2016 Population Distribution
Region of Peel working with you
CALEDON
BRAMPTON
MISSISSAUGA
LEGEND
2016 Population Density
Persons Per Hectare
High: 110
Low : 0
Airport
GO Train Station
Intermodal Yard
Provincial Highway
Regional Road
Local Major Road
Rail
Municipal Boundary
Major Rural Settlement Boundary
Waterbody
Draft version


Region of Peel
2041 Population Distribution
Region of Peel working with you
CALEDON
BRAMPTON
MISSISSAUGA
LEGEND
2041 Population Density
Persons Per Hectare
High : 220
Low : 0
Airport
GO Train Station
Intermodal Yard
Provincial Highway
Regional Road
Local Major Road
Rail
Municipal Boundary
Major Rural Settlement Boundary
Waterbody
Draft version


Region of Peel
Existing and Proposed Cycling Network
Region of Peel working with you
CALEDON
BRAMPTON
MISSISSAUGA
LEGEND
Existing Cycling Network
Proposed Cycling Network
Provincial Highway
Regional Road
Local Major Road
Rail
Municipal Boundary
Major Rural Settlement Boundary
Intermodal Yard
Waterbody
Draft version


Region of Peel
Existing Pedestrian Network
and Proposed Improvements
Region of Peel working with you
CALEDON
BRAMPTON
MISSISSAUGA
LEGEND
Proposed Pedestrian Improvement Corridor
Existing Pedestrian Network
Provincial Highway
Regional Road
Local Major Road
Rail
Municipal Boundary
Major Rural Settlement Boundary
Intermodal Yard
Waterbody
Draft version

BY 2031

Road	Details of Improvement	EA Status	Part of 2019 Approved Budget?
Airport Road	2 to 5 lane widening from 1.0 km north of Mayfield Road to King Street	Completed	Y
	Corridor Improvements from King Street to Hunstmill Drive	Works in Progress	Y
	4 to 6 lane widening from Braydon Boulevard to Countryside Drive	Works in Progress	Y
Bovaird Drive	2 to 4 lane widening from Mississauga Road to 1.5 km West of Heritage Road	Completed	Y
	4 to 6 lane widening from James Potter/Creditview to Mississauga Road	Completed	Y
	4 to 6 lane widening from Mississauga Road to North/South Freeway (1 km W of Mississauga Road)	Completed	Y
Cawthra Road	Corridor and Intersection Improvements from Eastgate Parkway to Queen Elizabeth Way	Works in Progress	Y
Coleraine Drive	2 to 4 lane widening from Highway 50 to Mayfield Road	–	N
Dixie Road	4 to 6 lane widening from Queen Street East to Bovaird Drive	Completed	Y
	2 to 4 lane widening from Countryside Drive to Mayfield Road	Completed	Y
	2 to 5 lane widening from Mayfield Road to 2 km northerly	Completed	Y
	4 to 6 lane widening from Bovaird Drive to Countryside Drive	Completed	Y
Highway 50	5 to 7 lane widening from Castlemore Road to Mayfield Road	Completed	Y
Mavis Road	4 to 6 lane widening of Mavis Road, Region's portion, including the structure over Highway 407	Completed	Y
Mayfield Road	2 to 5 lane widening from Airport Road to The Gore Road	Completed	Y
	2 to 4 lane widening from Coleraine Drive to Hwy 50	Completed	Y
	2 to 6 lane widening from Hurontario Street to Chinguacousy Road	Completed	Y
	2 to 4 lane widening from The Gore Road to Coleraine Drive	Completed	Y
	2 to 5 lane widening from Chinguacousy Road to Mississauga Road	Completed	Y
	5 to 6 lane widening from Dixie Road to Bramalea Road	Completed	Y
	2 to 4 lane widening from Mississauga Road to Winston Churchill Boulevard	Completed	Y
	4 to 6 lane widening from Heart Lake Road to Hurontario Street	Completed	Y
	North Side Boulevard Widening - Bramalea Rd to Airport Rd	Completed	Y
	4 to 6 lane widening from Airport Rd to Clarkway Dr	Completed	Y
Mississauga Road	2 to 4 lane widening from Bovaird Drive to Mayfield Rd	Completed	Y
	4 to 6 lane widening from Financial Drive to Queen Street	Works in Progress	Y
	4 to 6 lane widening from Queen Street to Bovaird Drive	Works in Progress	Y
	4 to 6 lane widening from Bovaird Drive to Sandalwood Pkwy	Completed	Y
North/South Arterial Road	6 lane road from Future BramWest Pkwy to Bovaird Drive	–	Y
	6 lane road from Bovaird Drive to Future Sandalwood Pkwy	–	Y

Schedule C
BOLTON LAND USE PLAN

TOWN OF CALEDON

- Prime Agricultural Area
- Rural Lands
- Low Density Residential
- Medium Density Residential
- High Density Residential
- Special Residential
- General Industrial
- Dry Industrial
- Prestige Industrial
- Policy Area - Industrial
- Bolton Highway 50 Commercial Area
- Bolton South Hill Commercial Area
- Bolton North Hill Commercial Area
- Rural Uses
- Institutional
- Special Provisions
- Open Space Policy Area
- Environmental Policy Area
- Boundary of Greenbelt Plan Area
- Oak Ridges Moraine Conservation Plan Area
- 2021 Settlement Boundary
- 100 Year Floodline Limit
- Regional Floodline Limit
- Special Policy Area Boundary
- Site Specific Area
- Bolton Arterial Road Network
- Regional Road
- Local Road
- Railway

Base Data Source: Town of Caledon

0 0.25 0.5 1 1.5 2 km

Bolton North Hill Commercial Area

Bolton North Hill Residential Area

Refer to Schedule C-3 "West Bolton Secondary Plan Area"

Refer to OPA #183

Refer to Schedule C-4 "Northeast Bolton Land Use Plan"

Refer to Schedule C-1 "Bolton Core Land Use Plan"

Bolton South Hill Commercial Area

Refer to Schedule C-2 "Bolton South Hill Land Use Plan"

Refer to OPA 223

Refer to Schedule C-7 "Coleraine West Employment Area"

Refer to Schedule C-5 "South Simpson Industrial Secondary Plan Phase 1"

Refer to Schedule C-6 "Bolton Community Shopping Centre Commercial Area"

Refer to OPA 190

Refer to OPA 240

Bolton Highway 50 Commercial Area

East-West Industrial Connector Road

Refer to OPA 228

Refer to Schedule C-5 "South Simpson Industrial Secondary Plan Phase 2"

CON 4 CON 5 CON 6 CON 7 CON 8 CON 9

LOT 14 LOT 13 LOT 12 LOT 11 LOT 10 LOT 9 LOT 8 LOT 7 LOT 6 LOT 5 LOT 4 LOT 3 LOT 2 LOT 1

OAK RIDGES MORAINE CONSERVATION PLAN AREA

KING ST

KING ST W

HEALEY RD

MAYFIELD RD

DUFFYS LN

HIGHWAY 50

MOUNT HOPE RD

MOUNT PLEASANT RD

CALEDON KING TOWN LINE

COLUMBIA WAY

QUEEN ST S

COLERAINE DR

THE GORE RD

HUMBER STATION RD

CENTREVILLE CREEK RD

INNIS LAKE RD

A BION VAUGHAN RD

VAUGHAN RD

KIRBY RD

COLD CREEK RD

KING RD

Humber River

CITY OF BRAMPTON

CITY OF VAUGHAN

TOWNSHIP OF KING

YORK REGION

Wildfield

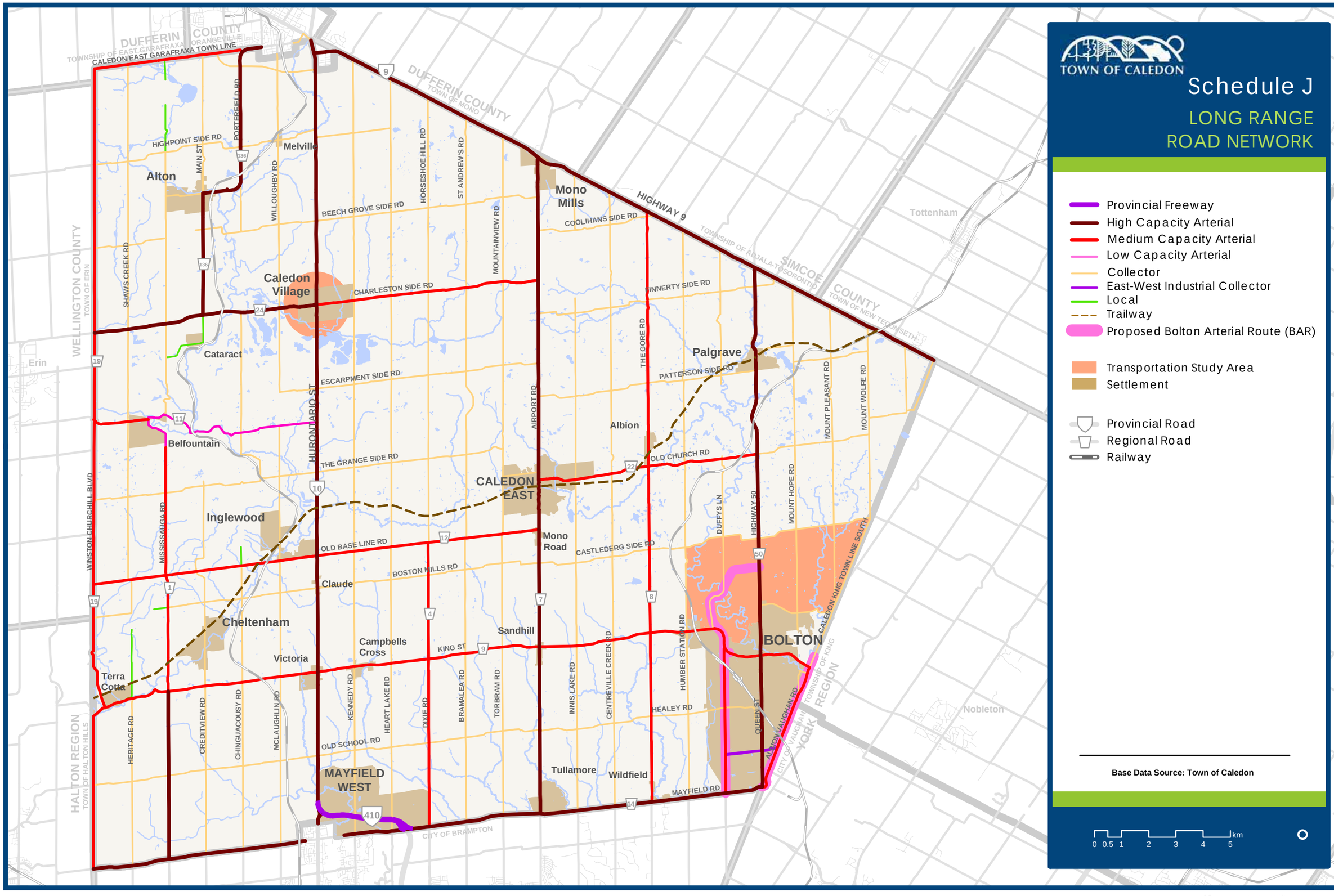
B 2 1

SAVED: 8 November 2016

FILENAME: S:\POLICY SECTION\GIS\official_plan\mxd\8-november_2016\Sch_C_NOV_2016_CONSOLIDATION.mxd

SAVED BY: bloverock

November 2016 Office Consolidation



November 2016 Office Consolidation

Schedule K

ROAD RIGHT-OF--WAY WIDTHS

TOWN OF CALEDON

- 50 Metre
- 36 Metre
- 30 Metre
- 26 Metre
- 22 Metre
- 20 Metre

Settlement Area

- Provincial Road
- Regional Road
- Local Road
- Railway

Base Data Source: Town of Caledon

0 0.5 1 2 3 4 5 km

CALEDON VILLAGE

0 0.5 1 km

CALEDON EAST

0 0.5 1 km

PALGRAVE

0 0.5 1 km

BOLTON

0 0.5 1 km

DUFFERIN COUNTY
TOWNSHIP OF EAST GARAFRAXA
ORANGEVILLE
CALEDON/EAST GARAFRAXA TOWN LINE
TOWN OF ERIN
WELLINGTON COUNTY
DUFFERIN COUNTY
TOWN OF MONO
TOWNSHIP OF ADJALA-TOSORONTIO
SIMCOE COUNTY
TOWN OF NEW TECUMSETH
HALTON REGION
TOWN OF HALTON HILLS
CITY OF BRAMPTON
CITY OF VAUGHAN
YORK REGION
TOWNSHIP OF KING

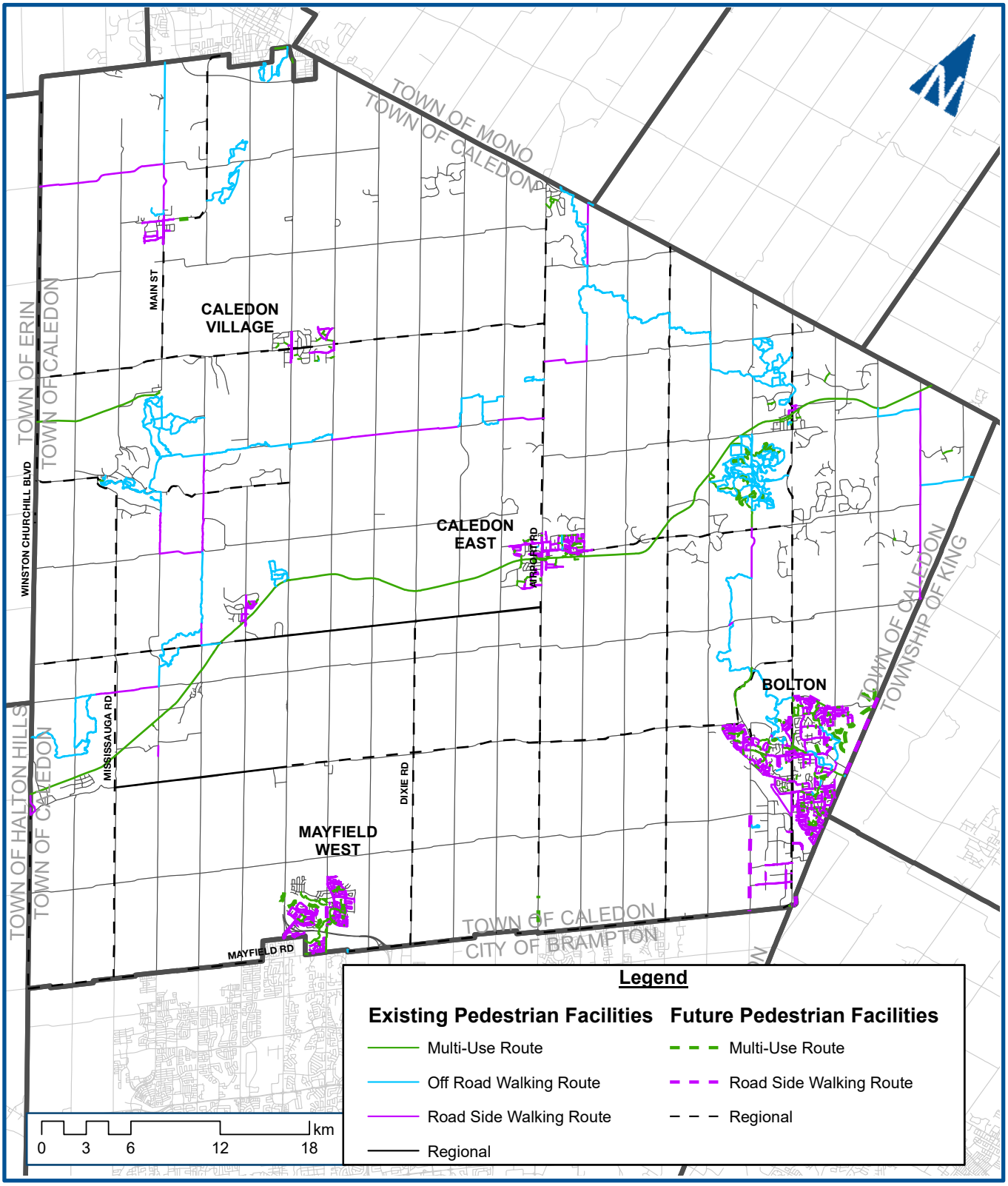
Alton
Melville
Caledon Village
Cataract
Belfountain
Inglewood
Claude
Cheltenham
Victoria
Terra Cotta
Campbells Cross
Sandhill
Mono Mills
Palgrave
Albion
CALEDON EAST
Mono Road
Tullamore
Wildfield
MAYFIELD WEST
BOLTON

HIGHPOINT SIDE RD
MAIN ST
PORTERFIELD RD
WILLOUGHBY RD
SHAWS CREEK RD
BEECH GROVE SIDE RD
HORSESHOE HILL RD
ST ANDREW'S RD
MOUNTAINVIEW RD
CHARLESTON SIDE RD
ESCARPMENT SIDE RD
HURONTARIO ST
THE GRANGE SIDE RD
WINSTON CHURCHILL BLVD
MISSISSAUGA RD
OLD BASELINE RD
BOSTON MILLS RD
KING ST
HERITAGE RD
CREDITVIEW RD
CHINGUACOUSY RD
MCLAUGHLIN RD
KENNEDY RD
HEARTLAKE RD
DIXIE RD
BRAMALEA RD
TORBRAM RD
INNIS LAKE RD
CENTREVILLE CREEK RD
HUMBER STATION RD
HEALEY RD
OLD SCHOOL RD
MAYFIELD RD
COOLIHANS SIDE RD
HIGHWAY 9
PANNERTY SIDE RD
THE GORE RD
PATTERSON SIDE RD
AIRPORT RD
DUFFYS LN
HIGHWAY 50
MOUNT HOPE RD
MOUNT PLEASANT RD
MOUNT WOLFE RD
CASTLEDERG SIDE RD
OLD CHURCH RD
CALEDON/KING TOWN LINE
ALBION VAUGHAN RD
QUEEN ST
WILLOUGHBY RD
TROILLESS ST
MCFAUL ST
HURONTARIO ST
CHARLESTON SIDE RD
KENNEDY RD
WALKER RD W
PARSONS AVE
OLD CHURCH RD
MOUNTAINVIEW RD
AIRPORT RD
INNIS LAKE RD
BIRCH AVE
PINE AVE
DUFFY'S LN
HIGHWAY 50
COLUMBIA WAY
BOLTON HEIGHTS DR
KING ST
GLASGOW RD
QUEEN ST N
QUEEN ST S
OLD KING RD
QUEENSGATE BLVD
LANGSBRIDGE ST
HEALEY RD
GEORGE BOLTON PKWY
CITY OF VAUGHAN
CITY OF BRAMPTON

1 CALEDON VILLAGE
2 CALEDON EAST
3 PALGRAVE
4 BOLTON

SAVED: 8 November 2016
FILENAME: S:\POLICY SECTION\GIS\official_plan\mxd\8-november_2016\Sch_K_NOV_2016_CONSOLIDATION.mxd
SAVED BY: bloverock

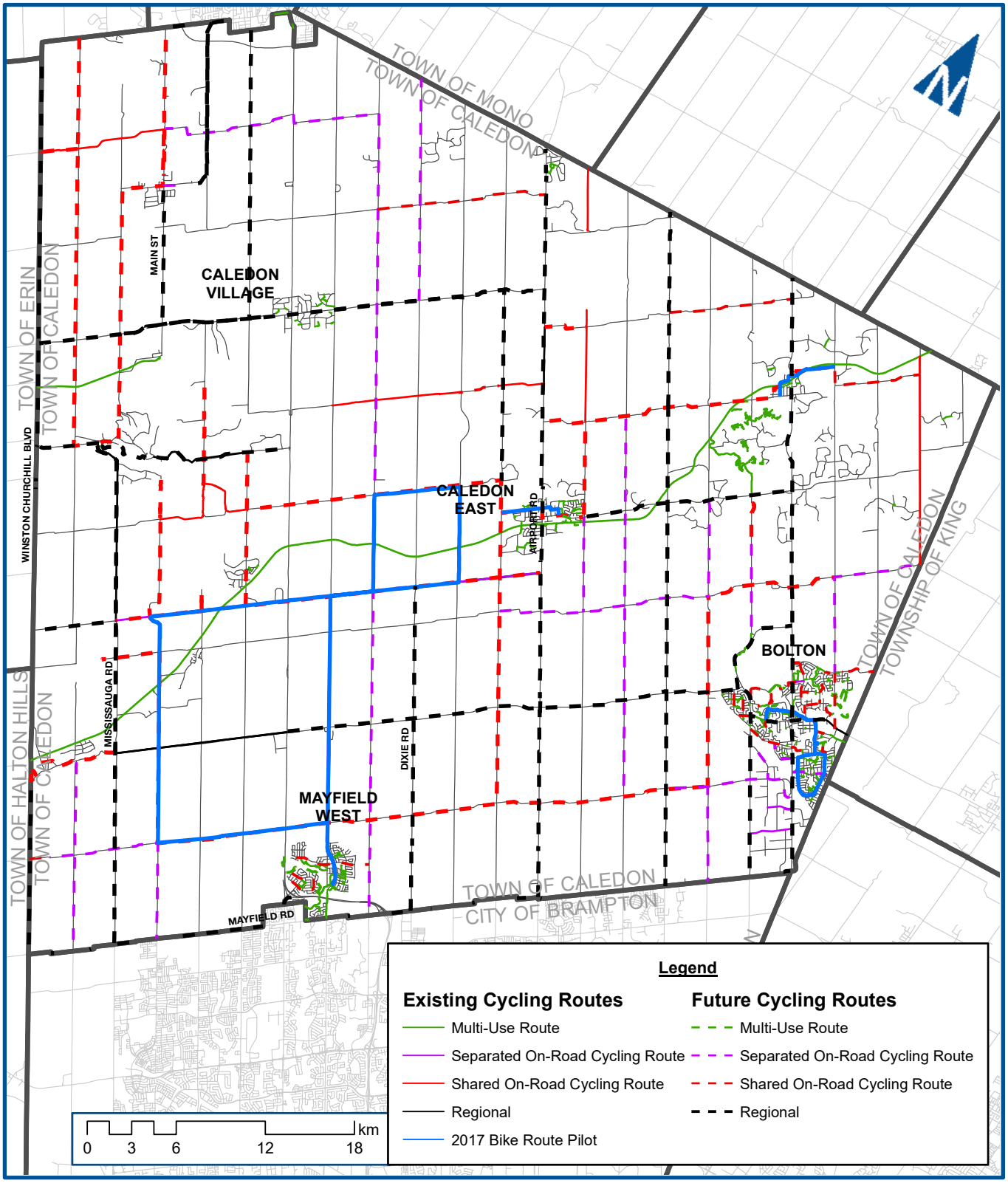
November 2016 Office Consolidation



TOWN OF CALEDON

Recommended Pedestrian Network

Figure 4.6

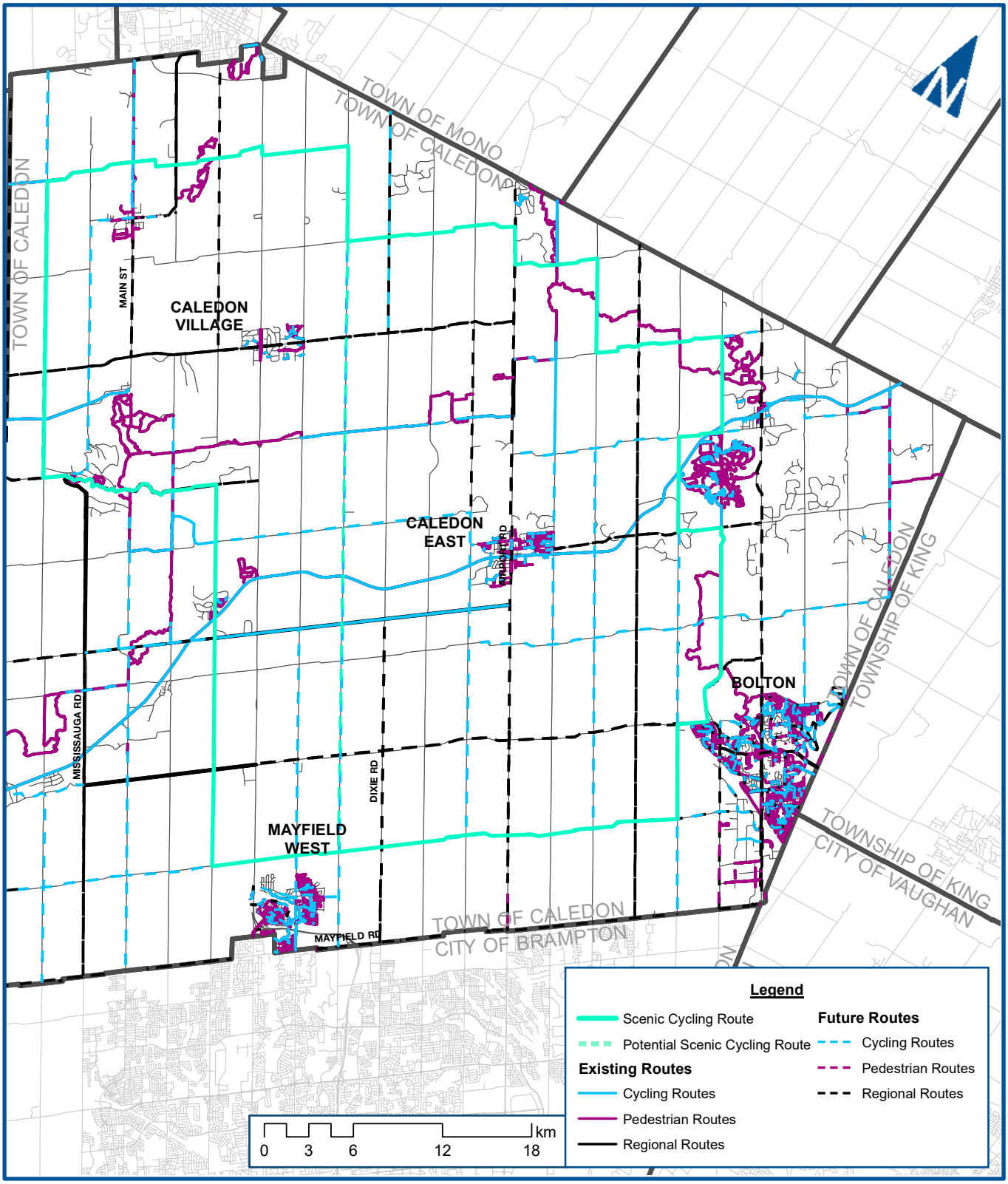


TOWN OF CALEDON

Recommended Cycling Network

Figure 4.7

Caledon Transportation Master Plan



TOWN OF CALEDON

Recommended Scenic Cycling Route

Figure 4.8

TABLE 4.1: CALEDON TMP OBJECTIVES/TRENDS AND RECOMMENDATIONS

Objective/Trends	Recommendations
Trucks	▸ Traffic Safety Strategy/Audit ▸ Traffic Calming ▸ Partner with Peel on Goods Movement Aggregate Study
Growth	▸ Requirements of having TIS Guidelines

4.1 Roads

4.1.1 Road Network

The road network illustrated in the Town of Caledon Official Plan was determined to be satisfactory to serve future transportation demands based on the travel forecasting outlined in **Chapter 3** with the addition of the following road network improvements identified in the Bolton TMP and Mayfield West Phase 2 Secondary Plan TMP. **Table 4.2** and **Table 4.3** display the road network improvements required by 2021 and 2031, respectively, consistent with these plans.

TABLE 4.2: ROAD NETWORK IMPROVEMENTS BY THE YEAR 2021

Road	From	To	Type of Improvement
Simpson Road	Mayfield Road	George Bolton Parkway	Extension (0-2 lanes)

TABLE 4.3: ROAD NETWORK IMPROVEMENTS BY THE YEAR 2031

Road	From	To	Type of Improvement
Albion Vaughan Road	Mayfield Road	King Street	Widening (2-4 lanes)
George Bolton Parkway Extension	Highway 50	Industrial Road	Extension (0-2 lanes)
Spine Road	Hurontario Street	Chinguacousy Road	New Road Construction
McLaughlin Road	Mayfield Road	Old School Road	Road Improvements and Widening
Chinguacousy Road	Mayfield Road	North Limits	Road Improvements and Widening

APPENDIX C

Traffic Data and Signal Timing Plans

Turning Movement Count (23 . HWY 50 & GEORGE BOLTON PKWY)

Start Time	N Approach HWY 50						E Approach DRIVEWAY						S Approach HWY 50						W Approach GEORGE BOLTON PKWY						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	U-Turn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	U-Turn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	U-Turn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	U-Turn W:W	Peds W:	Approach Total		
06:00:00	12	258	0	0	0	270	0	0	0	0	0	0	1	93	36	0	0	130	20	0	2	0	0	22	422	
06:15:00	13	296	0	0	1	309	0	0	0	0	1	0	0	141	18	0	0	159	28	3	3	0	0	34	502	
06:30:00	15	311	1	0	0	327	0	0	0	0	0	0	1	150	22	0	0	173	39	0	6	0	0	45	545	
06:45:00	25	260	4	0	1	289	1	0	0	0	0	1	0	185	35	0	0	220	26	2	3	0	0	31	541	2010
07:00:00	20	344	1	0	1	365	0	0	0	0	0	0	0	157	16	0	0	173	15	0	3	0	0	18	556	2144
07:15:00	11	332	0	0	0	343	0	0	0	0	0	0	1	140	17	0	0	158	11	1	4	0	1	16	517	2159
07:30:00	19	320	0	0	0	339	0	0	0	0	0	0	0	194	20	0	1	214	13	0	8	0	0	21	574	2188
07:45:00	22	272	0	0	0	294	0	0	0	0	0	0	0	216	14	0	0	230	14	0	8	0	0	22	546	2193
08:00:00	14	277	0	0	0	291	0	0	0	0	0	0	0	204	30	0	0	234	17	0	10	1	0	28	553	2190
08:15:00	28	275	0	0	0	303	0	0	0	0	0	0	0	158	20	1	0	179	17	0	16	0	0	33	515	2188
08:30:00	21	263	1	0	0	285	0	0	2	0	0	2	0	186	27	0	0	213	12	0	10	0	1	22	522	2136
08:45:00	28	239	0	0	0	267	1	0	0	0	0	1	0	184	11	0	0	195	17	1	18	0	2	36	499	2089
09:00:00	17	232	0	0	0	249	0	0	0	0	0	0	0	176	23	0	0	199	15	0	16	0	0	31	479	2015
09:15:00	18	194	1	0	0	213	0	0	0	0	0	0	0	159	13	0	0	172	15	0	8	0	0	23	408	1908
09:30:00	24	224	1	0	0	249	1	0	0	0	0	1	0	161	12	0	0	173	13	0	13	0	0	26	449	1835
09:45:00	17	191	1	0	0	209	1	0	0	0	0	1	0	196	18	0	0	214	9	0	17	0	0	26	450	1786
BREAK																										
15:00:00	32	221	0	0	0	253	0	0	0	0	0	0	0	293	17	0	0	310	33	0	26	0	0	59	622	
15:15:00	26	201	0	0	1	227	0	0	0	0	1	0	0	308	20	0	0	328	25	0	26	0	0	51	606	
15:30:00	21	240	1	0	0	262	0	0	0	0	1	0	0	373	14	0	0	387	22	0	21	0	0	43	692	
15:45:00	22	168	0	0	0	190	0	0	1	0	1	1	0	318	18	0	0	336	23	0	25	0	0	48	575	2495
16:00:00	23	207	0	0	0	230	0	0	0	0	0	0	0	379	13	0	0	392	31	0	34	0	1	65	687	2560
16:15:00	20	229	0	0	0	249	0	0	0	0	0	0	0	317	14	0	0	331	28	1	20	0	0	49	629	2583
16:30:00	14	265	1	0	0	280	1	0	0	0	0	1	0	335	14	0	0	349	27	0	32	0	0	59	689	2580
16:45:00	13	197	0	0	0	210	4	2	1	0	0	7	0	307	21	0	0	328	35	0	19	0	1	54	599	2604
17:00:00	19	282	0	0	0	301	3	2	2	0	0	7	0	344	10	0	0	354	52	0	36	0	1	88	750	2667
17:15:00	16	227	0	0	0	243	1	0	0	0	0	1	0	318	19	0	0	337	24	0	15	0	0	39	620	2658
17:30:00	7	220	0	0	0	227	0	0	0	0	0	0	0	344	8	0	0	352	18	0	19	0	0	37	616	2585
17:45:00	16	194	0	0	0	210	0	0	0	0	2	0	0	312	11	0	0	323	20	0	16	0	0	36	569	2555
18:00:00	10	188	0	0	0	198	0	0	0	0	0	0	0	326	15	0	0	341	15	0	21	0	0	36	575	2380
18:15:00	14	152	0	0	0	166	0	0	0	0	0	0	0	305	13	0	0	318	13	0	14	0	0	27	511	2271

18:30:00	15	161	0	0	0	176	0	0	0	0	0	0	0	319	14	0	0	333	8	0	13	0	0	21	530	2185
18:45:00	8	119	0	0	0	127	0	0	0	0	0	0	0	271	13	0	0	284	9	0	18	0	0	27	438	2054
Grand Total	580	7559	12	0	4	8151	13	4	6	0	6	23	3	7869	566	1	1	8439	664	8	500	1	7	1173	**17786**	-
Approach%	7.1%	92.7%	0.1%	0%		-	56.5%	17.4%	26.1%	0%		-	0%	93.2%	6.7%	0%		-	56.6%	0.7%	42.6%	0.1%		-	**-**	-
Totals %	3.3%	42.5%	0.1%	0%		45.8%	0.1%	0%	0%	0%		0.1%	0%	44.2%	3.2%	0%		47.4%	3.7%	0%	2.8%	0%		6.6%	**-**	-
Heavy	10	541	0	0		-	1	0	0	0		-	0	459	114	0		-	155	1	16	0		-	**-**	-
Heavy %	1.7%	7.2%	0%	0%		-	7.7%	0%	0%	0%		-	0%	5.8%	20.1%	0%		-	23.3%	12.5%	3.2%	0%		-	**-**	-
Bicycles	1	0	0	0		-	0	0	0	0		-	0	0	0	0		-	0	0	0	0		-	**-**	-
Bicycle %	0.2%	0%	0%	0%		-	0%	0%	0%	0%		-	0%	0%	0%	0%		-	0%	0%	0%	0%		-	**-**	-

Peak Hour: 07:00 AM - 08:00 AM Weather: Overcast (20.2 °C)

Start Time	N Approach HWY 50						E Approach DRIVEWAY						S Approach HWY 50						W Approach GEORGE BOLTON PKWY						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
07:00:00	20	344	1	0	1	365	0	0	0	0	0	0	0	157	16	0	0	173	15	0	3	0	0	18	556
07:15:00	11	332	0	0	0	343	0	0	0	0	0	0	1	140	17	0	0	158	11	1	4	0	1	16	517
07:30:00	19	320	0	0	0	339	0	0	0	0	0	0	0	194	20	0	1	214	13	0	8	0	0	21	574
07:45:00	22	272	0	0	0	294	0	0	0	0	0	0	0	216	14	0	0	230	14	0	8	0	0	22	546
Grand Total	72	1268	1	0	1	1341	0	0	0	0	0	0	1	707	67	0	1	775	53	1	23	0	1	77	**2193**
Approach%	5.4%	94.6%	0.1%	0%		-	0%	0%	0%	0%		-	0.1%	91.2%	8.6%	0%		-	68.8%	1.3%	29.9%	0%		-	**-**
Totals %	3.3%	57.8%	0%	0%		61.1%	0%	0%	0%	0%		0%	0%	32.2%	3.1%	0%		35.3%	2.4%	0%	1%	0%		3.5%	**-**
PHF	0.82	0.92	0.25	0		0.92	0	0	0	0		0	0.25	0.82	0.84	0		0.84	0.88	0.25	0.72	0		0.88	**-**
Heavy	2	86	0	0		88	0	0	0	0		0	0	65	14	0		79	18	0	4	0		22	**-**
Heavy %	2.8%	6.8%	0%	0%		6.6%	0%	0%	0%	0%		0%	0%	9.2%	20.9%	0%		10.2%	34%	0%	17.4%	0%		28.6%	**-**
Lights	70	1182	1	0		1253	0	0	0	0		0	1	642	53	0		696	35	1	19	0		55	**-**
Lights %	97.2%	93.2%	100%	0%		93.4%	0%	0%	0%	0%		0%	100%	90.8%	79.1%	0%		89.8%	66%	100%	82.6%	0%		71.4%	**-**
Single-Unit Trucks	2	43	0	0		45	0	0	0	0		0	0	48	6	0		54	14	0	3	0		17	**-**
Single-Unit Trucks %	2.8%	3.4%	0%	0%		3.4%	0%	0%	0%	0%		0%	0%	6.8%	9%	0%		7%	26.4%	0%	13%	0%		22.1%	**-**
Buses	0	4	0	0		4	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	**-**
Buses %	0%	0.3%	0%	0%		0.3%	0%	0%	0%	0%		0%	0%	0.1%	0%	0%		0.1%	0%	0%	0%	0%		0%	**-**
Articulated Trucks	0	39	0	0		39	0	0	0	0		0	0	16	8	0		24	4	0	1	0		5	**-**
Articulated Trucks %	0%	3.1%	0%	0%		2.9%	0%	0%	0%	0%		0%	0%	2.3%	11.9%	0%		3.1%	7.5%	0%	4.3%	0%		6.5%	**-**
Pedestrians	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	1	-	**-**
Pedestrians%	-	-	-	-	33.3%		-	-	-	-	0%		-	-	-	-	33.3%		-	-	-	-	33.3%		**-**
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	**-**
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

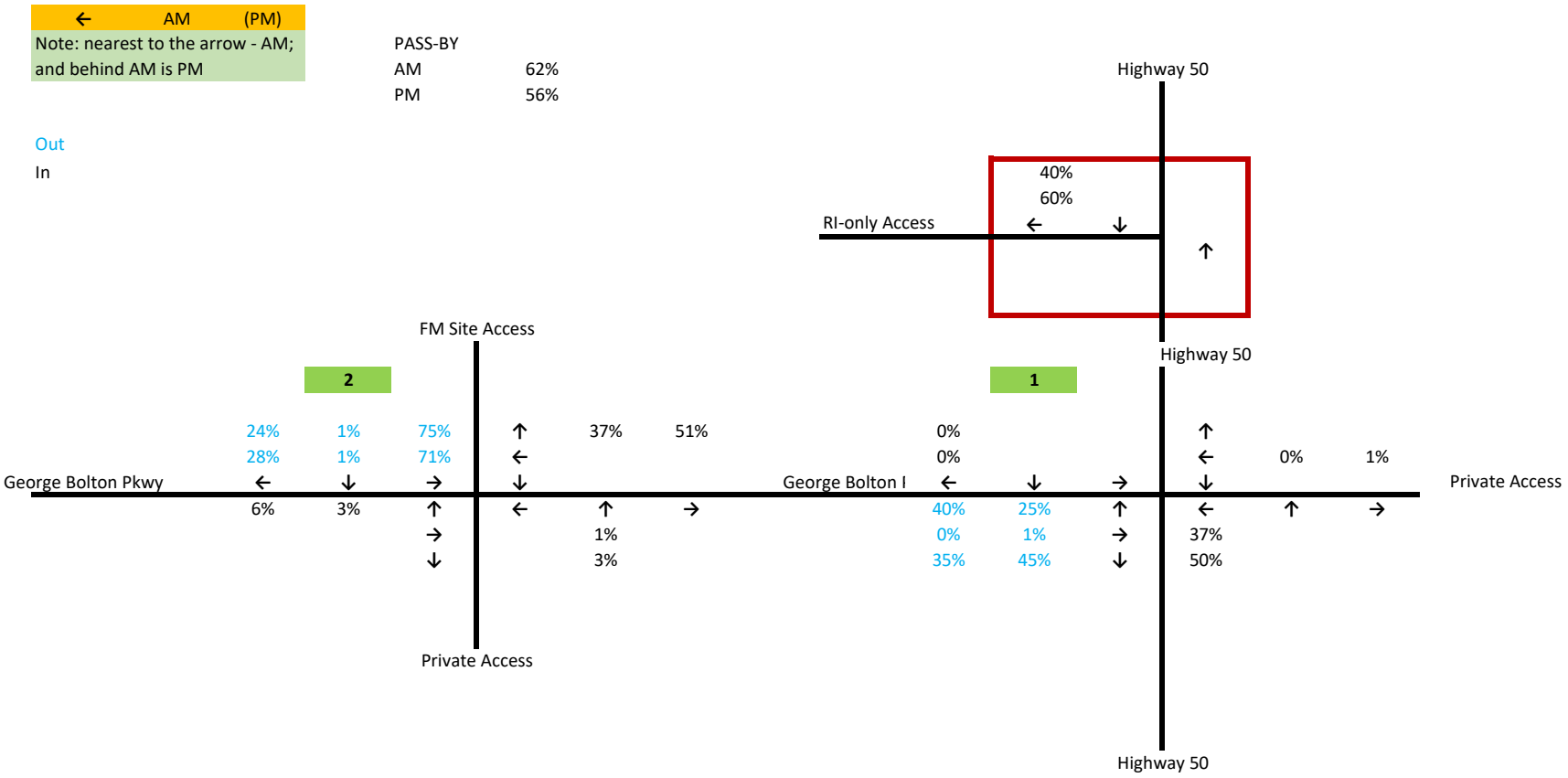
Peak Hour: 04:15 PM - 05:15 PM Weather: Mostly Cloudy (24.2 °C)

Start Time	N Approach HWY 50						E Approach DRIVEWAY						S Approach HWY 50						W Approach GEORGE BOLTON PKWY						Int. Total (15 min)
	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	Right	Thru	Left	U-Turn	Peds	Approach Total	
16:15:00	20	229	0	0	0	249	0	0	0	0	0	0	0	317	14	0	0	331	28	1	20	0	0	49	629
16:30:00	14	265	1	0	0	280	1	0	0	0	0	1	0	335	14	0	0	349	27	0	32	0	0	59	689
16:45:00	13	197	0	0	0	210	4	2	1	0	0	7	0	307	21	0	0	328	35	0	19	0	1	54	599
17:00:00	19	282	0	0	0	301	3	2	2	0	0	7	0	344	10	0	0	354	52	0	36	0	1	88	750
Grand Total	66	973	1	0	0	1040	8	4	3	0	0	15	0	1303	59	0	0	1362	142	1	107	0	2	250	**2667**
Approach%	6.3%	93.6%	0.1%	0%		-	53.3%	26.7%	20%	0%		-	0%	95.7%	4.3%	0%		-	56.8%	0.4%	42.8%	0%		-	**-**
Totals %	2.5%	36.5%	0%	0%		39%	0.3%	0.1%	0.1%	0%		0.6%	0%	48.9%	2.2%	0%		51.1%	5.3%	0%	4%	0%		9.4%	**-**
PHF	0.83	0.86	0.25	0		0.86	0.5	0.5	0.38	0		0.54	0	0.95	0.7	0		0.96	0.68	0.25	0.74	0		0.71	**-**
Heavy	1	41	0	0		42	0	0	0	0		0	0	48	15	0		63	6	0	2	0		8	**-**
Heavy %	1.5%	4.2%	0%	0%		4%	0%	0%	0%	0%		0%	0%	3.7%	25.4%	0%		4.6%	4.2%	0%	1.9%	0%		3.2%	**-**
Lights	65	932	1	0		998	8	4	3	0		15	0	1255	44	0		1299	136	1	105	0		242	**-**
Lights %	98.5%	95.8%	100%	0%		96%	100%	100%	100%	0%		100%	0%	96.3%	74.6%	0%		95.4%	95.8%	100%	98.1%	0%		96.8%	**-**
Single-Unit Trucks	1	25	0	0		26	0	0	0	0		0	0	25	12	0		37	3	0	2	0		5	**-**
Single-Unit Trucks %	1.5%	2.6%	0%	0%		2.5%	0%	0%	0%	0%		0%	0%	1.9%	20.3%	0%		2.7%	2.1%	0%	1.9%	0%		2%	**-**
Buses	0	1	0	0		1	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	**-**
Buses %	0%	0.1%	0%	0%		0.1%	0%	0%	0%	0%		0%	0%	0.1%	0%	0%		0.1%	0%	0%	0%	0%		0%	**-**
Articulated Trucks	0	15	0	0		15	0	0	0	0		0	0	22	3	0		25	3	0	0	0		3	**-**
Articulated Trucks %	0%	1.5%	0%	0%		1.4%	0%	0%	0%	0%		0%	0%	1.7%	5.1%	0%		1.8%	2.1%	0%	0%	0%		1.2%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	100%		**-**
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	**-**
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Peak Hour: 07:00 AM - 08:00 AM Weather: Overcast (20.2 °C)

Peak Hour: 04:15 PM - 05:15 PM **Weather: Mostly Cloudy (24.2 °C)**

EXISTING FUEL STATION DISTRIBUTION



TRIP ASSIGNMENT AND EXTRAPOLATION FOR ADJACENT INTERSECTION

Fuel Station Trips		
	IN	OUT
AM	51	49
PM	57	55

← AM (PM)

Note: nearest to the arrow - AM; and behind AM is PM

Fuel Station

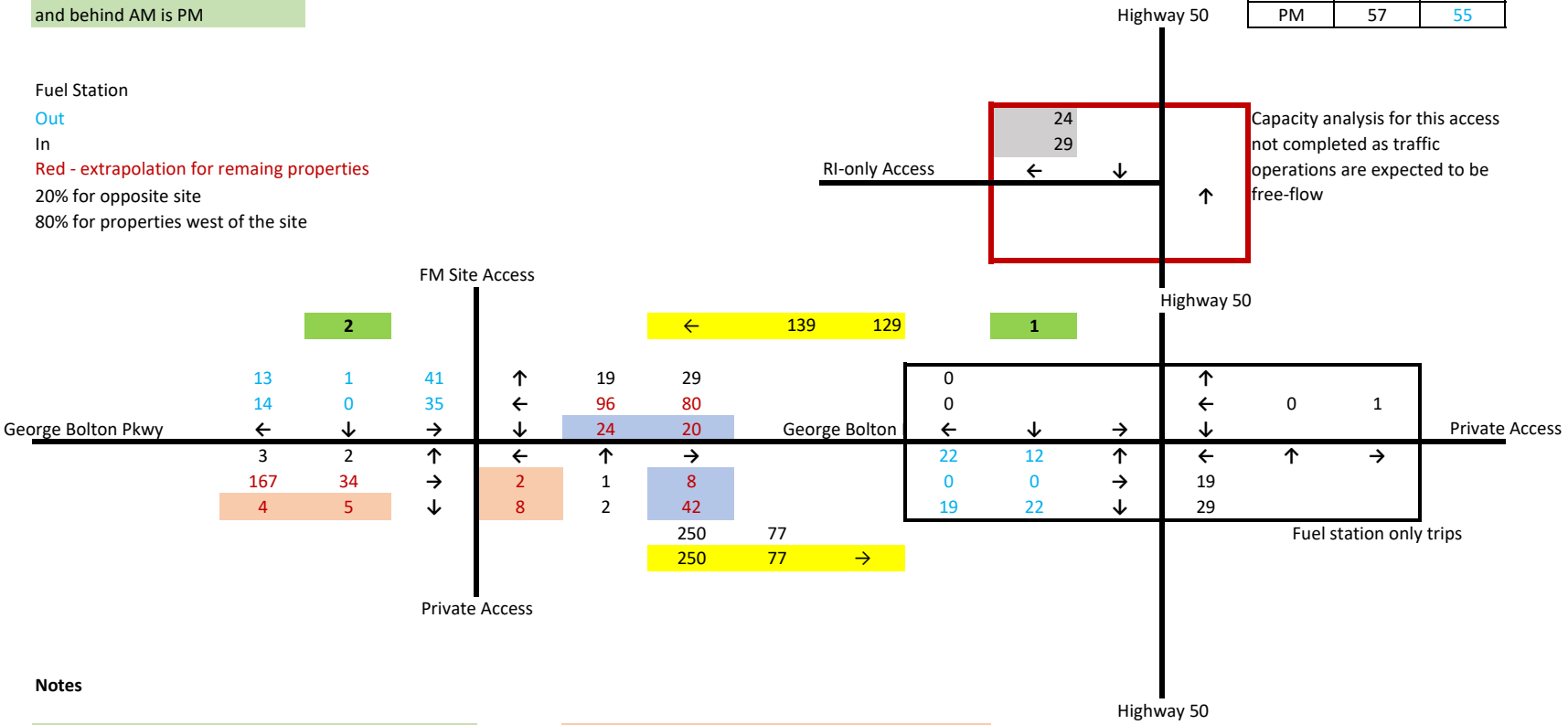
Out

In

Red - extrapolation for remaing properties

20% for opposite site

80% for properties west of the site



Notes

Trips at the site access were determined by distributing existing land use generated trips for the gas station on the site as well as assuming 20% of remaining trips to be attributed to the opposite property and 80% as through movements from properties further west.

conservatively assumed as 20% of the:

accessing th site from the east

20%

adjusted for rounding

REGIONAL MUNICIPALITY OF PEEL

Traffic Signal Timing Parameters

Database Date	December 18, 2015		Prepared Date:	January 7, 2016
Database Rev	6		Completed By:	RC
Timing Card / Field rev	-		Checked By:	DB

Location:	Highway 50 at George Bolton Parkway						TIME PERIOD (sec.) (Green+Amber+All Red)		
Phase #	Direction	Vehicle Minimum (sec.)	Pedestrian Minimum (sec.) WALK	Pedestrian Minimum (sec.) FDWALK	Amber (sec.)	All Red (sec.)	AM MAX	OFF MAX	PM MAX
1	Highway 50 - NB PP LT Arrow	5.0			3.0		10.0	10.0	10.0
2	Highway 50 - SB	12.0	8.0	13.0	4.0	2.3	75.0	65.0	75.0
3									
4	George Bolton Parkway - WB	8.0	8.0	18.0	4.0	2.6	35.0	35.0	35.0
5									
6	Highway 50 - NB	12.0	8.0	13.0	4.0	2.3	85.0	75.0	85.0
7									
8	George Bolton Parkway - EB	8.0	8.0	18.0	4.0	2.6	35.0	35.0	35.0

System Control	Yes
Local Control	No
Semi-Actuated Mode	Yes

TIME (M-F)	PEAK	CYCLE LENGTH (sec.)	OFFSET (sec.)
06:00-09:00	AM	120	113
9:00 - 15:00	OFF	110	73
15:00 - 19:00	PM	120	116

Tue Apr 21 2020 15:24:39 GMT-0400 (Eastern Daylight Time) - Run Time: 1899ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of household - pd_hhld
Column: Primary travel mode of trip - mode_prime

Filters:
(Planning district of household - pd_hhld In 34)

Trip 2016
Table:

	Caledon	Proportion %
Transit excluding GO rail	1281	1%
Cycle	179	0%
Auto driver	97825	77%
GO rail only	467	0%
Joint GO rail and local tran	153	0%
Auto passenger	15863	12%
School bus	7727	6%
Taxi passenger	101	0%
Paid rideshare	128	0%
Walk	3270	3%
Total	**126994**	**100%**

APPENDIX D

Levels of Service Definitions

Level of Service Definitions

Two-Way Stop Controlled Intersections

Level of Service	Control Delay per Vehicle (seconds)	Interpretation
A	≤ 10	EXCELLENT. Large and frequent gaps in traffic on the main roadway. Queuing on the minor street is rare.
B	> 10 and ≤ 15	VERY GOOD. Many gaps exist in traffic on the main roadway. Queuing on the minor street is minimal.
C	> 15 and ≤ 25	GOOD. Fewer gaps exist in traffic on the main roadway. Delay on minor approach becomes more noticeable.
D	> 25 and ≤ 35	FAIR. Infrequent and shorter gaps in traffic on the main roadway. Queue lengths develop on the minor street.
E	> 35 and ≤ 50	POOR. Very infrequent gaps in traffic on the main roadway. Queue lengths become noticeable.
F	> 50	UNSATISFACTORY. Very few gaps in traffic on the main roadway. Excessive delay with significant queue lengths on the minor street.

Adapted from Highway Capacity Manual 2000, Transportation Research Board

Level of Service Definitions

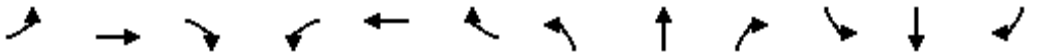
Signalized Intersections

Level of Service	Control Delay per Vehicle (seconds)	Interpretation
A	≤ 10	EXCELLENT. Extremely favourable progression with most vehicles arriving during the green phase. Most vehicles do not stop and short cycle lengths may contribute to low delay.
B	> 10 and ≤ 20	VERY GOOD. Very good progression and/or short cycle lengths with slightly more vehicles stopping than LOS "A" causing slightly higher levels of average delay.
C	> 20 and ≤ 35	GOOD. Fair progression and longer cycle lengths lead to a greater number of vehicles stopping than LOS "B".
D	> 35 and ≤ 55	FAIR. Congestion becomes noticeable with higher average delays resulting from a combination of long cycle lengths, high volume-to-capacity ratios and unfavourable progression.
E	> 55 and ≤ 80	POOR. Lengthy delays values are indicative of poor progression, long cycle lengths and high volume-to-capacity ratios. Individual cycle failures are common with individual movement failures also common.
F	> 80	UNSATISFACTORY. Indicative of oversaturated conditions with vehicular demand greater than the capacity of the intersection.

Adapted from Highway Capacity Manual 2000, Transportation Research Board

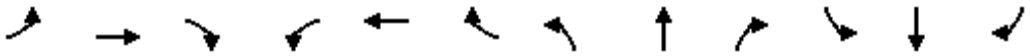
APPENDIX E

Detailed Capacity Analysis



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	1	56	0	0	0	71	750	1	1	1346	76
Future Volume (vph)	25	1	56	0	0	0	71	750	1	1	1346	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.7	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7
Total Lost time (s)	6.7	6.7					3.0	6.3		6.3	6.3	
Lane Util. Factor	1.00	1.00					1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99					1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00					1.00	1.00		1.00	1.00	
Frt	1.00	0.85					1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00					0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1523	1211					1475	3348		1785	3387	
Flt Permitted	0.76	1.00					0.15	1.00		0.37	1.00	
Satd. Flow (perm)	1214	1211					228	3348		689	3387	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	25	1	56	0	0	0	71	750	1	1	1346	76
RTOR Reduction (vph)	0	52	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	25	5	0	0	0	0	71	751	0	1	1420	0
Confl. Peds. (#/hr)	1		1	1		1	1					1
Heavy Vehicles (%)	17%	0%	34%	0%	0%	0%	21%	9%	0%	0%	7%	3%
Turn Type	Perm	NA					pm+pt	NA		Perm	NA	
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	8.6	8.6					98.4	98.4		87.6	87.6	
Effective Green, g (s)	8.6	8.6					98.4	98.4		87.6	87.6	
Actuated g/C Ratio	0.07	0.07					0.82	0.82		0.73	0.73	
Clearance Time (s)	6.7	6.7					3.0	6.3		6.3	6.3	
Vehicle Extension (s)	5.0	5.0					5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	87	86					268	2745		502	2472	
v/s Ratio Prot		0.00					0.02	c0.22			c0.42	
v/s Ratio Perm	c0.02						0.20			0.00		
v/c Ratio	0.29	0.06					0.26	0.27		0.00	0.57	
Uniform Delay, d1	52.8	51.9					4.2	2.5		4.4	7.5	
Progression Factor	1.00	1.00					1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.8	0.6					1.1	0.2		0.0	1.0	
Delay (s)	56.6	52.5					5.3	2.8		4.4	8.5	
Level of Service	E	D					A	A		A	A	
Approach Delay (s)		53.8			0.0			3.0			8.5	
Approach LOS		D			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	36	5	25	102	20	2	1	9	37	0	15
Future Volume (Veh/h)	2	36	5	25	102	20	2	1	9	37	0	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	36	5	25	102	20	2	1	9	37	0	15
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			None							
Median storage veh)		2										
Upstream signal (m)					94							
pX, platoon unblocked												
vC, conflicting volume	122			41			220	214	38	214	207	112
vC1, stage 1 conf vol							42	42		162	162	
vC2, stage 2 conf vol							177	172		52	45	
vCu, unblocked vol	122			41			220	214	38	214	207	112
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			100	100	99	95	100	98
cM capacity (veh/h)	1465			1568			772	718	1033	793	724	941

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	43	147	12	52
Volume Left	2	25	2	37
Volume Right	5	20	9	15
cSH	1465	1568	945	830
Volume to Capacity	0.00	0.02	0.01	0.06
Queue Length 95th (m)	0.0	0.3	0.3	1.4
Control Delay (s)	0.4	1.4	8.9	9.6
Lane LOS	A	A	A	A
Approach Delay (s)	0.4	1.4	8.9	9.6
Approach LOS			A	A

Intersection Summary				
Average Delay	3.2			
Intersection Capacity Utilization	30.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection: 1: Highway 50 & George Bolton Pkwy/Private Access

Movement	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	24.8	41.0	36.5	48.1	39.3	2.1	105.3	78.0
Average Queue (m)	9.5	13.8	12.3	13.8	7.5	0.1	34.8	24.7
95th Queue (m)	21.8	29.4	27.4	36.4	25.0	1.3	83.2	65.1
Link Distance (m)	73.5	73.5		138.0	138.0		152.9	152.9
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)			35.0			25.0		
Storage Blk Time (%)			0	1			9	
Queuing Penalty (veh)			2	1			0	

Intersection: 2: Private Access/Site Access & George Bolton Pkwy

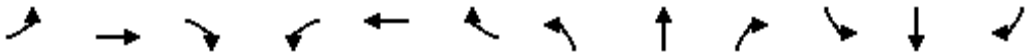
Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	4.4	8.5	12.5	21.2
Average Queue (m)	0.1	0.6	3.0	7.6
95th Queue (m)	2.0	4.8	10.1	15.5
Link Distance (m)	60.4	73.5	32.4	25.8
Upstream Blk Time (%)				0
Queuing Penalty (veh)				0
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	1	151	3	4	8	63	1383	0	1	1033	70
Future Volume (vph)	114	1	151	3	4	8	63	1383	0	1	1033	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.7	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7
Total Lost time (s)	6.7	6.7			6.7		3.0	6.3		6.3	6.3	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85			0.93		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	1572			1765		1428	3510		1785	3475	
Flt Permitted	0.75	1.00			0.94		0.21	1.00		0.19	1.00	
Satd. Flow (perm)	1377	1572			1672		312	3510		349	3475	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	114	1	151	3	4	8	63	1383	0	1	1033	70
RTOR Reduction (vph)	0	129	0	0	7	0	0	0	0	0	3	0
Lane Group Flow (vph)	114	23	0	0	8	0	63	1383	0	1	1100	0
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	2%	0%	4%	0%	0%	0%	25%	4%	0%	0%	4%	2%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	17.4	17.4			17.4		89.6	89.6		79.2	79.2	
Effective Green, g (s)	17.4	17.4			17.4		89.6	89.6		79.2	79.2	
Actuated g/C Ratio	0.14	0.14			0.14		0.75	0.75		0.66	0.66	
Clearance Time (s)	6.7	6.7			6.7		3.0	6.3		6.3	6.3	
Vehicle Extension (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	199	227			242		301	2620		230	2293	
v/s Ratio Prot		0.01					0.01	c0.39			0.32	
v/s Ratio Perm	c0.08				0.00		0.14			0.00		
v/c Ratio	0.57	0.10			0.03		0.21	0.53		0.00	0.48	
Uniform Delay, d1	47.8	44.5			44.1		5.3	6.4		7.0	10.1	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.2	0.4			0.1		0.7	0.8		0.0	0.7	
Delay (s)	54.1	44.9			44.2		6.0	7.1		7.0	10.9	
Level of Service	D	D			D		A	A		A	B	
Approach Delay (s)		48.8			44.2			7.1			10.9	
Approach LOS		D			D			A			B	

Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	177	4	21	85	31	8	2	44	44	1	14
Future Volume (Veh/h)	3	177	4	21	85	31	8	2	44	44	1	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	177	4	21	85	31	8	2	44	44	1	14
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			None							
Median storage veh)		2										
Upstream signal (m)					94							
pX, platoon unblocked												
vC, conflicting volume	116			181			342	343	179	372	330	100
vC1, stage 1 conf vol							185	185		142	142	
vC2, stage 2 conf vol							157	158		230	187	
vCu, unblocked vol	116			181			342	343	179	372	330	100
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			99	100	95	93	100	99
cM capacity (veh/h)	1473			1394			724	673	864	667	671	955

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	184	137	54	59
Volume Left	3	21	8	44
Volume Right	4	31	44	14
cSH	1473	1394	831	718
Volume to Capacity	0.00	0.02	0.06	0.08
Queue Length 95th (m)	0.0	0.3	1.5	1.9
Control Delay (s)	0.1	1.3	9.6	10.5
Lane LOS	A	A	A	B
Approach Delay (s)	0.1	1.3	9.6	10.5
Approach LOS			A	B

Intersection Summary				
Average Delay	3.1			
Intersection Capacity Utilization	36.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection: 1: Highway 50 & George Bolton Pkwy/Private Access

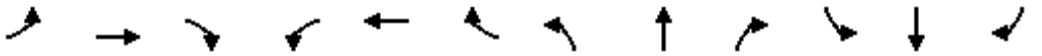
Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	54.6	31.2	10.5	42.4	91.4	84.1	2.1	95.3	82.4
Average Queue (m)	27.2	15.4	3.4	15.5	43.6	31.2	0.1	42.2	26.1
95th Queue (m)	44.7	25.5	10.5	35.8	79.5	65.9	1.3	75.2	60.0
Link Distance (m)	73.5	73.5	57.5		138.0	138.0		152.9	152.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				35.0			25.0		
Storage Blk Time (%)				0	8			13	
Queuing Penalty (veh)				2	5			0	

Intersection: 2: Private Access/Site Access & George Bolton Pkwy

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	8.6	20.0	20.0
Average Queue (m)	0.8	8.5	8.3
95th Queue (m)	5.0	16.5	14.9
Link Distance (m)	73.5	32.4	25.8
Upstream Blk Time (%)		0	0
Queuing Penalty (veh)		0	0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

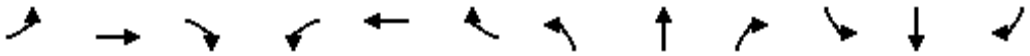
Network Summary

Network wide Queuing Penalty: 8



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	1	60	0	0	0	75	796	1	1	1428	81
Future Volume (vph)	26	1	60	0	0	0	75	796	1	1	1428	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.7	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7
Total Lost time (s)	6.7	6.7					3.0	6.3		6.3	6.3	
Lane Util. Factor	1.00	1.00					1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99					1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00					1.00	1.00		1.00	1.00	
Frt	1.00	0.85					1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00					0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1523	1211					1475	3348		1785	3387	
Flt Permitted	0.76	1.00					0.13	1.00		0.35	1.00	
Satd. Flow (perm)	1214	1211					203	3348		658	3387	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	26	1	60	0	0	0	75	796	1	1	1428	81
RTOR Reduction (vph)	0	56	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	26	5	0	0	0	0	75	797	0	1	1507	0
Confl. Peds. (#/hr)	1		1	1		1	1					1
Heavy Vehicles (%)	17%	0%	34%	0%	0%	0%	21%	9%	0%	0%	7%	3%
Turn Type	Perm	NA					pm+pt	NA		Perm	NA	
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	8.6	8.6					98.4	98.4		88.1	88.1	
Effective Green, g (s)	8.6	8.6					98.4	98.4		88.1	88.1	
Actuated g/C Ratio	0.07	0.07					0.82	0.82		0.73	0.73	
Clearance Time (s)	6.7	6.7					3.0	6.3		6.3	6.3	
Vehicle Extension (s)	5.0	5.0					5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	87	86					243	2745		483	2486	
v/s Ratio Prot		0.00					c0.02	0.24			c0.44	
v/s Ratio Perm	c0.02						0.23			0.00		
v/c Ratio	0.30	0.06					0.31	0.29		0.00	0.61	
Uniform Delay, d1	52.8	51.9					4.8	2.6		4.2	7.6	
Progression Factor	1.00	1.00					1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.0	0.6					1.5	0.3		0.0	1.1	
Delay (s)	56.8	52.6					6.3	2.8		4.3	8.7	
Level of Service	E	D					A	A		A	A	
Approach Delay (s)		53.8			0.0			3.1			8.7	
Approach LOS		D			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	39	6	27	108	21	2	1	9	39	0	16
Future Volume (Veh/h)	2	39	6	27	108	21	2	1	9	39	0	16
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	39	6	27	108	21	2	1	9	39	0	16
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			None							
Median storage veh)		2										
Upstream signal (m)					94							
pX, platoon unblocked												
vC, conflicting volume	129			45			234	229	42	228	222	118
vC1, stage 1 conf vol							46	46		172	172	
vC2, stage 2 conf vol							188	183		56	49	
vCu, unblocked vol	129			45			234	229	42	228	222	118
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			100	100	99	95	100	98
cM capacity (veh/h)	1457			1563			759	709	1029	781	715	933

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	47	156	12	55
Volume Left	2	27	2	39
Volume Right	6	21	9	16
cSH	1457	1563	938	820
Volume to Capacity	0.00	0.02	0.01	0.07
Queue Length 95th (m)	0.0	0.4	0.3	1.5
Control Delay (s)	0.3	1.4	8.9	9.7
Lane LOS	A	A	A	A
Approach Delay (s)	0.3	1.4	8.9	9.7
Approach LOS			A	A

Intersection Summary				
Average Delay	3.2			
Intersection Capacity Utilization	31.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection: 1: Highway 50 & George Bolton Pkwy/Private Access

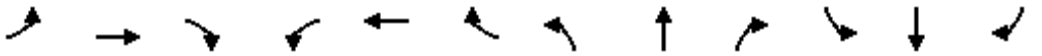
Movement	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	24.4	38.2	35.8	69.2	45.9	2.3	95.9	92.3
Average Queue (m)	9.2	13.6	13.0	16.0	7.6	0.1	35.0	26.3
95th Queue (m)	20.8	29.7	28.2	47.5	29.3	2.0	81.4	69.4
Link Distance (m)	73.5	73.5		138.0	138.0		152.9	152.9
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)			35.0			25.0		
Storage Blk Time (%)			1	1			9	
Queuing Penalty (veh)			5	1			0	

Intersection: 2: Private Access/Site Access & George Bolton Pkwy

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	4.6	12.4	21.7
Average Queue (m)	0.4	2.7	8.0
95th Queue (m)	3.6	9.7	16.1
Link Distance (m)	73.5	32.4	25.8
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

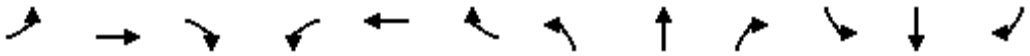
Network Summary

Network wide Queuing Penalty: 6



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	1	160	3	5	9	66	1467	0	1	1096	75
Future Volume (vph)	120	1	160	3	5	9	66	1467	0	1	1096	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.7	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7
Total Lost time (s)	6.7	6.7			6.7		3.0	6.3		6.3	6.3	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85			0.93		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	1572			1768		1428	3510		1785	3475	
Flt Permitted	0.75	1.00			0.94		0.19	1.00		0.16	1.00	
Satd. Flow (perm)	1375	1572			1684		282	3510		309	3475	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	120	1	160	3	5	9	66	1467	0	1	1096	75
RTOR Reduction (vph)	0	136	0	0	8	0	0	0	0	0	3	0
Lane Group Flow (vph)	120	25	0	0	9	0	66	1467	0	1	1168	0
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	2%	0%	4%	0%	0%	0%	25%	4%	0%	0%	4%	2%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	17.9	17.9			17.9		89.1	89.1		78.7	78.7	
Effective Green, g (s)	17.9	17.9			17.9		89.1	89.1		78.7	78.7	
Actuated g/C Ratio	0.15	0.15			0.15		0.74	0.74		0.66	0.66	
Clearance Time (s)	6.7	6.7			6.7		3.0	6.3		6.3	6.3	
Vehicle Extension (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	205	234			251		280	2606		202	2279	
v/s Ratio Prot		0.02					0.01	c0.42			0.34	
v/s Ratio Perm	c0.09				0.01		0.16			0.00		
v/c Ratio	0.59	0.11			0.04		0.24	0.56		0.00	0.51	
Uniform Delay, d1	47.6	44.1			43.7		5.9	6.8		7.1	10.7	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.5	0.4			0.1		0.9	0.9		0.0	0.8	
Delay (s)	54.1	44.6			43.8		6.8	7.7		7.2	11.5	
Level of Service	D	D			D		A	A		A	B	
Approach Delay (s)		48.6			43.8			7.7			11.5	
Approach LOS		D			D			A			B	

Intersection Summary			
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	79.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	188	5	23	90	33	9	2	47	46	1	15
Future Volume (Veh/h)	3	188	5	23	90	33	9	2	47	46	1	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	188	5	23	90	33	9	2	47	46	1	15
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			None							
Median storage veh)		2										
Upstream signal (m)					94							
pX, platoon unblocked												
vC, conflicting volume	123			193			364	366	190	397	352	106
vC1, stage 1 conf vol							196	196		152	152	
vC2, stage 2 conf vol							168	169		244	199	
vCu, unblocked vol	123			193			364	366	190	397	352	106
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			99	100	94	93	100	98
cM capacity (veh/h)	1464			1380			709	661	851	649	659	948

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	196	146	58	62
Volume Left	3	23	9	46
Volume Right	5	33	47	15
cSH	1464	1380	818	702
Volume to Capacity	0.00	0.02	0.07	0.09
Queue Length 95th (m)	0.0	0.4	1.6	2.0
Control Delay (s)	0.1	1.3	9.7	10.6
Lane LOS	A	A	A	B
Approach Delay (s)	0.1	1.3	9.7	10.6
Approach LOS			A	B

Intersection Summary				
Average Delay	3.1			
Intersection Capacity Utilization	38.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection: 1: Highway 50 & George Bolton Pkwy/Private Access

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	57.0	31.6	13.8	41.4	127.0	97.8	4.3	97.2	75.6
Average Queue (m)	28.0	16.9	4.1	15.8	50.0	37.2	0.2	43.6	29.9
95th Queue (m)	49.1	29.0	12.2	35.0	93.5	75.8	2.2	78.4	64.8
Link Distance (m)	73.5	73.5	57.5		138.0	138.0		152.9	152.9
Upstream Blk Time (%)					0				
Queuing Penalty (veh)					0				
Storage Bay Dist (m)				35.0			25.0		
Storage Blk Time (%)				1	10			13	
Queuing Penalty (veh)				4	7			0	

Intersection: 2: Private Access/Site Access & George Bolton Pkwy

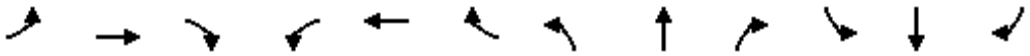
Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	4.5	9.1	21.6	24.5
Average Queue (m)	0.2	1.2	8.7	8.7
95th Queue (m)	2.5	6.1	16.5	16.1
Link Distance (m)	60.4	73.5	32.4	25.8
Upstream Blk Time (%)			0	0
Queuing Penalty (veh)			0	0
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 11

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	1	73	0	0	0	86	796	1	1	1428	100
Future Volume (vph)	32	1	73	0	0	0	86	796	1	1	1428	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.7	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7
Total Lost time (s)	6.7	6.7					3.0	6.3		6.3	6.3	
Lane Util. Factor	1.00	1.00					1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99					1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00					1.00	1.00		1.00	1.00	
Frt	1.00	0.85					1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00					0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1523	1209					1475	3348		1785	3381	
Flt Permitted	0.76	1.00					0.12	1.00		0.35	1.00	
Satd. Flow (perm)	1214	1209					194	3348		658	3381	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	32	1	73	0	0	0	86	796	1	1	1428	100
RTOR Reduction (vph)	0	67	0	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	32	7	0	0	0	0	86	797	0	1	1525	0
Confl. Peds. (#/hr)	1		1	1		1	1					1
Heavy Vehicles (%)	17%	0%	34%	0%	0%	0%	21%	9%	0%	0%	7%	3%
Turn Type	Perm	NA					pm+pt	NA		Perm	NA	
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	9.2	9.2					97.8	97.8		87.1	87.1	
Effective Green, g (s)	9.2	9.2					97.8	97.8		87.1	87.1	
Actuated g/C Ratio	0.08	0.08					0.81	0.81		0.73	0.73	
Clearance Time (s)	6.7	6.7					3.0	6.3		6.3	6.3	
Vehicle Extension (s)	5.0	5.0					5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	93	92					240	2728		477	2454	
v/s Ratio Prot		0.01					c0.02	0.24			c0.45	
v/s Ratio Perm	c0.03						0.27			0.00		
v/c Ratio	0.34	0.07					0.36	0.29		0.00	0.62	
Uniform Delay, d1	52.5	51.4					5.5	2.7		4.5	8.2	
Progression Factor	1.00	1.00					1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.6	0.7					1.9	0.3		0.0	1.2	
Delay (s)	57.1	52.1					7.5	3.0		4.5	9.4	
Level of Service	E	D					A	A		A	A	
Approach Delay (s)		53.6			0.0			3.4			9.4	
Approach LOS		D			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	68.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	39	6	27	108	51	2	1	9	58	0	18
Future Volume (Veh/h)	3	39	6	27	108	51	2	1	9	58	0	18
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	39	6	27	108	51	2	1	9	58	0	18
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			None							
Median storage veh)		2										
Upstream signal (m)					94							
pX, platoon unblocked												
vC, conflicting volume	159			45			254	261	42	245	238	134
vC1, stage 1 conf vol							48	48		188	188	
vC2, stage 2 conf vol							206	213		58	51	
vCu, unblocked vol	159			45			254	261	42	245	238	134
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			100	100	99	92	100	98
cM capacity (veh/h)	1420			1563			740	687	1029	767	704	916

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	48	186	12	76
Volume Left	3	27	2	58
Volume Right	6	51	9	18
cSH	1420	1563	930	797
Volume to Capacity	0.00	0.02	0.01	0.10
Queue Length 95th (m)	0.0	0.4	0.3	2.2
Control Delay (s)	0.5	1.2	8.9	10.0
Lane LOS	A	A	A	A
Approach Delay (s)	0.5	1.2	8.9	10.0
Approach LOS			A	A

Intersection Summary				
Average Delay	3.4			
Intersection Capacity Utilization	34.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection: 1: Highway 50 & George Bolton Pkwy/Private Access

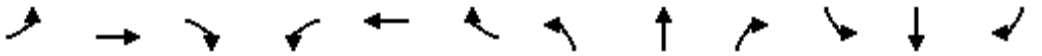
Movement	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	28.4	41.2	39.2	52.6	37.4	8.0	115.1	105.1
Average Queue (m)	11.7	15.9	16.1	16.7	8.1	0.3	41.0	31.4
95th Queue (m)	25.8	32.4	31.4	42.0	25.5	5.3	93.9	80.4
Link Distance (m)	73.5	73.5		138.0	138.0		152.9	152.9
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)			35.0			25.0		
Storage Blk Time (%)			1	1			10	
Queuing Penalty (veh)			3	1			0	

Intersection: 2: Private Access/Site Access & George Bolton Pkwy

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	4.5	8.6	23.6
Average Queue (m)	0.3	3.0	9.7
95th Queue (m)	2.9	9.7	17.3
Link Distance (m)	73.5	32.4	25.8
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

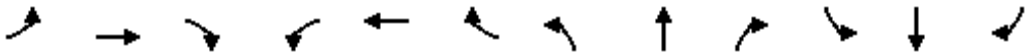
Network Summary

Network wide Queuing Penalty: 4



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	1	176	3	5	9	83	1467	0	1	1096	89
Future Volume (vph)	133	1	176	3	5	9	83	1467	0	1	1096	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.7	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7
Total Lost time (s)	6.7	6.7			6.7		3.0	6.3		6.3	6.3	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85			0.93		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	1572			1768		1428	3510		1785	3469	
Flt Permitted	0.75	1.00			0.94		0.18	1.00		0.16	1.00	
Satd. Flow (perm)	1375	1572			1685		273	3510		303	3469	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	133	1	176	3	5	9	83	1467	0	1	1096	89
RTOR Reduction (vph)	0	148	0	0	8	0	0	0	0	0	4	0
Lane Group Flow (vph)	133	29	0	0	9	0	83	1467	0	1	1181	0
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	2%	0%	4%	0%	0%	0%	25%	4%	0%	0%	4%	2%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	19.2	19.2			19.2		87.8	87.8		77.6	77.6	
Effective Green, g (s)	19.2	19.2			19.2		87.8	87.8		77.6	77.6	
Actuated g/C Ratio	0.16	0.16			0.16		0.73	0.73		0.65	0.65	
Clearance Time (s)	6.7	6.7			6.7		3.0	6.3		6.3	6.3	
Vehicle Extension (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	220	251			269		269	2568		195	2243	
v/s Ratio Prot		0.02					0.02	c0.42			0.34	
v/s Ratio Perm	c0.10				0.01		0.21			0.00		
v/c Ratio	0.60	0.12			0.04		0.31	0.57		0.01	0.53	
Uniform Delay, d1	46.9	43.1			42.6		6.6	7.4		7.5	11.4	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.7	0.4			0.1		1.4	0.9		0.0	0.9	
Delay (s)	53.6	43.6			42.7		7.9	8.4		7.6	12.2	
Level of Service	D	D			D		A	A		A	B	
Approach Delay (s)		47.9			42.7			8.3			12.2	
Approach LOS		D			D			A			B	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	188	5	23	90	64	9	2	47	75	1	19
Future Volume (Veh/h)	6	188	5	23	90	64	9	2	47	75	1	19
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	6	188	5	23	90	64	9	2	47	75	1	19
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			None							
Median storage veh)		2										
Upstream signal (m)					94							
pX, platoon unblocked												
vC, conflicting volume	154			193			390	402	190	418	373	122
vC1, stage 1 conf vol							202	202		168	168	
vC2, stage 2 conf vol							188	200		250	205	
vCu, unblocked vol	154			193			390	402	190	418	373	122
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			99	100	94	88	100	98
cM capacity (veh/h)	1426			1380			690	642	851	638	648	929

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	199	177	58	95
Volume Left	6	23	9	75
Volume Right	5	64	47	19
cSH	1426	1380	813	681
Volume to Capacity	0.00	0.02	0.07	0.14
Queue Length 95th (m)	0.1	0.4	1.6	3.4
Control Delay (s)	0.3	1.1	9.8	11.1
Lane LOS	A	A	A	B
Approach Delay (s)	0.3	1.1	9.8	11.1
Approach LOS			A	B

Intersection Summary				
Average Delay	3.5			
Intersection Capacity Utilization	38.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection: 1: Highway 50 & George Bolton Pkwy/Private Access

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	55.7	38.7	18.6	42.4	125.3	99.1	4.3	101.6	92.2
Average Queue (m)	30.7	18.2	4.4	19.6	54.7	40.8	0.2	49.6	37.3
95th Queue (m)	50.5	30.4	14.0	39.4	99.2	81.4	2.1	86.9	76.3
Link Distance (m)	73.5	73.5	57.5		138.0	138.0		152.9	152.9
Upstream Blk Time (%)					0				
Queuing Penalty (veh)					0				
Storage Bay Dist (m)				35.0			25.0		
Storage Blk Time (%)				2	11			17	
Queuing Penalty (veh)				14	9			0	

Intersection: 2: Private Access/Site Access & George Bolton Pkwy

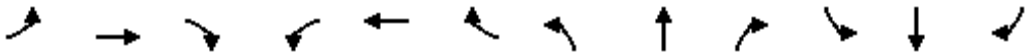
Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	6.3	14.2	19.8	23.4
Average Queue (m)	0.3	1.2	8.7	10.5
95th Queue (m)	3.3	6.8	17.0	18.2
Link Distance (m)	60.4	73.5	32.4	25.8
Upstream Blk Time (%)			0	0
Queuing Penalty (veh)			0	0
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 23

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	1	66	0	0	0	83	879	1	1	1577	90
Future Volume (vph)	29	1	66	0	0	0	83	879	1	1	1577	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.7	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7
Total Lost time (s)	6.7	6.7					3.0	6.3		6.3	6.3	
Lane Util. Factor	1.00	1.00					1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99					1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00					1.00	1.00		1.00	1.00	
Frt	1.00	0.85					1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00					0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1523	1210					1475	3348		1785	3386	
Flt Permitted	0.76	1.00					0.10	1.00		0.32	1.00	
Satd. Flow (perm)	1214	1210					155	3348		607	3386	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	29	1	66	0	0	0	83	879	1	1	1577	90
RTOR Reduction (vph)	0	61	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	29	6	0	0	0	0	83	880	0	1	1665	0
Confl. Peds. (#/hr)	1		1	1		1	1					1
Heavy Vehicles (%)	17%	0%	34%	0%	0%	0%	21%	9%	0%	0%	7%	3%
Turn Type	Perm	NA					pm+pt	NA		Perm	NA	
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	8.9	8.9					98.1	98.1		86.6	86.6	
Effective Green, g (s)	8.9	8.9					98.1	98.1		86.6	86.6	
Actuated g/C Ratio	0.07	0.07					0.82	0.82		0.72	0.72	
Clearance Time (s)	6.7	6.7					3.0	6.3		6.3	6.3	
Vehicle Extension (s)	5.0	5.0					5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	90	89					220	2736		438	2443	
v/s Ratio Prot		0.00					c0.03	0.26			c0.49	
v/s Ratio Perm	c0.02						0.28			0.00		
v/c Ratio	0.32	0.07					0.38	0.32		0.00	0.68	
Uniform Delay, d1	52.7	51.7					7.4	2.7		4.7	9.1	
Progression Factor	1.00	1.00					1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.3	0.7					2.3	0.3		0.0	1.6	
Delay (s)	57.0	52.3					9.7	3.0		4.7	10.7	
Level of Service	E	D					A	A		A	B	
Approach Delay (s)		53.8			0.0			3.6			10.7	
Approach LOS		D			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	42	6	30	119	24	2	1	10	44	0	17
Future Volume (Veh/h)	2	42	6	30	119	24	2	1	10	44	0	17
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	42	6	30	119	24	2	1	10	44	0	17
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			None							
Median storage veh)		2										
Upstream signal (m)					94							
pX, platoon unblocked												
vC, conflicting volume	143			48			257	252	45	250	243	131
vC1, stage 1 conf vol							49	49		191	191	
vC2, stage 2 conf vol							208	203		60	52	
vCu, unblocked vol	143			48			257	252	45	250	243	131
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			100	100	99	94	100	98
cM capacity (veh/h)	1440			1559			738	693	1025	761	700	919

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	50	173	13	61
Volume Left	2	30	2	44
Volume Right	6	24	10	17
cSH	1440	1559	935	799
Volume to Capacity	0.00	0.02	0.01	0.08
Queue Length 95th (m)	0.0	0.4	0.3	1.7
Control Delay (s)	0.3	1.4	8.9	9.9
Lane LOS	A	A	A	A
Approach Delay (s)	0.3	1.4	8.9	9.9
Approach LOS			A	A

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	32.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Highway 50 & George Bolton Pkwy/Private Access

Movement	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	27.7	35.9	41.3	88.6	70.5	2.3	114.8	101.6
Average Queue (m)	9.7	13.3	18.9	19.3	10.0	0.1	45.0	33.4
95th Queue (m)	21.1	29.3	37.6	54.8	36.2	2.0	96.8	80.4
Link Distance (m)	73.5	73.5		138.0	138.0		152.9	152.9
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)			35.0			25.0		
Storage Blk Time (%)			2	2			12	
Queuing Penalty (veh)			10	2			0	

Intersection: 2: Private Access/Site Access & George Bolton Pkwy

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	9.1	12.4	21.2
Average Queue (m)	0.4	2.5	8.4
95th Queue (m)	3.4	9.3	15.9
Link Distance (m)	73.5	32.4	25.8
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 12

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	1	177	4	5	10	73	1620	0	1	1210	82
Future Volume (vph)	133	1	177	4	5	10	73	1620	0	1	1210	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.7	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7
Total Lost time (s)	6.7	6.7			6.7		3.0	6.3		6.3	6.3	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85			0.93		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	1572			1766		1428	3510		1785	3475	
Flt Permitted	0.75	1.00			0.93		0.15	1.00		0.13	1.00	
Satd. Flow (perm)	1372	1572			1662		232	3510		242	3475	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	133	1	177	4	5	10	73	1620	0	1	1210	82
RTOR Reduction (vph)	0	134	0	0	8	0	0	0	0	0	4	0
Lane Group Flow (vph)	133	44	0	0	11	0	73	1620	0	1	1288	0
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	2%	0%	4%	0%	0%	0%	25%	4%	0%	0%	4%	2%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	19.2	19.2			19.2		87.8	87.8		77.7	77.7	
Effective Green, g (s)	19.2	19.2			19.2		87.8	87.8		77.7	77.7	
Actuated g/C Ratio	0.16	0.16			0.16		0.73	0.73		0.65	0.65	
Clearance Time (s)	6.7	6.7			6.7		3.0	6.3		6.3	6.3	
Vehicle Extension (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	219	251			265		240	2568		156	2250	
v/s Ratio Prot		0.03					0.02	c0.46			0.37	
v/s Ratio Perm	c0.10				0.01		0.20			0.00		
v/c Ratio	0.61	0.18			0.04		0.30	0.63		0.01	0.57	
Uniform Delay, d1	46.9	43.6			42.6		7.3	8.0		7.5	11.8	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.9	0.7			0.1		1.5	1.2		0.1	1.1	
Delay (s)	53.7	44.3			42.7		8.8	9.2		7.6	12.9	
Level of Service	D	D			D		A	A		A	B	
Approach Delay (s)		48.3			42.7			9.2			12.9	
Approach LOS		D			D			A			B	

Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	84.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	208	5	25	99	36	10	2	52	51	1	16
Future Volume (Veh/h)	4	208	5	25	99	36	10	2	52	51	1	16
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	4	208	5	25	99	36	10	2	52	51	1	16
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			None							
Median storage veh)		2										
Upstream signal (m)					94							
pX, platoon unblocked												
vC, conflicting volume	135			213			402	404	210	438	388	117
vC1, stage 1 conf vol							218	218		167	167	
vC2, stage 2 conf vol							184	185		272	221	
vCu, unblocked vol	135			213			402	404	210	438	388	117
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			99	100	94	92	100	98
cM capacity (veh/h)	1449			1357			685	642	830	618	639	935

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	217	160	64	68
Volume Left	4	25	10	51
Volume Right	5	36	52	16
cSH	1449	1357	796	672
Volume to Capacity	0.00	0.02	0.08	0.10
Queue Length 95th (m)	0.1	0.4	1.8	2.4
Control Delay (s)	0.2	1.3	9.9	11.0
Lane LOS	A	A	A	B
Approach Delay (s)	0.2	1.3	9.9	11.0
Approach LOS			A	B

Intersection Summary				
Average Delay	3.2			
Intersection Capacity Utilization	39.5%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection: 1: Highway 50 & George Bolton Pkwy/Private Access

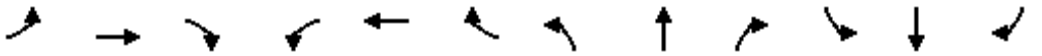
Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	52.3	47.3	17.4	42.4	135.1	109.4	10.3	104.6	94.7
Average Queue (m)	32.0	20.8	5.2	19.3	62.3	45.5	0.3	53.6	40.3
95th Queue (m)	49.3	36.8	14.7	41.5	111.3	88.9	5.4	89.7	78.4
Link Distance (m)	73.5	73.5	57.5		138.0	138.0		152.9	152.9
Upstream Blk Time (%)					0	0			
Queuing Penalty (veh)					0	0			
Storage Bay Dist (m)				35.0			25.0		
Storage Blk Time (%)				1	13			18	
Queuing Penalty (veh)				12	9			0	

Intersection: 2: Private Access/Site Access & George Bolton Pkwy

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	10.6	20.0	22.8
Average Queue (m)	1.3	8.9	9.6
95th Queue (m)	6.7	16.4	16.5
Link Distance (m)	73.5	32.4	25.8
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

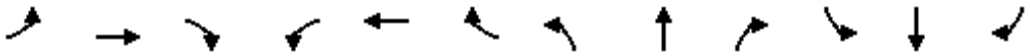
Network Summary

Network wide Queuing Penalty: 21



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	1	79	0	0	0	94	879	1	1	1577	109
Future Volume (vph)	35	1	79	0	0	0	94	879	1	1	1577	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.7	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7
Total Lost time (s)	6.7	6.7					3.0	6.3		6.3	6.3	
Lane Util. Factor	1.00	1.00					1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99					1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00					1.00	1.00		1.00	1.00	
Frt	1.00	0.85					1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00					0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1523	1209					1475	3348		1785	3381	
Flt Permitted	0.76	1.00					0.09	1.00		0.32	1.00	
Satd. Flow (perm)	1214	1209					140	3348		607	3381	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	35	1	79	0	0	0	94	879	1	1	1577	109
RTOR Reduction (vph)	0	73	0	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	35	7	0	0	0	0	94	880	0	1	1683	0
Confl. Peds. (#/hr)	1		1	1		1	1					1
Heavy Vehicles (%)	17%	0%	34%	0%	0%	0%	21%	9%	0%	0%	7%	3%
Turn Type	Perm	NA					pm+pt	NA		Perm	NA	
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	9.4	9.4					97.6	97.6		83.6	83.6	
Effective Green, g (s)	9.4	9.4					97.6	97.6		83.6	83.6	
Actuated g/C Ratio	0.08	0.08					0.81	0.81		0.70	0.70	
Clearance Time (s)	6.7	6.7					3.0	6.3		6.3	6.3	
Vehicle Extension (s)	5.0	5.0					5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	95	94					236	2723		422	2355	
v/s Ratio Prot		0.01					c0.04	0.26			c0.50	
v/s Ratio Perm	c0.03						0.29			0.00		
v/c Ratio	0.37	0.08					0.40	0.32		0.00	0.71	
Uniform Delay, d1	52.5	51.3					9.7	2.8		5.5	11.0	
Progression Factor	1.00	1.00					1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.0	0.7					2.3	0.3		0.0	1.9	
Delay (s)	57.5	52.0					12.0	3.2		5.5	12.9	
Level of Service	E	D					B	A		A	B	
Approach Delay (s)		53.7			0.0			4.0			12.9	
Approach LOS		D			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	11.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	42	6	30	119	54	2	1	10	63	0	19
Future Volume (Veh/h)	3	42	6	30	119	54	2	1	10	63	0	19
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	42	6	30	119	54	2	1	10	63	0	19
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			None							
Median storage veh)		2										
Upstream signal (m)					94							
pX, platoon unblocked												
vC, conflicting volume	173			48			276	284	45	268	260	146
vC1, stage 1 conf vol							51	51		206	206	
vC2, stage 2 conf vol							225	233		62	54	
vCu, unblocked vol	173			48			276	284	45	268	260	146
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			100	100	99	92	100	98
cM capacity (veh/h)	1404			1559			720	672	1025	747	689	901

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	51	203	13	82
Volume Left	3	30	2	63
Volume Right	6	54	10	19
cSH	1404	1559	927	778
Volume to Capacity	0.00	0.02	0.01	0.11
Queue Length 95th (m)	0.0	0.4	0.3	2.5
Control Delay (s)	0.5	1.2	8.9	10.2
Lane LOS	A	A	A	B
Approach Delay (s)	0.5	1.2	8.9	10.2
Approach LOS			A	B

Intersection Summary				
Average Delay	3.5			
Intersection Capacity Utilization	35.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection: 1: Highway 50 & George Bolton Pkwy/Private Access

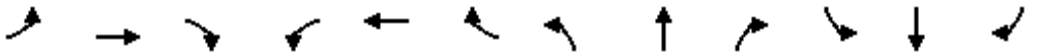
Movement	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	34.9	36.8	36.5	68.5	50.5	2.3	149.8	126.5
Average Queue (m)	14.2	17.2	16.9	20.3	12.1	0.1	52.9	43.7
95th Queue (m)	29.4	33.4	32.2	50.8	34.7	1.4	114.3	99.6
Link Distance (m)	73.5	73.5		138.0	138.0		152.9	152.9
Upstream Blk Time (%)							0	0
Queuing Penalty (veh)							0	0
Storage Bay Dist (m)			35.0			25.0		
Storage Blk Time (%)			1	2			14	
Queuing Penalty (veh)			4	2			0	

Intersection: 2: Private Access/Site Access & George Bolton Pkwy

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	6.7	9.9	8.8	20.2
Average Queue (m)	0.3	0.6	2.6	9.4
95th Queue (m)	3.0	4.7	9.1	16.4
Link Distance (m)	60.4	73.5	32.4	25.8
Upstream Blk Time (%)				0
Queuing Penalty (veh)				0
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

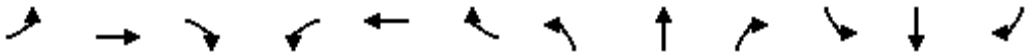
Network Summary

Network wide Queuing Penalty: 6



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	146	1	193	4	5	10	90	1620	0	1	1210	96
Future Volume (vph)	146	1	193	4	5	10	90	1620	0	1	1210	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.7	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7
Total Lost time (s)	6.7	6.7			6.7		3.0	6.3		6.3	6.3	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85			0.93		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	1572			1766		1428	3510		1785	3469	
Flt Permitted	0.75	1.00			0.93		0.14	1.00		0.13	1.00	
Satd. Flow (perm)	1372	1572			1661		218	3510		243	3469	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	146	1	193	4	5	10	90	1620	0	1	1210	96
RTOR Reduction (vph)	0	132	0	0	8	0	0	0	0	0	4	0
Lane Group Flow (vph)	146	62	0	0	11	0	90	1620	0	1	1302	0
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	2%	0%	4%	0%	0%	0%	25%	4%	0%	0%	4%	2%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	20.2	20.2			20.2		86.8	86.8		75.1	75.1	
Effective Green, g (s)	20.2	20.2			20.2		86.8	86.8		75.1	75.1	
Actuated g/C Ratio	0.17	0.17			0.17		0.72	0.72		0.63	0.63	
Clearance Time (s)	6.7	6.7			6.7		3.0	6.3		6.3	6.3	
Vehicle Extension (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	230	264			279		245	2538		152	2171	
v/s Ratio Prot		0.04					0.03	c0.46			0.38	
v/s Ratio Perm	c0.11				0.01		0.24			0.00		
v/c Ratio	0.63	0.23			0.04		0.37	0.64		0.01	0.60	
Uniform Delay, d1	46.5	43.2			41.8		8.4	8.5		8.4	13.4	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.7	1.0			0.1		1.9	1.2		0.1	1.2	
Delay (s)	54.2	44.2			41.9		10.3	9.8		8.5	14.7	
Level of Service	D	D			D		B	A		A	B	
Approach Delay (s)		48.5			41.9			9.8			14.7	
Approach LOS		D			D			A			B	

Intersection Summary			
HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	208	5	25	99	67	10	2	52	80	1	20
Future Volume (Veh/h)	7	208	5	25	99	67	10	2	52	80	1	20
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	7	208	5	25	99	67	10	2	52	80	1	20
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			None							
Median storage veh)		2										
Upstream signal (m)					94							
pX, platoon unblocked												
vC, conflicting volume	166			213			428	440	210	460	410	132
vC1, stage 1 conf vol							224	224		182	182	
vC2, stage 2 conf vol							203	216		278	227	
vCu, unblocked vol	166			213			428	440	210	460	410	132
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			98	100	94	87	100	98
cM capacity (veh/h)	1412			1357			667	624	830	608	629	917

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	220	191	64	101
Volume Left	7	25	10	80
Volume Right	5	67	52	20
cSH	1412	1357	791	652
Volume to Capacity	0.00	0.02	0.08	0.15
Queue Length 95th (m)	0.1	0.4	1.8	3.8
Control Delay (s)	0.3	1.1	9.9	11.5
Lane LOS	A	A	A	B
Approach Delay (s)	0.3	1.1	9.9	11.5
Approach LOS			A	B

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	40.4%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Highway 50 & George Bolton Pkwy/Private Access

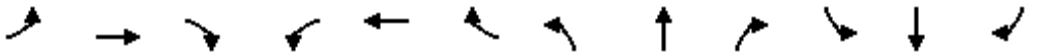
Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	54.0	48.6	17.3	42.3	144.0	117.6	10.2	99.1	88.0
Average Queue (m)	34.1	22.6	5.0	21.6	69.3	53.0	0.5	57.6	44.2
95th Queue (m)	52.5	39.9	14.3	42.7	118.4	95.7	5.6	91.9	79.7
Link Distance (m)	73.5	73.5	57.5		138.0	138.0		152.9	152.9
Upstream Blk Time (%)					1	0			
Queuing Penalty (veh)					0	0			
Storage Bay Dist (m)				35.0			25.0		
Storage Blk Time (%)				2	15			20	
Queuing Penalty (veh)				12	13			0	

Intersection: 2: Private Access/Site Access & George Bolton Pkwy

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	8.9	13.8	23.6	22.9
Average Queue (m)	0.5	1.4	9.4	11.3
95th Queue (m)	3.9	7.5	17.7	18.9
Link Distance (m)	60.4	73.5	32.4	25.8
Upstream Blk Time (%)			0	0
Queuing Penalty (veh)			0	0
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

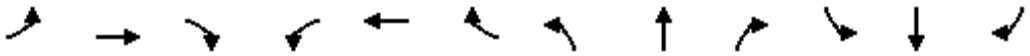
Network Summary

Network wide Queuing Penalty: 26



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	1	73	0	0	0	92	971	1	1	1741	99
Future Volume (vph)	32	1	73	0	0	0	92	971	1	1	1741	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.7	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7
Total Lost time (s)	6.7	6.7					3.0	6.3		6.3	6.3	
Lane Util. Factor	1.00	1.00					1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99					1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00					1.00	1.00		1.00	1.00	
Frt	1.00	0.85					1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00					0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1523	1209					1475	3348		1785	3386	
Flt Permitted	0.76	1.00					0.07	1.00		0.29	1.00	
Satd. Flow (perm)	1214	1209					106	3348		554	3386	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	32	1	73	0	0	0	92	971	1	1	1741	99
RTOR Reduction (vph)	0	67	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	32	7	0	0	0	0	92	972	0	1	1838	0
Confl. Peds. (#/hr)	1		1	1		1	1					1
Heavy Vehicles (%)	17%	0%	34%	0%	0%	0%	21%	9%	0%	0%	7%	3%
Turn Type	Perm	NA					pm+pt	NA		Perm	NA	
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	9.2	9.2					97.8	97.8		84.0	84.0	
Effective Green, g (s)	9.2	9.2					97.8	97.8		84.0	84.0	
Actuated g/C Ratio	0.08	0.08					0.81	0.81		0.70	0.70	
Clearance Time (s)	6.7	6.7					3.0	6.3		6.3	6.3	
Vehicle Extension (s)	5.0	5.0					5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	93	92					209	2728		387	2370	
v/s Ratio Prot		0.01					c0.04	0.29			c0.54	
v/s Ratio Perm	c0.03						0.32			0.00		
v/c Ratio	0.34	0.07					0.44	0.36		0.00	0.78	
Uniform Delay, d1	52.5	51.4					14.2	2.9		5.4	11.8	
Progression Factor	1.00	1.00					1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.6	0.7					3.1	0.4		0.0	2.6	
Delay (s)	57.1	52.1					17.3	3.3		5.4	14.4	
Level of Service	E	D					B	A		A	B	
Approach Delay (s)		53.6			0.0			4.5			14.4	
Approach LOS		D			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	46	7	33	132	26	3	1	12	48	0	19
Future Volume (Veh/h)	3	46	7	33	132	26	3	1	12	48	0	19
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	46	7	33	132	26	3	1	12	48	0	19
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			None							
Median storage veh)		2										
Upstream signal (m)					94							
pX, platoon unblocked												
vC, conflicting volume	158			53			286	280	50	279	270	145
vC1, stage 1 conf vol							56	56		211	211	
vC2, stage 2 conf vol							230	224		68	59	
vCu, unblocked vol	158			53			286	280	50	279	270	145
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			100	100	99	94	100	98
cM capacity (veh/h)	1422			1553			714	676	1019	739	683	902

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	56	191	16	67
Volume Left	3	33	3	48
Volume Right	7	26	12	19
cSH	1422	1553	916	779
Volume to Capacity	0.00	0.02	0.02	0.09
Queue Length 95th (m)	0.0	0.5	0.4	2.0
Control Delay (s)	0.4	1.4	9.0	10.1
Lane LOS	A	A	A	B
Approach Delay (s)	0.4	1.4	9.0	10.1
Approach LOS			A	B

Intersection Summary				
Average Delay	3.4			
Intersection Capacity Utilization	34.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection: 1: Highway 50 & George Bolton Pkwy/Private Access

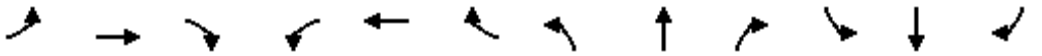
Movement	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	32.0	48.9	42.1	100.3	72.3	11.7	158.6	142.6
Average Queue (m)	11.2	19.2	20.0	26.7	15.1	0.5	67.2	56.0
95th Queue (m)	25.6	37.7	39.8	70.1	46.4	5.3	145.3	125.7
Link Distance (m)	73.5	73.5		138.0	138.0		152.9	152.9
Upstream Blk Time (%)				0			1	0
Queuing Penalty (veh)				0			0	0
Storage Bay Dist (m)			35.0			25.0		
Storage Blk Time (%)			4	2			16	
Queuing Penalty (veh)			21	2			0	

Intersection: 2: Private Access/Site Access & George Bolton Pkwy

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	6.2	10.5	20.1
Average Queue (m)	0.4	2.8	8.7
95th Queue (m)	3.9	9.7	15.6
Link Distance (m)	73.5	32.4	25.8
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

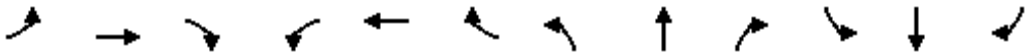
Network Summary

Network wide Queuing Penalty: 23



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	1	195	4	5	11	81	1789	0	1	1336	91
Future Volume (vph)	147	1	195	4	5	11	81	1789	0	1	1336	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.7	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7
Total Lost time (s)	6.7	6.7			6.7		3.0	6.3		6.3	6.3	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85			0.93		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	1572			1761		1428	3510		1785	3475	
Flt Permitted	0.74	1.00			0.93		0.12	1.00		0.10	1.00	
Satd. Flow (perm)	1371	1572			1661		183	3510		179	3475	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	147	1	195	4	5	11	81	1789	0	1	1336	91
RTOR Reduction (vph)	0	120	0	0	9	0	0	0	0	0	4	0
Lane Group Flow (vph)	147	76	0	0	11	0	81	1789	0	1	1423	0
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	2%	0%	4%	0%	0%	0%	25%	4%	0%	0%	4%	2%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	20.3	20.3			20.3		86.7	86.7		76.7	76.7	
Effective Green, g (s)	20.3	20.3			20.3		86.7	86.7		76.7	76.7	
Actuated g/C Ratio	0.17	0.17			0.17		0.72	0.72		0.64	0.64	
Clearance Time (s)	6.7	6.7			6.7		3.0	6.3		6.3	6.3	
Vehicle Extension (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	231	265			280		204	2535		114	2221	
v/s Ratio Prot		0.05					0.02	c0.51			0.41	
v/s Ratio Perm	c0.11				0.01		0.26			0.01		
v/c Ratio	0.64	0.29			0.04		0.40	0.71		0.01	0.64	
Uniform Delay, d1	46.4	43.5			41.7		9.4	9.4		7.9	13.2	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.8	1.3			0.1		2.6	1.7		0.1	1.4	
Delay (s)	54.2	44.8			41.8		12.0	11.1		8.0	14.7	
Level of Service	D	D			D		B	B		A	B	
Approach Delay (s)		48.8			41.8			11.1			14.7	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	90.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	230	5	27	110	40	11	3	57	56	1	18
Future Volume (Veh/h)	4	230	5	27	110	40	11	3	57	56	1	18
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	4	230	5	27	110	40	11	3	57	56	1	18
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			None							
Median storage veh)		2										
Upstream signal (m)					94							
pX, platoon unblocked												
vC, conflicting volume	150			235			443	444	232	483	427	130
vC1, stage 1 conf vol							240	240		184	184	
vC2, stage 2 conf vol							202	204		299	243	
vCu, unblocked vol	150			235			443	444	232	483	427	130
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			98	100	93	90	100	98
cM capacity (veh/h)	1431			1332			660	623	807	588	620	920

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	239	177	71	75
Volume Left	4	27	11	56
Volume Right	5	40	57	18
cSH	1431	1332	771	644
Volume to Capacity	0.00	0.02	0.09	0.12
Queue Length 95th (m)	0.1	0.4	2.1	2.8
Control Delay (s)	0.1	1.3	10.1	11.3
Lane LOS	A	A	B	B
Approach Delay (s)	0.1	1.3	10.1	11.3
Approach LOS			B	B

Intersection Summary				
Average Delay	3.3			
Intersection Capacity Utilization	42.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection: 1: Highway 50 & George Bolton Pkwy/Private Access

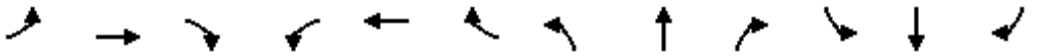
Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	59.8	57.4	15.5	42.4	144.2	122.9	4.4	121.4	105.3
Average Queue (m)	32.5	24.8	4.3	22.9	78.0	60.5	0.2	66.6	53.1
95th Queue (m)	54.1	45.4	12.8	44.2	133.2	111.3	2.2	114.2	98.6
Link Distance (m)	73.5	73.5	57.5		138.0	138.0		152.9	152.9
Upstream Blk Time (%)					1	0			
Queuing Penalty (veh)					0	0			
Storage Bay Dist (m)				35.0			25.0		
Storage Blk Time (%)				3	16			21	
Queuing Penalty (veh)				30	13			0	

Intersection: 2: Private Access/Site Access & George Bolton Pkwy

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	4.5	15.2	20.6	20.9
Average Queue (m)	0.2	2.0	8.9	9.6
95th Queue (m)	2.5	9.0	16.3	16.2
Link Distance (m)	60.4	73.5	32.4	25.8
Upstream Blk Time (%)			0	0
Queuing Penalty (veh)			0	0
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

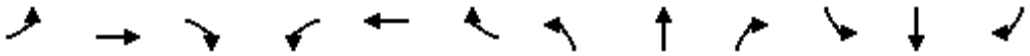
Network Summary

Network wide Queuing Penalty: 43



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	1	86	0	0	0	103	971	1	1	1741	118
Future Volume (vph)	38	1	86	0	0	0	103	971	1	1	1741	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.7	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7
Total Lost time (s)	6.7	6.7					3.0	6.3		6.3	6.3	
Lane Util. Factor	1.00	1.00					1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99					1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00					1.00	1.00		1.00	1.00	
Frt	1.00	0.85					1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00					0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1523	1208					1475	3348		1785	3382	
Flt Permitted	0.76	1.00					0.06	1.00		0.29	1.00	
Satd. Flow (perm)	1214	1208					90	3348		554	3382	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	38	1	86	0	0	0	103	971	1	1	1741	118
RTOR Reduction (vph)	0	78	0	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	38	9	0	0	0	0	103	972	0	1	1856	0
Confl. Peds. (#/hr)	1		1	1		1	1					1
Heavy Vehicles (%)	17%	0%	34%	0%	0%	0%	21%	9%	0%	0%	7%	3%
Turn Type	Perm	NA					pm+pt	NA		Perm	NA	
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	11.4	11.4					95.6	95.6		80.8	80.8	
Effective Green, g (s)	11.4	11.4					95.6	95.6		80.8	80.8	
Actuated g/C Ratio	0.10	0.10					0.80	0.80		0.67	0.67	
Clearance Time (s)	6.7	6.7					3.0	6.3		6.3	6.3	
Vehicle Extension (s)	5.0	5.0					5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	115	114					207	2667		373	2277	
v/s Ratio Prot		0.01					c0.05	0.29			c0.55	
v/s Ratio Perm	c0.03						0.35			0.00		
v/c Ratio	0.33	0.08					0.50	0.36		0.00	0.81	
Uniform Delay, d1	50.7	49.5					22.0	3.5		6.4	14.2	
Progression Factor	1.00	1.00					1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.5	0.6					3.9	0.4		0.0	3.3	
Delay (s)	54.2	50.2					25.9	3.9		6.4	17.5	
Level of Service	D	D					C	A		A	B	
Approach Delay (s)		51.4			0.0			6.0			17.5	
Approach LOS		D			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	46	7	33	132	56	3	1	12	67	0	21
Future Volume (Veh/h)	4	46	7	33	132	56	3	1	12	67	0	21
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	4	46	7	33	132	56	3	1	12	67	0	21
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			None							
Median storage veh)		2										
Upstream signal (m)					94							
pX, platoon unblocked												
vC, conflicting volume	188			53			304	312	50	296	287	160
vC1, stage 1 conf vol							58	58		226	226	
vC2, stage 2 conf vol							247	254		70	61	
vCu, unblocked vol	188			53			304	312	50	296	287	160
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			100	100	99	91	100	98
cM capacity (veh/h)	1386			1553			696	655	1019	725	673	885

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	57	221	16	88
Volume Left	4	33	3	67
Volume Right	7	56	12	21
cSH	1386	1553	908	758
Volume to Capacity	0.00	0.02	0.02	0.12
Queue Length 95th (m)	0.1	0.5	0.4	2.7
Control Delay (s)	0.6	1.3	9.0	10.4
Lane LOS	A	A	A	B
Approach Delay (s)	0.6	1.3	9.0	10.4
Approach LOS			A	B

Intersection Summary				
Average Delay	3.6			
Intersection Capacity Utilization	37.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection: 1: Highway 50 & George Bolton Pkwy/Private Access

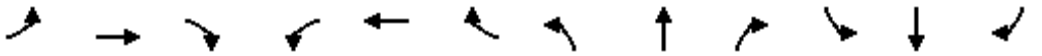
Movement	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	32.6	47.3	42.2	129.7	98.6	4.5	155.7	152.4
Average Queue (m)	13.4	20.9	25.0	35.2	20.2	0.2	79.7	66.2
95th Queue (m)	27.5	40.3	44.8	90.3	59.6	2.5	159.7	142.5
Link Distance (m)	73.5	73.5		138.0	138.0		152.9	152.9
Upstream Blk Time (%)				0			3	2
Queuing Penalty (veh)				0			0	0
Storage Bay Dist (m)			35.0			25.0		
Storage Blk Time (%)			7	3			19	
Queuing Penalty (veh)			36	3			0	

Intersection: 2: Private Access/Site Access & George Bolton Pkwy

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	4.5	8.9	10.5	24.0
Average Queue (m)	0.3	0.4	3.6	10.4
95th Queue (m)	3.0	3.7	10.8	18.8
Link Distance (m)	60.4	73.5	32.4	25.8
Upstream Blk Time (%)				0
Queuing Penalty (veh)				0
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

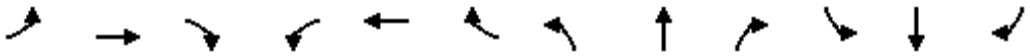
Network Summary

Network wide Queuing Penalty: 39



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	1	211	4	5	11	98	1789	0	1	1336	105
Future Volume (vph)	160	1	211	4	5	11	98	1789	0	1	1336	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.7	3.7	3.7	3.7	3.7	3.5	3.7	3.7	3.5	3.7	3.7
Total Lost time (s)	6.7	6.7			6.7		3.0	6.3		6.3	6.3	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85			0.93		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	1572			1761		1428	3510		1785	3470	
Flt Permitted	0.74	1.00			0.93		0.11	1.00		0.10	1.00	
Satd. Flow (perm)	1371	1572			1660		165	3510		179	3470	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	160	1	211	4	5	11	98	1789	0	1	1336	105
RTOR Reduction (vph)	0	118	0	0	9	0	0	0	0	0	4	0
Lane Group Flow (vph)	160	94	0	0	11	0	98	1789	0	1	1437	0
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	2%	0%	4%	0%	0%	0%	25%	4%	0%	0%	4%	2%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		8			4		1	6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	21.4	21.4			21.4		85.6	85.6		73.2	73.2	
Effective Green, g (s)	21.4	21.4			21.4		85.6	85.6		73.2	73.2	
Actuated g/C Ratio	0.18	0.18			0.18		0.71	0.71		0.61	0.61	
Clearance Time (s)	6.7	6.7			6.7		3.0	6.3		6.3	6.3	
Vehicle Extension (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	244	280			296		216	2503		109	2116	
v/s Ratio Prot		0.06					0.04	c0.51			0.41	
v/s Ratio Perm	c0.12				0.01		0.29			0.01		
v/c Ratio	0.66	0.33			0.04		0.45	0.71		0.01	0.68	
Uniform Delay, d1	45.9	43.1			40.8		11.4	10.1		9.2	15.6	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.3	1.5			0.1		3.1	1.8		0.2	1.8	
Delay (s)	54.1	44.6			40.9		14.5	11.8		9.3	17.4	
Level of Service	D	D			D		B	B		A	B	
Approach Delay (s)		48.7			40.9			12.0			17.3	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	91.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	230	5	27	110	71	11	3	57	85	1	22
Future Volume (Veh/h)	7	230	5	27	110	71	11	3	57	85	1	22
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	7	230	5	27	110	71	11	3	57	85	1	22
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			None							
Median storage veh)		2										
Upstream signal (m)					94							
pX, platoon unblocked												
vC, conflicting volume	181			235			468	482	232	504	448	146
vC1, stage 1 conf vol							246	246		200	200	
vC2, stage 2 conf vol							222	235		305	249	
vCu, unblocked vol	181			235			468	482	232	504	448	146
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			98			98	100	93	85	100	98
cM capacity (veh/h)	1394			1332			642	605	807	578	610	902

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	242	208	71	108
Volume Left	7	27	11	85
Volume Right	5	71	57	22
cSH	1394	1332	765	624
Volume to Capacity	0.01	0.02	0.09	0.17
Queue Length 95th (m)	0.1	0.4	2.1	4.4
Control Delay (s)	0.3	1.2	10.2	12.0
Lane LOS	A	A	B	B
Approach Delay (s)	0.3	1.2	10.2	12.0
Approach LOS			B	B

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	43.1%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Highway 50 & George Bolton Pkwy/Private Access

Movement	EB	EB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	T	TR
Maximum Queue (m)	65.1	67.8	17.2	42.4	148.4	128.5	125.8	107.4
Average Queue (m)	36.9	29.5	5.7	25.6	86.1	68.4	73.0	60.0
95th Queue (m)	59.1	55.4	15.6	47.2	143.5	117.7	111.6	99.6
Link Distance (m)	73.5	73.5	57.5		138.0	138.0	152.9	152.9
Upstream Blk Time (%)	0	0			2	0		
Queuing Penalty (veh)	0	0			0	0		
Storage Bay Dist (m)				35.0				
Storage Blk Time (%)				6	17		25	
Queuing Penalty (veh)				55	17		0	

Intersection: 2: Private Access/Site Access & George Bolton Pkwy

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	9.1	16.0	23.1	21.7
Average Queue (m)	0.7	2.3	9.6	11.7
95th Queue (m)	4.5	10.0	17.8	19.0
Link Distance (m)	60.4	73.5	32.4	25.8
Upstream Blk Time (%)			0	0
Queuing Penalty (veh)			0	0
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 73

FIGURES

COMMERCIAL DEVELOPMENT
12476 HIGHWAY 50
BOLTON, TOWN OF CALEDON

SITE LOCATION

CROZIER & ASSOCIATES Consulting Engineers
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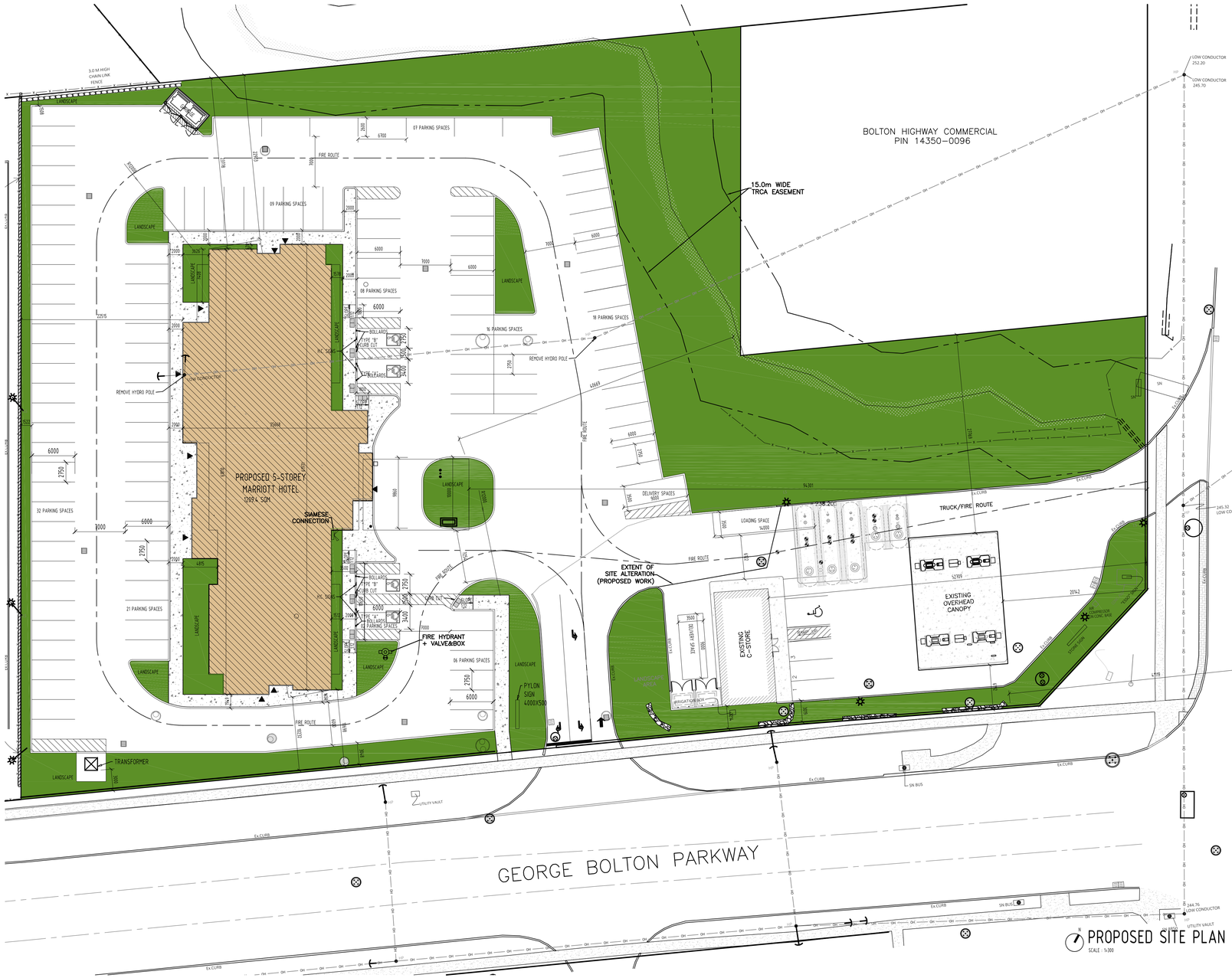
416-477-3392 T
www.cfcrozier.ca

Drawn	Design	Project No.	
A.K.		1716-5554	
Check	Check	Scale	Dwg.
P.A.		N.T.S	FIG. 01

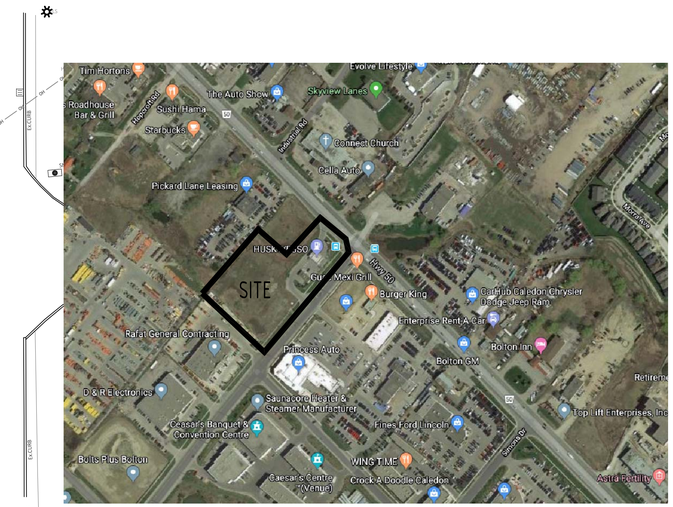
SITE INFORMATION: - CHB ZONING		
	REQUIREMENTS	PROPOSED
MIN. LOT AREA	2750 SQ.M.	12,616 SQ.M.
MIN. LOT FRONTAGE (HIGHWAY 50)	40.0 M	52.5 M
MAX. BUILDING AREA	30%	10.53 % (120+1209.4 SQM)
MIN. FRONT YARD SETBACK (HIGHWAY 50)	18 M	20.0 M (EXISTING)
MIN. EXTERIOR SIDE YARD (GEORGE BOLTON PARKWAY)	18 M	3 M (EXISTING)
MIN. REAR SETBACK	10.5 M	22.5 M
MIN. INTERIOR SIDE YARD SETBACK	7.5 M	23.7 M
MOTOR VEHICLE GAS BAR SETBACK		
FROM ANY LOT LINE	6.0 M	6.0 M
FROM ANY SIGHT ANGLE	3.0 M	7.0 M
MAX. BUILDING HEIGHT	10.5 M	19.2 M
LANDSCAPING AREA (MINIMUM)	20% (2523.2 SQM)	32.1% (4050 SQM)
RETAIL STORE, ACCESSORY	93 SQM	120 SQM (EXISTING)
PLANTING STRIP LOCATION	-	FRONT AND EXTERIOR LOT LINE
MIN. PLANTING STRIP WIDTH	6.0 M	3.0 M (EXISTING)
MIN. PARKING SPACE SETBACKS		
FROM ANY STREET LINE	6.0 M	3.0 M (EXISTING)
FROM ANY OTHER LOT LINE	1.5 M	1.5 M
MIN. PARKING SPACES PER USE: HOTEL -@ 1 SPACE PER ROOM, FOR 111 ROOMS MOTOR VEHICLE GAS BAR - @ 1 SPACE PER 20 SQM FOR 120 SQM (EXISTING)	111 SPACES + 6 SPACES = 117 SPACES	119 SPACES (PROPOSED) + 5 SPACES (EXISTING) = 124 SPACES
MIN. LOADING SPACES	1	1
MIN. DELIVERY SPACES	1	1

- ▲ DENOTES ENTRY/EXIT TO BUILDING
- DENOTES CATCH BASIN MANHOLE
- DENOTES CATCH BASIN
- DENOTES SANITARY MANHOLE
- DENOTES TACTILE SURFACE (1220X610)
- PAINTED LINES ON ASPHALT SURFACE

REFER TO THE SITE GRADING PLAN PREPARED BY FLORA DESIGN INC.
ALL INFORMATION, WORKS, AND FEATURES ARE TO BE COORDINATED WITH THE ARCHITECTURAL SITE PLAN, SITE GRADING AND SERVICING PLAN, AND LANDSCAPE PLAN BY GC PRIOR TO STARTING OF CONSTRUCTION.



PROPOSED SITE PLAN
SCALE : 1:300



PROPOSED KEY PLAN
SCALE : NTS

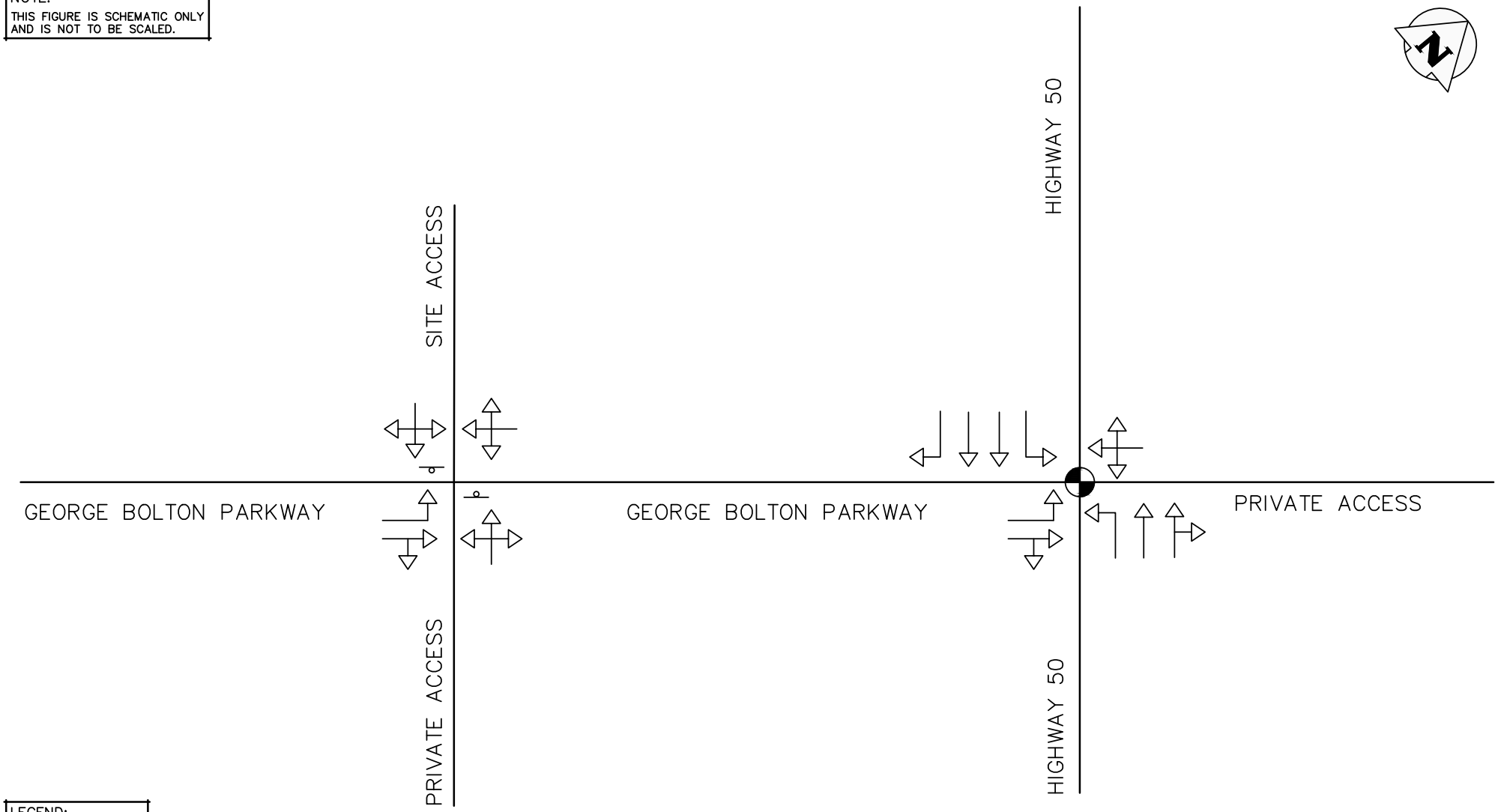
ANTRIX
ARCHITECTS INC.
1109 BRITANNIA RD E., MISSISSAUGA
ON L4W 3X1 PHONE 905 564 1154
FAX 888 501 0265

ISSUED FOR REVIEW	17-06-2020

PROJECT
PROPOSED MARRIOTT HOTEL
12476 HIGHWAY 50
CALEDON, ON

DRAWN BY	NL
SCALE	
PROJECT NO.	2001
DRAWING TITLE & NO. PROPOSED FLOOR PLANS	A01

NOTE:
THIS FIGURE IS SCHEMATIC ONLY AND IS NOT TO BE SCALED.



LEGEND:
- SIGNAL CONTROL
- STOP CONTROL
- YEILD CONTROL
- ROUND ABOUT
- VOLUME SUNDAY PEAK TRIP DISTRIBUTION

COMMERCIAL DEVELOPMENT
12476 HIGHWAY 50
BOLTON, TOWN OF CALEDON

STUDY INTERSECTION CONFIGURATION

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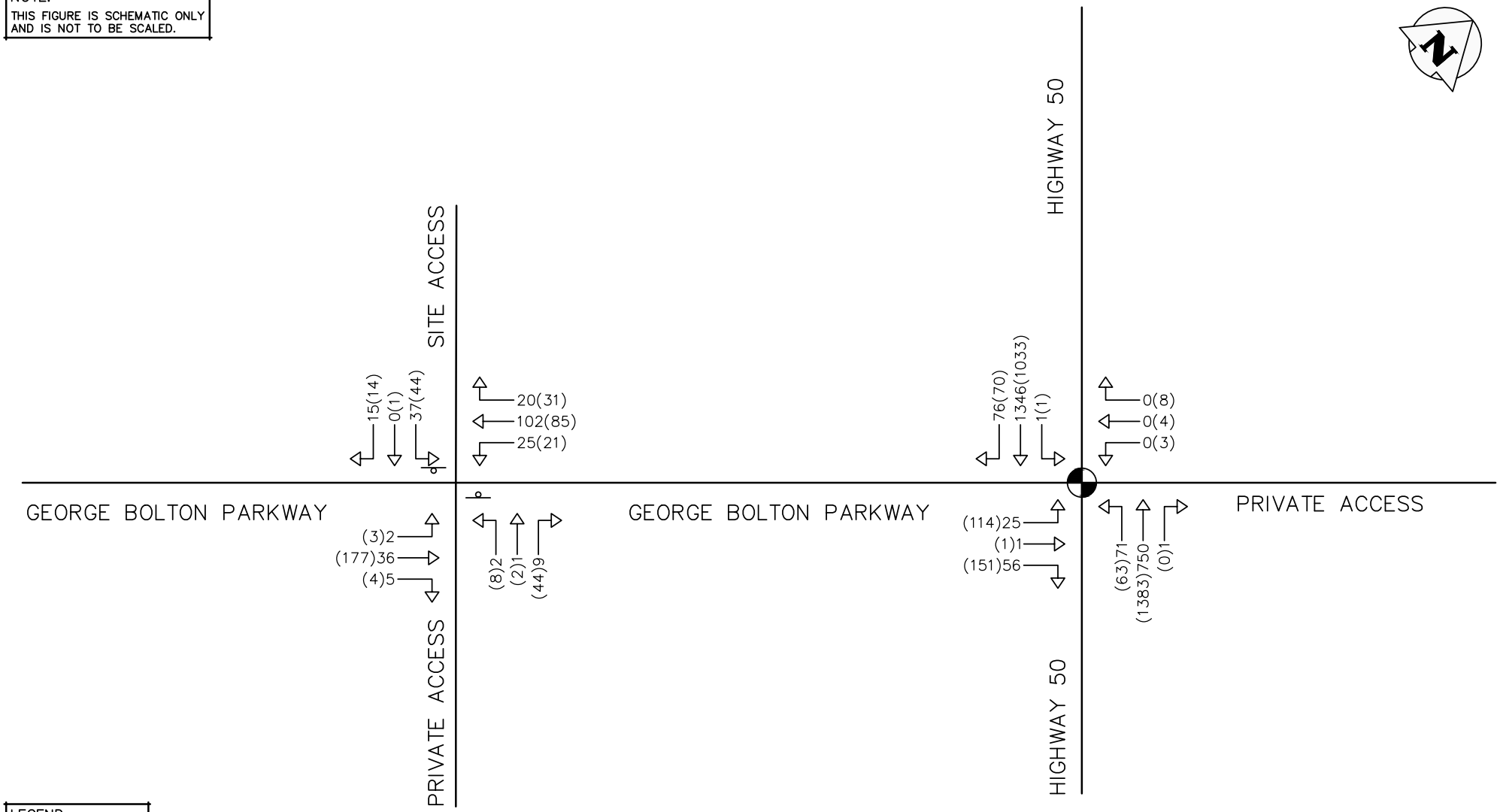
Drawn	Design	Project No.	
A.K.			1716-5554
Check	Check	Scale	Dwg.
P.A.		N.T.S	FIG. 03

NOTE:
THIS FIGURE IS SCHEMATIC ONLY AND IS NOT TO BE SCALED.



LEGEND:

- SIGNAL CONTROL
- STOP CONTROL
- YEILD CONTROL
- ROUND ABOUT
- VOLUME SUNDAY PEAK TRIP DISTRIBUTION

COMMERCIAL DEVELOPMENT
12476 HIGHWAY 50
BOLTON, TOWN OF CALEDON

2020 EXISTING TRAFFIC VOLUMES

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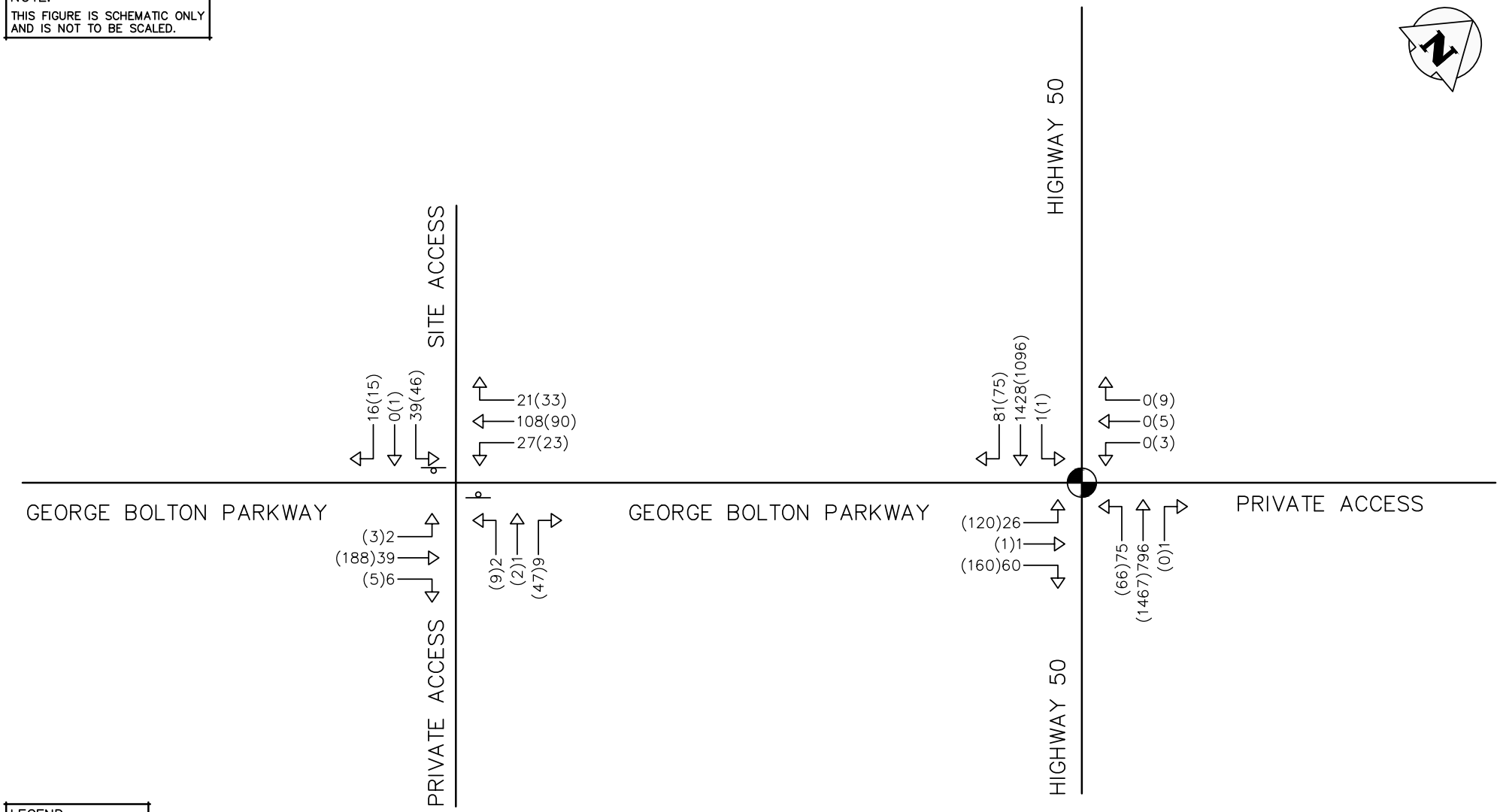
Drawn	Design	Project No.	
A.K.			1716-5554
Check	Check	Scale	Dwg.
P.A.		N.T.S	FIG. 04

NOTE:
THIS FIGURE IS SCHEMATIC ONLY AND IS NOT TO BE SCALED.



LEGEND:

- SIGNAL CONTROL
- STOP CONTROL
- YEILD CONTROL
- ROUND ABOUT
- VOLUME SUNDAY PEAK TRIP DISTRIBUTION

COMMERCIAL DEVELOPMENT
12476 HIGHWAY 50
BOLTON, TOWN OF CALEDON

2023 FUTURE BACKGROUND
TRAFFIC VOLUMES

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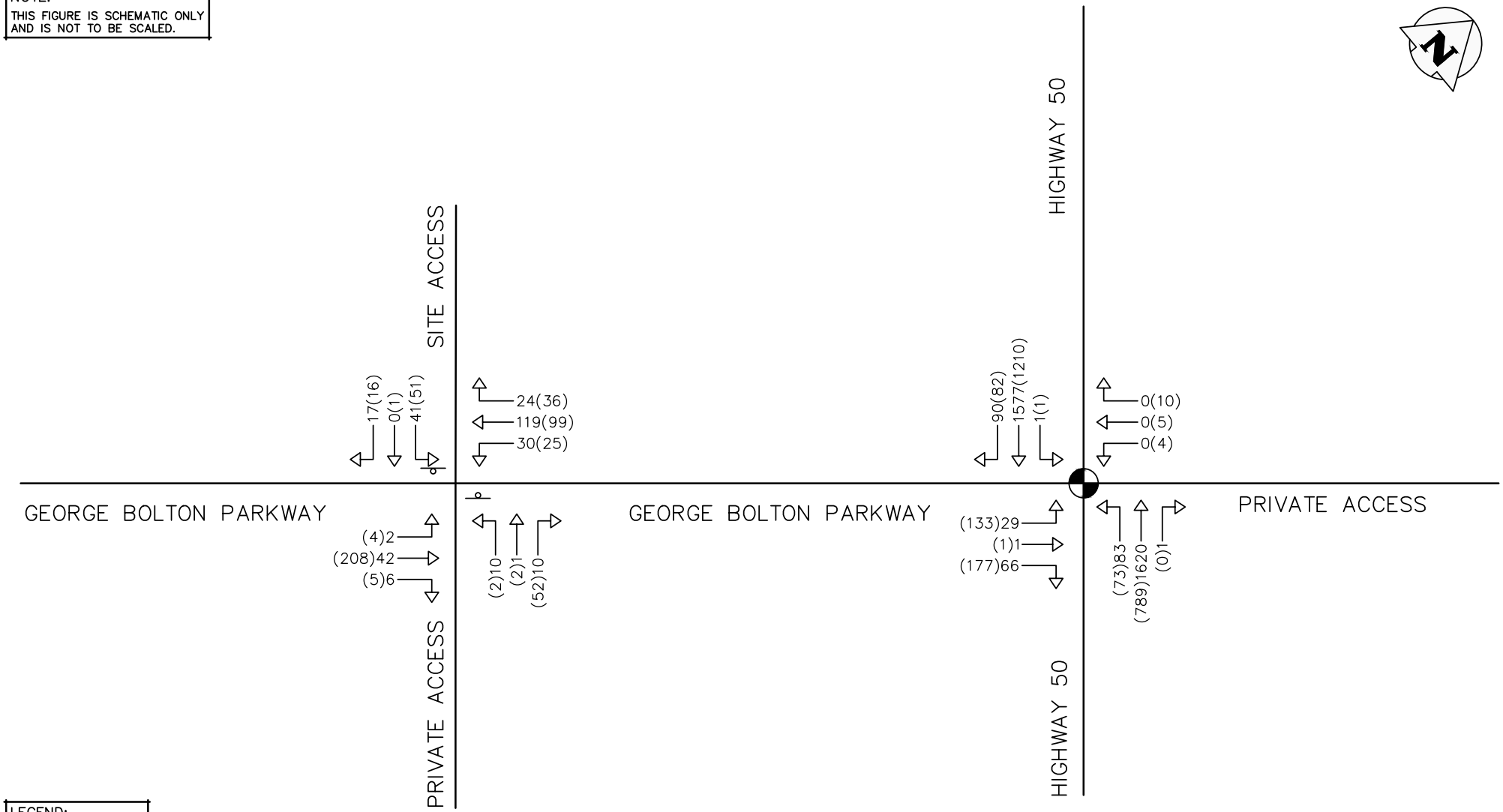
Drawn	Design	Project No.	
A.K.			1716-5554
Check	Check	Scale	Dwg.
P.A.		N.T.S	FIG. 05

NOTE:
THIS FIGURE IS SCHEMATIC ONLY AND IS NOT TO BE SCALED.



LEGEND:

- SIGNAL CONTROL
- STOP CONTROL
- YEILD CONTROL
- ROUND ABOUT
- VOLUME SUNDAY PEAK TRIP DISTRIBUTION

COMMERCIAL DEVELOPMENT
12476 HIGHWAY 50
BOLTON, TOWN OF CALEDON

2028 FUTURE BACKGROUND
TRAFFIC VOLUMES

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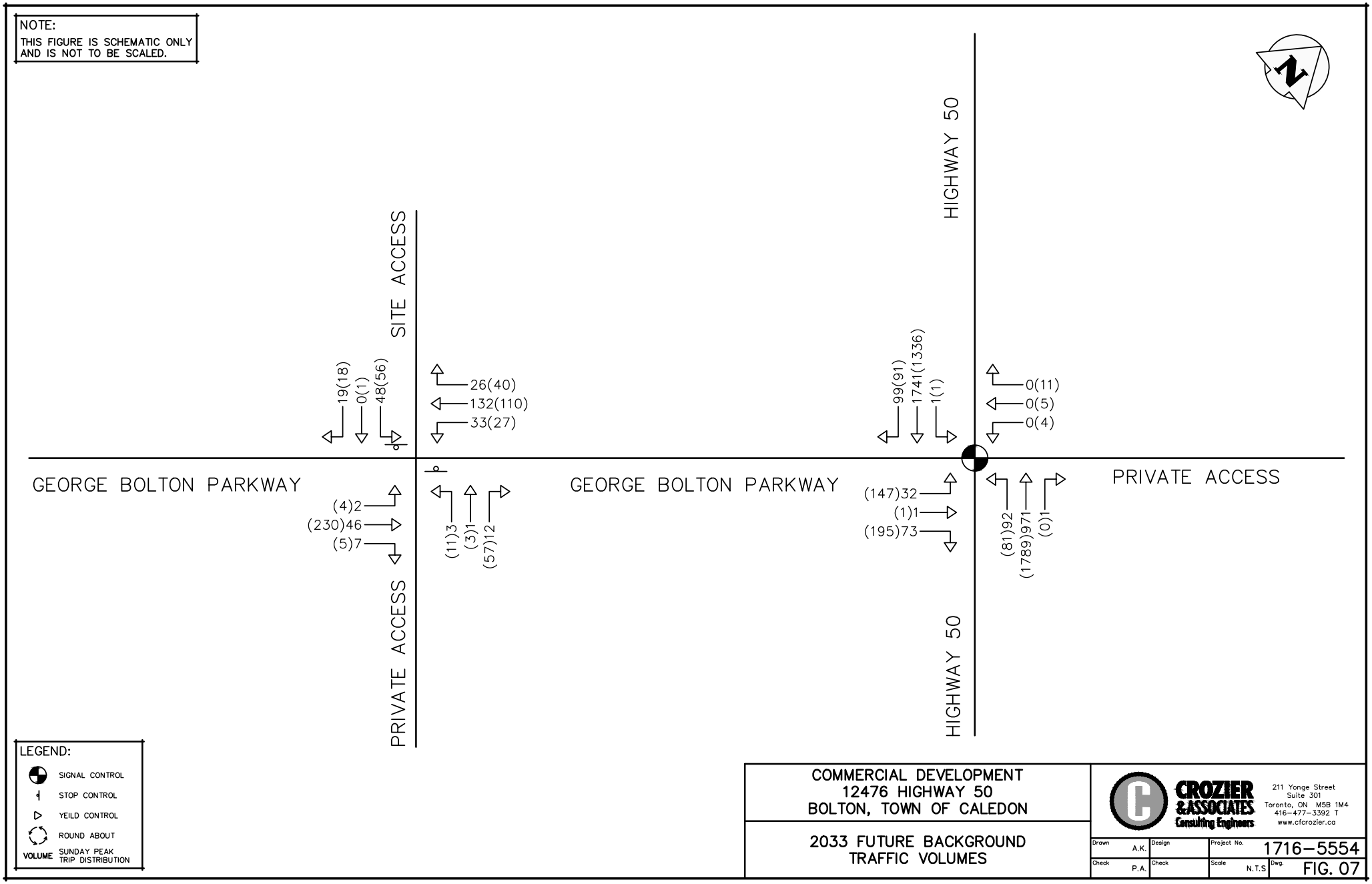
Drawn	Design	Project No.	
A.K.			1716-5554
Check	Check	Scale	Dwg.
P.A.		N.T.S	FIG. 06



COMMERCIAL DEVELOPMENT
12476 HIGHWAY 50
BOLTON, TOWN OF CALEDON

2033 FUTURE BACKGROUND
TRAFFIC VOLUMES

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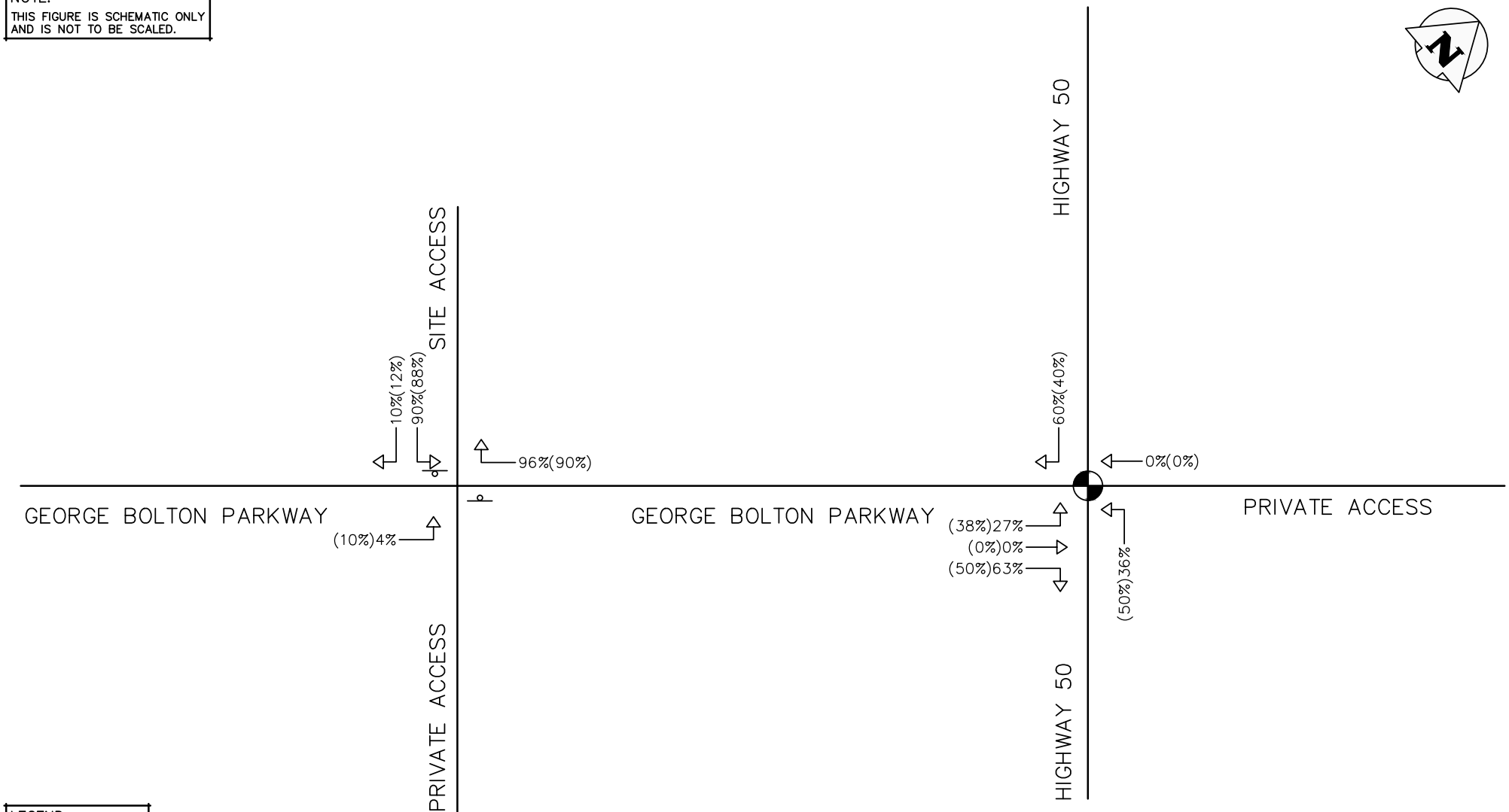
Drawn	Design	Project No.	
A.K.			1716-5554
Check	Check	Scale	Dwg.
P.A.		N.T.S	FIG. 07

NOTE:
THIS FIGURE IS SCHEMATIC ONLY AND IS NOT TO BE SCALED.



LEGEND:

- SIGNAL CONTROL
- STOP CONTROL
- YEILD CONTROL
- ROUND ABOUT
- VOLUME SUNDAY PEAK TRIP DISTRIBUTION

COMMERCIAL DEVELOPMENT
12476 HIGHWAY 50
BOLTON, TOWN OF CALEDON

NEW SITE GENERATED TRIP DISTRIBUTION

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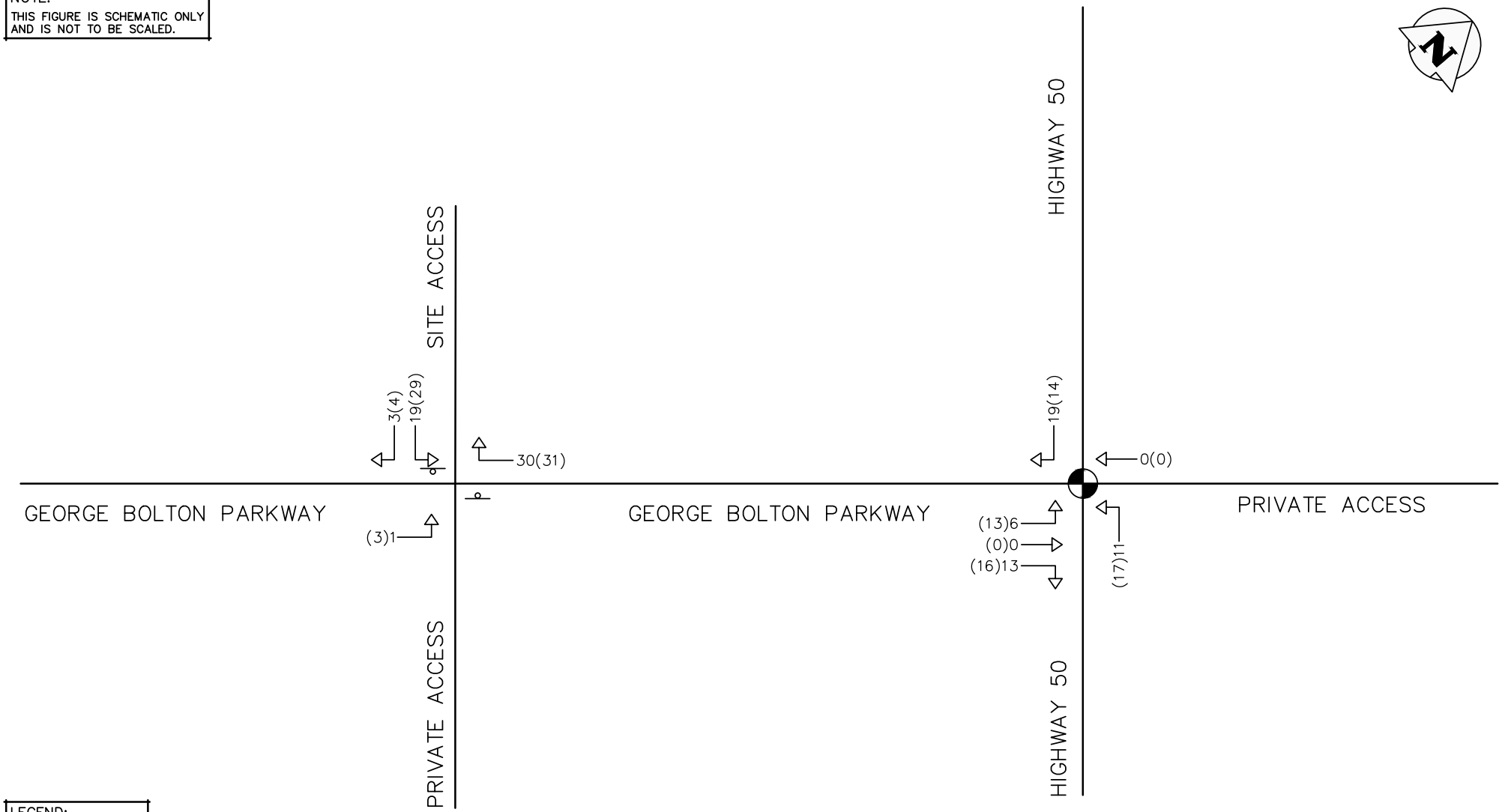
Drawn	Design	Project No.	
A.K.			1716-5554
Check	Check	Scale	Dwg.
P.A.		N.T.S	FIG. 08

NOTE:
THIS FIGURE IS SCHEMATIC ONLY AND IS NOT TO BE SCALED.



LEGEND:
- SIGNAL CONTROL
- STOP CONTROL
- YEILD CONTROL
- ROUND ABOUT
- VOLUME SUNDAY PEAK TRIP DISTRIBUTION

COMMERCIAL DEVELOPMENT
12476 HIGHWAY 50
BOLTON, TOWN OF CALEDON

NEW SITE GENERATED TRIP ASSIGNMENT

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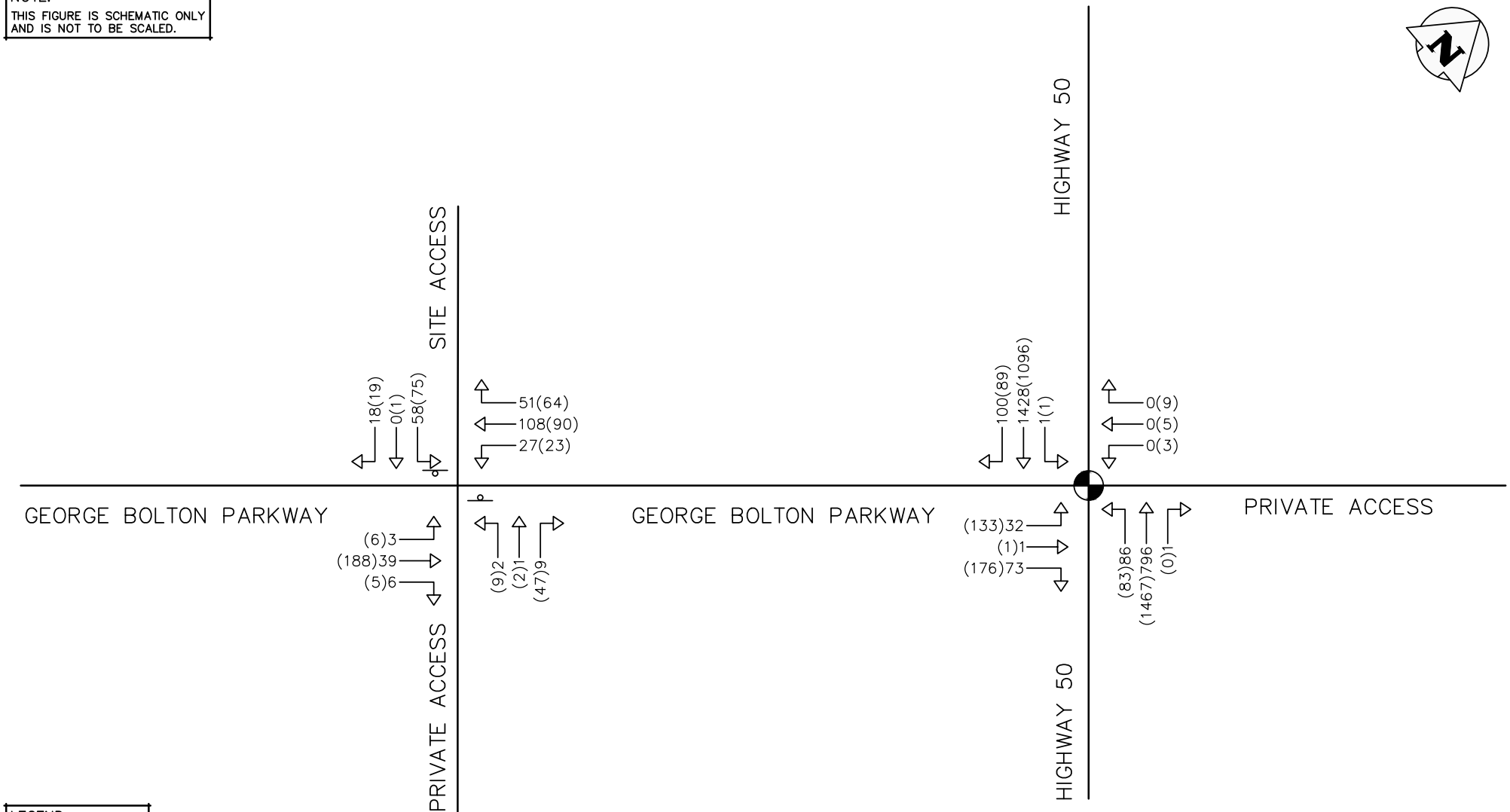
Drawn	Design	Project No.	
A.K.			1716-5554
Check	Check	Scale	Dwg.
P.A.		N.T.S	FIG. 09

NOTE:
THIS FIGURE IS SCHEMATIC ONLY AND IS NOT TO BE SCALED.



LEGEND:

- SIGNAL CONTROL
- STOP CONTROL
- YEILD CONTROL
- ROUND ABOUT
- VOLUME SUNDAY PEAK TRIP DISTRIBUTION

COMMERCIAL DEVELOPMENT
12476 HIGHWAY 50
BOLTON, TOWN OF CALEDON

2023 TOTAL TRAFFIC VOLUMES

CROZIER & ASSOCIATES Consulting Engineers
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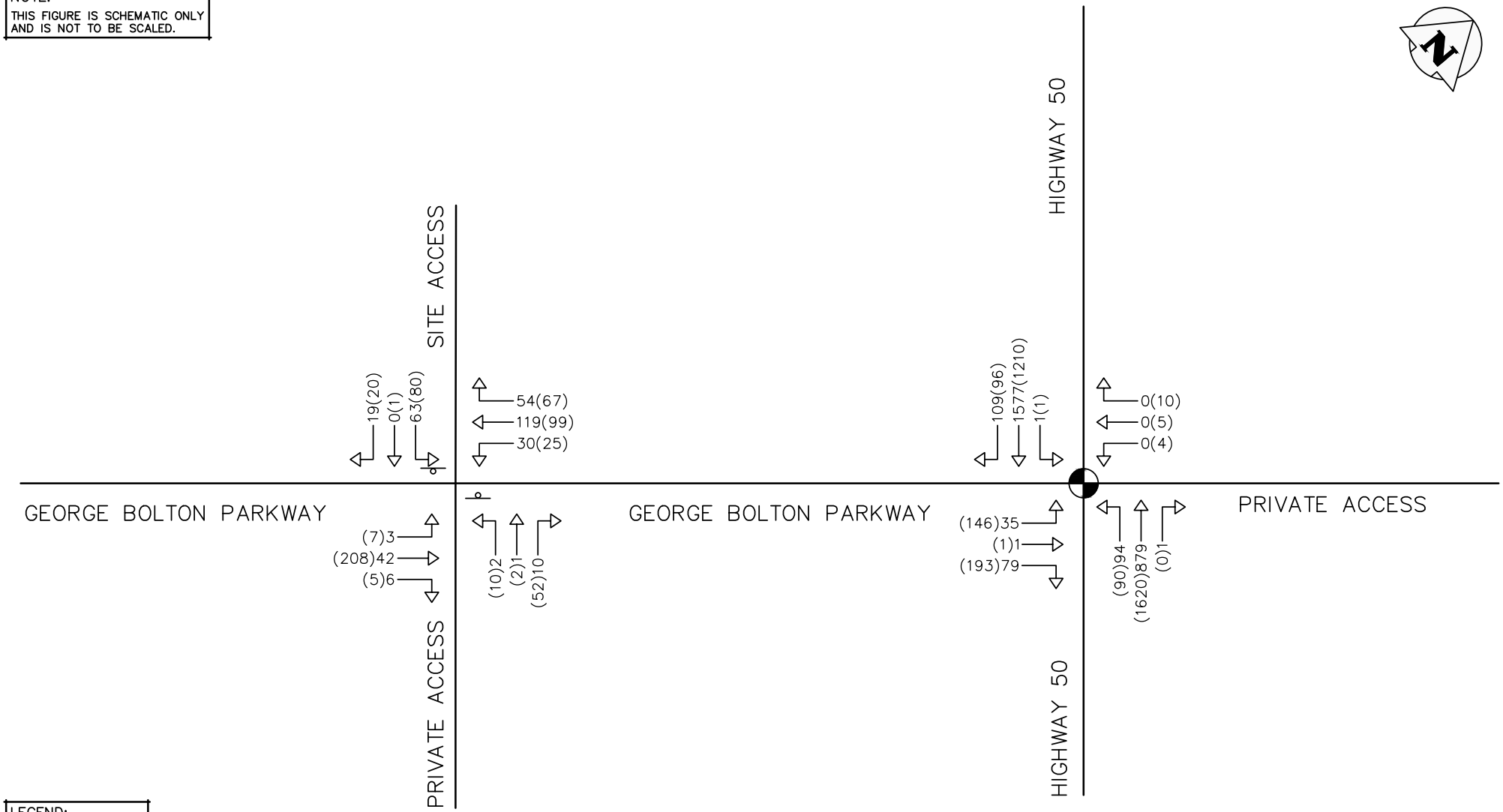
Drawn	Design	Project No.	
A.K.		1716-5554	
Check	Check	Scale	Dwg.
P.A.		N.T.S	FIG. 10

NOTE:
THIS FIGURE IS SCHEMATIC ONLY AND IS NOT TO BE SCALED.



LEGEND:

- SIGNAL CONTROL
- STOP CONTROL
- YEILD CONTROL
- ROUND ABOUT
- VOLUME SUNDAY PEAK TRIP DISTRIBUTION

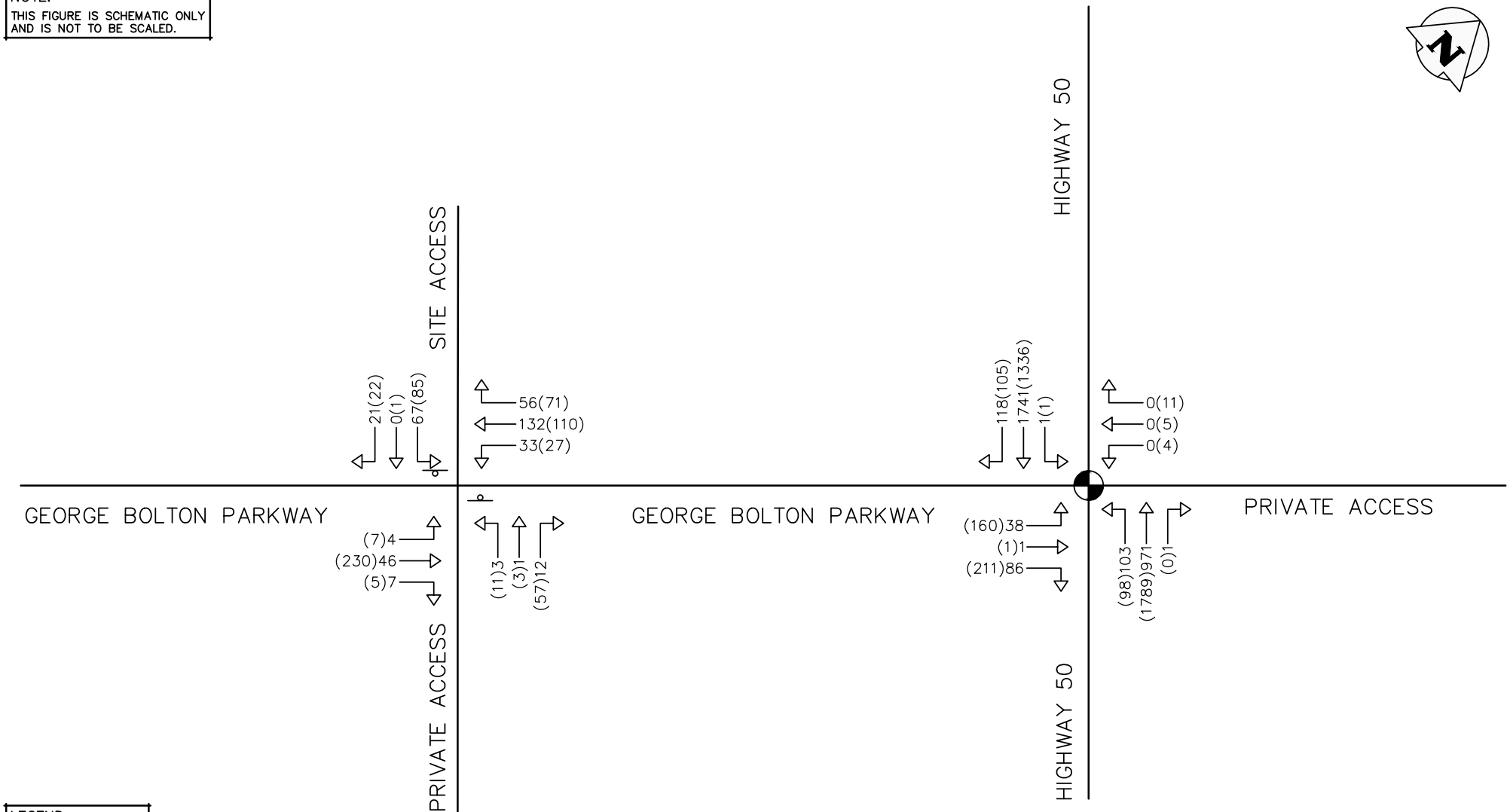
COMMERCIAL DEVELOPMENT
12476 HIGHWAY 50
BOLTON, TOWN OF CALEDON

2028 TOTAL TRAFFIC VOLUMES

CROZIER & ASSOCIATES Consulting Engineers
211 Yonge Street
Suite 301
Toronto, ON M5B 1M4
416-477-3392 T
www.cfcrozier.ca

Drawn	Design	Project No.	
A.K.		1716-5554	
Check	Check	Scale	Dwg.
P.A.		N.T.S	FIG. 10

NOTE:
THIS FIGURE IS SCHEMATIC ONLY AND IS NOT TO BE SCALED.



LEGEND:

- SIGNAL CONTROL
- STOP CONTROL
- YEILD CONTROL
- ROUND ABOUT
- VOLUME SUNDAY PEAK TRIP DISTRIBUTION

COMMERCIAL DEVELOPMENT
12476 HIGHWAY 50
BOLTON, TOWN OF CALEDON

2033 TOTAL TRAFFIC VOLUMES

CROZIER & ASSOCIATES Consulting Engineers
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Drawn	Design	Project No.	
A.K.		1716-5554	
Check	Check	Scale	Dwg.
P.A.		N.T.S	FIG. 12